

Electronically filed May 5, 2021

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
825 First Street, N.E.
Washington, D.C. 20426

**Subject: Cutler Hydroelectric Project (FERC Project No. 2420)
Filing of Initial Study Report Response to Comments**

Dear Secretary Bose:

Pursuant to the regulations of the Federal Energy Regulatory Commission (FERC) for the Integrated Licensing Process (ILP), 18 CFR Section 5.15(c), PacifiCorp hereby submits a response to comments received on the Initial Study Report (ISR) for PacifiCorp's Cutler Hydroelectric Project, FERC No. 2420 (Project), located on the Bear River in Cache and Box Elder counties in northeastern Utah.

The current license will expire on March 31, 2024. PacifiCorp filed a Pre-Application Document (PAD) and Notice of Intent (NOI) to seek a new license for the Project on March 29, 2019. PacifiCorp subsequently hosted public meetings, workshops, FERC's scoping meeting, and a site visit, to which federal and state agencies, non-government organizations, Native American tribes, and tribal organizations were invited. PacifiCorp submitted the Proposed Study Plan (PSP) on September 11, 2019. On September 13, 2019, FERC issued Scoping Document 2 (SD2). PacifiCorp filed the Revised Study Plan (RSP) on January 10, 2020, and FERC issued the Study Plan Determination (SPD) on February 7, 2020.

Following the first study season, the ISR was filed with FERC on February 8, 2021, in accordance with FERC's ILP regulations; the ISR describes PacifiCorp's overall progress in implementing the FERC-approved RSP/SPD and an explanation of variances, where necessary, from the RSP. Following the submittal of the ISR, PacifiCorp held a virtual ISR meeting on February 23, 2021. PacifiCorp then filed an ISR meeting summary with the FERC on March 8, 2021. Consistent with FERC guidance and regulations, interested parties were then provided 30 days to comment on the ISR and ISR meeting summary. This filing is PacifiCorp's response to those comments received.

Three comment letters were received pertaining to the ISR from the following organizations:

- Utah Rivers Council
- U.S. Fish and Wildlife Service
- Bridgerland Audubon Society

The Bridgerland Audubon Society (BAS) did not file their comment letter with FERC; however, PacifiCorp has included their comments in the accompanying response table (Attachment 1) and has provided responses similar to the other two comment letters. BAS's comment letter is also attached to this filing as Attachment 2.

PacifiCorp views the ISR as an opportunity to engage in a conversation with stakeholders. Based on communication with those stakeholders and the comments received, it is clear that some clarifications or supplementations to the ISR will foster a more complete understanding of the Project, its proposed future operations, and of the initial study results. Therefore, in addition to the comment response table (Attachment 1) and the BAS comment letter (Attachment 2), PacifiCorp is including the following attachments as part of this ISR comment response filing, and will add them to the appropriate sections of the Updated Study Report when it is filed later in 2021:

- Attachment 3 – Aerial Photos Representative of Cutler Reservoir Inundation Boundaries at Elevations *Lower* Than the Lowest Limit of Extended Range Operations
- Attachment 4 – Total Suspended Solids Charts
- Attachment 5 – Map of Water Quality Sampling Locations
- Attachment 6 – Photos of Cutler Reservoir Bed and Banks during the Fall 2019 Maximum Drawdown Conditions
- Attachment 7 – Velocity Maps
- Attachment 8 – Calibrated Cross Section Map

The letter has been filed electronically. If you have any questions concerning these documents, please contact PacifiCorp's Cutler Relicensing Manager Eve Davies at 801-220-2245.

Sincerely,

Mark Sturtevant

Mark Sturtevant (May 3, 2021 15:32 PDT)

Mark Sturtevant
Vice President, Renewable Resources

MS:ed:km

Encl:	Cover Letter	Public
	Attachment 1 – Initial Study Report Comment Response Table	Public
	Attachment 2 – Bridgerland Audubon Society Comments on the Initial Study Report	Public
	Attachment 3 – Aerial Photos Representative of Cutler Reservoir Inundation Boundaries at Elevations <i>Lower</i> Than the Lowest Limit of Extended Range Operations	Public
	Attachment 4 – Total Suspended Solids Load Charts	Public
	Attachment 5 – Map of Water Quality Sampling Locations	Public
	Attachment 6 – Photos of Cutler Reservoir Bed and Banks during the Fall 2019 Maximum Drawdown Conditions	Public
	Attachment 7 – Velocity Maps	Public
	Attachment 8 – Calibrated Cross Section Map	Public

eFile:	Kimberly D. Bose, Secretary via eLibrary at www.ferc.gov
E-mail:	FERC Acceptance Notice to Distribution List <u>with</u> e-mail address
E-mail:	cc to respondents BAS, URC, USFWS

Signature: Todd Olson
 Todd Olson (May 3, 2021 14:59 PDT)

Email: todd.olson@pacificcorp.com

ATTACHMENT 1

INITIAL STUDY REPORT COMMENT RESPONSE TABLE

Comment No.	Commenter/ Requester	Comment Letter Page	Study Report or Resource Area	Stakeholder Comment	PacifiCorp Response to Comment
1	Bridgerland Audubon Society	1	Fish & Aquatics; Wildlife	<p>We are concerned that the study and the presentation did not address issues we raised in our December 11, 2019 letter addressing the study plan. In that letter we wrote:</p> <p><i>The current FERC permit allows for up to 2.0 feet (1.5 ft + 0.5 ft tolerance) of reservoir fluctuation during the year. Because the mean depth of Cutler Reservoir is only 2.55 feet, fluctuations of even 1.5 feet desiccate approximately 60 percent of the bottom. Additional fluctuations being requested would have even larger impacts on the reservoir and could cause considerable harm to the fish community, the sport fishery, the benthic invertebrates, and the birds that are dependent on these food resources.</i></p> <p>Consequently, we request that PacifiCorp’s evaluation of increased reservoir drawdowns carefully evaluate how both the magnitude and the frequency of these fluctuations would influence the fish community and benthic invertebrates. In a review of reservoir fluctuations on aquatic communities, Szluha et al. (1979) emphasized “that efforts to develop small hydroelectric sites that entail water level fluctuation should include a careful analysis of the types of impacts described.”</p>	<p>The 2019 fall drawdown was a full drawdown at Cutler Dam and does not represent the conditions in the proposed normal and extended operations.</p> <p>Detailed analysis of the potential effects on the aquatic organisms from the proposed Project operations will take place in the Draft License Application (DLA).</p> <p>The survey data indicate an average depth of 3.2 feet in Cutler Reservoir, not 2.55 feet, which is skewed by the larger areal extent of the shallower portions of Cutler (the North and South Marshes), located upstream (south) of Benson Marina, in portions of the reservoir that are not possible to dewater (i.e., when the elevation at the dam is lowered by over 20 feet, the lowest elevation achievable at Benson is 2.8 feet lower than the normal high operating level of 4,407.5 feet). That is, the shallowest portions of the reservoir, located south of Benson Marina, are impossible to dewater at any level of reservoir drawdown, as noted again during the fall 2019 drawdown. Fluctuations in the proposed normal and extended operations would not result in 60% of the reservoir substrate exposed (see also photos in Attachment 3 of this Response to Comments). Field observations of the inundation boundaries during the fall 2019 drawdown indicate that there is little change in the reservoir varial zone between the proposed normal and extended operations; further, almost all of the reservoir bed remains inundated under conditions representative of the proposed extended operations lower limit at water surface elevation (WSE) 4,405.0 feet. Attachment 3 contains aerial images of Cutler Reservoir during the drawdown on October 28, 2019, from four recreation sites. These images illustrate that there was little change in wetted perimeter and areas inundated when Cutler Reservoir was drawn down to and below the lowest limit of the proposed extended range, WSE 4,405.0 feet (NGVD29) at Cutler Dam. Rather than the 60% postulated, there are no areas desiccated by the current reservoir operation range.</p> <p>Extended operations would only occur during the winter season for up to a maximum 55-day period. During this potential 55-day period, WSEs would fluctuate throughout the approved operating range (4,407.5 to 4,405.0 feet, higher than the elevations shown in Attachment 3 aerial photos) as noted in Section 1.3 of the Initial Study Report (ISR) and would not remain at 4,405.0 feet continuously.</p> <p>For comparison purposes, the inundation boundaries for the normal and extended operations were provided in Attachment ISR-1, Figures ISR-1-1 through ISR-1-7.</p>

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2	Bridgerland Audubon Society	1-2	Fish & Aquatics	<p>The stated goals of PacifiCorp’s Fish & Aquatic Initial Study were to: “determine the status of aquatic organisms and their habitat and characterize the benthic invertebrate and mollusk community within the Project Area; to evaluate the effects of the fall 2019 reservoir drawdown on the aquatic community; and to relate potential Project operational changes and the resultant effects on the aquatic community within the reservoir.”</p> <p>Although the study largely met the first goal of determining the status of the aquatic organisms, the study methodology did not allow managers to address the effects of the 2019 drawdown on the aquatic community, and more importantly to evaluate the effects of potential operational changes [increased drawdowns] on the benthic invertebrates and aquatic macrophytes in the reservoir.</p>	<p>The ISR was submitted in accordance with the Federal Energy Regulatory Commission’s (FERC) Integrated Licensing Process (ILP) regulations and describes PacifiCorp’s overall progress implementing the FERC-approved Revised Study Plan (RSP) and Study Plan Determination (SPD), including an explanation of variances, if any, from the SPD for each study plan. The ISR is not a final technical report but rather documents how the study was implemented and what data were collected in accordance with the FERC SPD.</p> <p>As noted in the ISR (page E-32), detailed analysis of the potential effects on the aquatic organisms from the proposed Project operations will be presented in the DLA.</p>
3	Bridgerland Audubon Society	2	Fish & Aquatics	<p>Reservoir drawdowns primarily effect aquatic benthic organisms by stranding them, desiccation, and freezing if the drawdown is done during cold seasons (Carmignani & Roy 2017), as is proposed for the new Cutler operations. Consequently, to determine if drawdowns influence benthic organisms one needs to measure densities and diversity before and after drawdowns in the desiccated (and frozen) areas. During the 2019 Cutler drawdown study benthic invertebrates were first sampled prior to drawdown in the shallow areas, but during the drawdown the sampled transects were moved to deeper water and no sampling was done in the desiccated area after the reservoir refilled. The study found that benthic invertebrates were somewhat higher in the areas sampled during the drawdown, but this could have either been because the organisms were always higher in the deeper water, or because invertebrates drifted from the desiccated areas to the deeper water as the reservoir was drawn down. We do not know which. Regardless, no effort was made to determine invertebrate densities in the desiccated (and likely frozen) shallow areas after the reservoir refilled. Indeed, “investigators took care to select sites that did not become dewatered during the drawdown.”</p>	<p>The study used the widely accepted Rapid Bioassessment Method as a means of determining species and density of Benthic Macroinvertebrate Index (BMI) in the permanently wetted zone of the reservoir. Only 1 of the transect 4 sample locations became dewatered during the full 2019 drawdown, and the other remaining 3 sites on transect 4 remained submerged—as did the 15 other sampling sites for respective transects (19 total sites). These transects were specifically selected so that the sampling sites would <i>not</i> be dewatered for comparison of pre-drawdown and full-drawdown conditions. That is, these specific transect site selections were made because current operations do not—and future proposed normal and extended operating ranges would not—expose large areas of reservoir bed (although some areas would be shallower at the lowest elevations), as compared to the much larger magnitude 2019 full-drawdown event.</p>
4	Bridgerland Audubon Society	2	Fish & Aquatics	<p>Given the results of other studies (e.g., Carmignani & Roy 2017, Rose & Mesa 2013, Szluha et al. 1979) it is highly likely that benthic invertebrates in Cutler are already influenced by hydroelectric drawdowns, and increased desiccation from the proposed operating parameters would exacerbate this problem. Although some invertebrate species might recover relatively quickly, others that are univoltine (1 generation/year) could be impacted throughout the year if they are killed by the proposed operational desiccations. The benthic invertebrates are a critical part of the food web that supports birds and sport fishes (Figure 1.; Armstrong and Wurtsbaugh, 2019; Budy et al., 2011; Budy et al., 2006). Drawdowns directly impact not only benthic invertebrates, but the submerged and emergent aquatic vegetation that many of the invertebrates and fishes depend on for cover (Carmignani & Roy 2017). The 2019 drawdown study in Cutler did not address this potential impact, but additional analyses should.</p>	<p>The ISR was submitted in accordance with FERC’s ILP regulations and describes PacifiCorp’s overall progress implementing the FERC-approved RSP and SPD, including an explanation of variances, if any, from the SPD for each study plan. The ISR documents how the study was implemented and what data were collected in accordance with the FERC SPD.</p> <p>As noted, detailed analysis of the potential effects on the aquatic organisms from the proposed Project operations will be presented in the DLA. However, it should be noted that proposed normal operations would occur within the current operational ranges, which have no desiccation areas; proposed extended operations would occur largely within current operational ranges, and the additional 0.5 to 1.0 foot of potential range is not expected to substantively change areas of potential desiccation (see also Attachment 3 photos).</p>

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5	Bridgerland Audubon Society	2	Fish & Aquatics	In our December 2019 letter we also requested for PacifiCorp to justify the removal of fish ‘spawning’ as a consideration for reservoir operations, since the majority of the sport and nongame species in the reservoir spawn during the April-June period that is currently protected. We renew that request here. Additionally, we request the exact period for which increased drawdowns are being requested —the current request is somewhat nebulous in this respect.	Extended operations would only occur during the winter season for up to a 55-day period. During this potential maximum 55-day period, WSEs would fluctuate throughout the approved operating range (4,407.5 to 4,405.0 feet) and would not remain at 4,405.0 feet for the duration of the 55 days (the proposed future operations are best described in Section 1.3 of the ISR; see also Figure 1-3 of the ISR). Contractual obligations for irrigation water delivery restrict PacifiCorp’s operations seasonally. The proposed operations for Cutler Reservoir maintain those obligations with the additional 1 foot of elevation change occurring outside the irrigation season in the late fall and winter when irrigation has ceased (the extended range also cannot be used during high flow periods, which occur starting in the early spring). In the fall and winter period, fish spawning does not occur; since there is no stranding potential with the proposed 1-foot elevation change, young-of-year fishes would also not be at risk.
6	Bridgerland Audubon Society	2-3	Fish & Aquatics	<p>It is clear that the studies done to date by PacifiCorp have not addressed their stated goal of “to relate potential Project operational changes and the resultant effects on the aquatic community within the reservoir.” Consequently, additional work is needed to address this oversight. We suggest four potential avenues of investigation:</p> <p>1. The published literature on reservoir drawdown effects on the biota needs to be thoroughly reviewed and the results related to the proposed operational changes for Cutler Reservoir.</p> <p>2. A second drawdown similar to that done in 2019 could be performed and the invertebrates and macrophytes in the desiccated zone could be resampled after filling. In addition to the bare sediments that were sampled in 2019, additional efforts should be done to quantitatively sample the invertebrates inhabiting the emergent vegetation on the periphery of the reservoir, as this habitat is particularly important for the larger crawling invertebrates (e.g., mayflies, dragonfly nymphs, caddisflies) that fish and some birds rely on as a food source.</p> <p>3. The existing authorized drawdowns in Cutler already desiccate sediments and likely impact benthic invertebrates and aquatic macrophytes in the reservoir. A careful study of the areas periodically desiccated compared to those that aren’t may help identify the magnitude of the problem.</p> <p>4. An experimental study might be possible in the three Logan Mitigation Ponds west of the county landfill that are operated by the city of Logan. If the city agreed, and if additional water resources could be obtained, it would be possible to perform a BACI analysis (Before-After-Control-Impact design; Green 1979). With this approach the ponds would need to be filled with water for approximately one year, invertebrate and aquatic macrophyte samples taken, and then 1-2 of the ponds would be partially drawn down during the appropriate season and for the proper length of time, refilled, and benthic invertebrates and macrophytes again sampled in the control pond and in the desiccated and non-desiccated portions of the treatment ponds. This is a powerful approach for looking at environmental impacts on organisms.</p>	<p>The 2019 fall drawdown was a full drawdown at Cutler Dam and does not represent conditions in the proposed normal and extended operations. Furthermore, as noted previously here and in the ISR, detailed analysis of the potential effects on the aquatic organisms from the proposed Project operations will be presented in the DLA.</p> <p>Section 1.3 in the Cutler ISR describes the proposed Project operations. As discussed previously, Project operations will not desiccate Cutler Reservoir. Therefore, the investigations suggested in this comment are not applicable.</p> <p>1) As noted above, detailed analysis of the potential effects on the aquatic organisms from the proposed Project operations will be presented in the DLA. The analysis will include references to literature applicable to the proposed Project operations at Cutler. Fluctuations in the proposed normal and extended operations would not result in 60% of the reservoir substrate exposed (especially as the shallower areas of the reservoir upstream of Benson Marina are not dewatered even when the reservoir is completely drained such as occurred during the 2019 full drawdown). Field comparisons of the inundation boundaries indicate there is little change in the reservoir varial zone between the proposed normal and extended operations.</p> <p>2) As noted above, the 2019 fall drawdown was a full drawdown at Cutler Dam and was not representative of the proposed normal and extended operations. PacifiCorp has no plans to schedule another full drawdown similar to the fall 2019 full drawdown.</p> <p>3) See responses 1 and 2 above.</p> <p>4) See responses 1 and 2 above; no additional studies are proposed.</p> <p>See also response to Comment 7 below.</p>

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7	Utah Rivers Council	1	Fish & Aquatics; Socioeconomics	<p>The URC and our members are seriously concerned with the impacts that newly proposed water diversions and dam operations will have on the Bear River and its aquatic ecosystems, as well as the socioeconomic impacts they will have on Utah ratepayers and taxpayers.</p> <p>The URC has a long history of working to protect river ecosystems in and around the project area, and we believe the proposed relicensing of the Cutler Project affects numerous stakeholders including the thousands of members of our organization, many of whom live in Box Elder and Cache Counties. These members are taxpayers, ratepayers, conservationists, fishermen, outfitters, guides, farmers, ranchers, and business leaders who have a vested interest in sustainable water management and the continued existence of aquatic ecosystems on the Bear River and Great Salt Lake.</p>	<p>PacifiCorp appreciates Utah Rivers Council (URC) comments on the ISR. URC staff participated in the FERC scoping and Pre-Application Document (PAD) stages of the Cutler relicensing but did not file comments on the proposed and revised study plans. PacifiCorp welcomes URC’s renewed engagement and hopes this letter will begin their consistent and ongoing engagement in the Cutler relicensing process moving forward.</p> <p>PacifiCorp has the following general comments on URC’s filing that will be referenced throughout this Response to Comments.</p> <p>1. Missed Opportunities for Engagement</p> <p>URC provided comments on FERC’s Scoping Document 1 (SD1) on July 29, 2019; however, to date, URC has not participated in any of the direct engagement opportunities offered by the relicensing team, including invitations to speak directly to PacifiCorp. Nor has URC taken advantage of the procedural opportunities afforded by the ILP during Study Plan Development (Code of Federal Regulations, Title 18, Sections 5.9 through 5.14).</p> <p>URC did not comment on the Proposed Study Plan (PSP, September 11, 2019); nor were comments provided on the RSP (January 10, 2020). URC’s filing on the ISR appears to be its first engagement since July 2019, and this URC filing replicates many of its SD1 comments, which both PacifiCorp and FERC addressed in multiple places—including PacifiCorp’s RSP and FERC’s Scoping Document 2 (SD2). Where these comments and requests have been previously responded to and adjudicated, PacifiCorp will not provide a technical response here.</p> <p>2. Procedural Issues with Study Requests or Requests for Analysis</p> <p>The RSP was developed in consultation with resource agencies, non-governmental organizations (NGOs) and members of the public. URC provided comments on July 29, 2019, on the PAD and FERC SD1. PacifiCorp appreciated the input from URC and incorporated the comments relevant to Cutler Project effects into the draft study plans. FERC reviewed and approved the study plans taking into consideration comments from stakeholders, including resource agencies, NGOs, and members of the public. URC did not participate further in development of the study plans through the PSP and RSP phases. The URC did not avail itself the dispute resolution process that FERC provides wherein the scope of the studies and analysis could have been adjudicated in a structured way.</p> <p>There is a process for requesting modifications to studies or new studies in the FERC regulations, which URC has not followed.</p>

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					<p>The process and criteria for requesting modifications or additions to the study program are outlined in Code of Federal Regulations, Title 18, Sections 5.15 (d) and (e). Briefly, in order to justify a modification of an approved study, URC should demonstrate that 1) approved studies were not conducted as provided for in the approved study plan, or 2) the study was conducted under anomalous environmental conditions or that environmental conditions have changed in a material way.</p> <p>To the extent that URC is asking for a new study or analysis, it should discuss 1) any changes in laws or regulations that are applicable to their request, 2) why the request was not made earlier given the ample opportunity for comment during the scoping phase of this project, or 3) what significant changes have been made to the Project proposal or significant new information material to study objectives has become available that justify the request for this expanded analysis?</p>
8	Utah Rivers Council	2	--	I. If the Cutler Dam relicensing is used in the Bear River Development municipal water project without a thorough analysis of the project’s cumulative impacts, then it is in direct violation of the National Environmental Policy Act (NEPA).	<p>The proposed operations of the Cutler Project have been described, most recently and most completely, in the ISR (Section 1.3). As PacifiCorp has stated in every public meeting held and document filed for the Cutler Relicensing Project, there has been (and continues to be) no connection to the unrelated non-Project development of the Bear River currently being studied by the State of Utah. Any change to PacifiCorp’s proposed Project operations following issuance of a new license would require a license amendment and subsequent National Environmental Policy Act (NEPA) analysis.</p>
9	Utah Rivers Council	2	Water	<p>The URC has been involved in Bear River management decisions since 1995 and has been working to study and implement inexpensive alternatives to the unnecessary and destructive Bear River Development Municipal Project. The Bear River Development Municipal Project is a \$2.9 billion proposed municipal water project to provide Wasatch Front municipal residents with additional lawn and garden water, far beyond the scope of this hydropower relicensing project. Although these residents are some of America’s most wasteful municipal water users and a variety of inexpensive and environmentally-sensitive alternatives to this development proposal exist, there are many entities actively ignoring these alternatives to benefit their own financial incentives. The Utah Division of Water Resources is eager to advance this development proposal regardless of its environmental impacts and the economic costs of the project. The extent of this massive impact in combination with the history of this Utah agency with FERC merits careful consideration by FERC.</p>	<p>See response to Comment 8 above; as noted repeatedly in public forums and previous responses, the Bear River Development Project (currently only in a study phase with no scheduled construction plans) is unrelated to the operation and relicensing of the Cutler Hydroelectric Project.</p>
10	Utah Rivers Council	2	Water; Cumulative Impacts	<p>Our organization was involved in 2017 when PacifiCorp announced their intention to raise the height of Cutler Reservoir and increase water storage in Bear Lake to divert Bear River water for municipal use to four northern Utah counties as a part of the proposed Bear River Municipal Development project. While PacifiCorp has since claimed in meetings that they no longer intend to raise Cutler Dam after witnessing the scope and depth of voracious opposition to the municipal use of Bear River water, we have still not seen this in writing. Should PacifiCorp use this relicensing procedure and the Cutler Reservoir as a facility for Bear River</p>	<p>PacifiCorp has never “announced their intention” to raise the height of Cutler Reservoir; rather, in 2017 to promote company values of clear transparency and communication with stakeholders, PacifiCorp announced the intent to analyze the potential to raise the level of Cutler Reservoir. Subsequently, after looking at the potential costs versus benefits to PacifiCorp customers and Cutler stakeholders, PacifiCorp has noted in every public presentation (including stakeholder involvement meetings on February 13, 2019; June 25, 2019; and October 8, 2019 [meeting records</p>

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				Development municipal use, it would attract opposition from around the Western Hemisphere. Particularly disconcerting, and frankly unlawful, would be a bait and switch tactic to relicense Cutler Reservoir and then change the use of the reservoir to allow for municipal use after the FERC proceeding is concluded.	available on PacifiCorp's Cutler webpage]) and in written submittals for Project relicensing (including the Cutler PAD, PSP, RSP, and ISR) that 1) the referenced analysis is complete, 2) the potential benefits to customers and stakeholders did not justify the additional costs, and 3) the proposal would not be pursued at this time. The potential to increase water storage in Bear Lake is being studied by the states of Utah and Idaho and is unrelated to the operation and relicensing of the Cutler Project. As noted above, any such change would require a FERC license amendment as well as a change in water rights, both of which entail public process and comments, including analysis under NEPA.
11	Utah Rivers Council	2	Water; Cumulative Impacts	We cannot discern whether Pacificorp’s recent retreat from the municipal use of Cutler Reservoir is genuine or not. We fear that this backtracking could simply be a strategy to evade compliance with federal laws, a practice we have seen attempted by some water development proponents inside Utah. Whether PacifiCorp’s retreat from this municipal purpose represents its intention to not use this facility for municipal water uses along the Wasatch Front is a critical aspect of this relicensing permit.	Use of Cutler for municipal water is <i>not</i> a “critical aspect of this relicensing.” There is no proposal to change the use or water rights associated with the Project. Any suggestion to the contrary must result from a less-than-critical reading of Project documents to date, and/or lack of knowledge of Utah water law surrounding water rights and uses. There is no “recent retreat” from a different proposal, as prior to the official beginning of the relicensing process (Project scoping) and including every communication since then, statements noting that no change in use would be pursued have specifically been made. PacifiCorp’s pursuit of transparency in announcing our intent prior to actual Project scoping and looking at alternative Project uses exemplifies company values and underlines how we do business.
12	Utah Rivers Council	2-3	Water; Cumulative Impacts	The Bear River Development Municipal Project entails storing 220,000 to 250,000 acre-feet of water for municipal use along the Wasatch Front through the construction of three dams and reservoirs and the construction of a 90-mile long pipeline south to municipal residents. The Bear River is the lifeline of the Great Salt Lake, providing 60-70% of the surface water inflows annually. Diverting 220-250,000 acre-feet of Bear River water away from the Great Salt Lake would lower the Lake several feet and dry up tens of thousands of acres of shoreline, wetlands, and mudflats.	As noted, the Bear River Development Project is unrelated to Cutler Project relicensing except in the fact that they both occur on the Bear River, and it is therefore expected that any relevant issues (although given the overall similarity of the proposed future Project operations to current Project operations, this is expected to be relatively minor) would be addressed in FERC’s cumulative impacts analysis in their eventual Environmental Assessment (EA) to meet the requirements of NEPA.
13	Utah Rivers Council	3	Water; Wildlife	The quantity and the timing of these inflows are crucial to the functions of the Great Salt Lake ecosystem, which supports the lifecycles of 8-10 million migratory birds and several industries that contribute \$1.3 billion to the Utah economy each year. These birds originate from every country in the Western Hemisphere with refuge managers from across South and Central America, and their representative governments, having a stake in the plight and survival of these bird species. Therefore, there are tens of millions of people who have serious concerns <i>about any proposed changes</i> to the operations of dams and reservoirs on the Bear River for the use of municipal water delivery. This includes the future use of Cutler Reservoir and its federal license for this purpose.	The proposed operation of the Cutler Hydroelectric Project is very similar to current operations. Impacts of the proposed operations will be assessed in the upcoming DLA and later by FERC in their EA.
14	Utah Rivers Council	3	Water; Cumulative Impacts	Given the management history of the Utah Division of Water Resources and its published state audits of manufacturing nonexistent data, hiding available water supplies and misrepresenting the project purpose of its proposals for new licenses awarded by FERC, we wish to alert the staff and commissioners of FERC as to the scope of problems such a relicensing process could portend.	Comment is unrelated to the relicensing of the Cutler Project.

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15	Utah Rivers Council	3	Water; Cumulative Impacts	Cutler Reservoir is generating hydroelectricity for use by Rocky Mountain Power and is not being used as a storage facility for Bear River Municipal Development. The Utah Division of Water Resources seeks to have Bear River Municipal Development approved as quickly as they can without letting the public know of its effort to segment the National Environmental Policy Act. The Division has recently prepared a model to use another Bear River storage facility for municipal use, without letting the Utah public know that the purpose of this new model is to facilitate Bear River Development Municipal Project. When asked by a reporter whether its proposed water right application for the storage facility and modeling was for the purpose of municipal use, Division leaders rejected the idea publicly as just a mere operating strategy for the Bear River itself. But subsequent confirmation of the municipal purpose of this model and the Division’s water right application has determined it is undeniably for municipal use.	URC correctly notes that Cutler is not being used as a storage facility for Bear River Development; in fact, there is very little storage in Cutler Reservoir. Comment is unrelated to the relicensing of the Cutler Project.
16	Utah Rivers Council	3-4	Water; Cumulative Impacts	The Utah Division of Water Resources actively oppose inexpensive alternatives to their own water development proposals, as they have in the past with FERC. We are referring to the Division’s recent history with FERC via the licensing process for the proposed Lake Powell Pipeline (LPP). In 2008, the Division approached FERC to begin the licensing process for the LPP under the guise of generating hydroelectricity and needing a federal license for this purpose. However, the exorbitant cost of the LPP led the agency to remove hydroelectric generating facilities from the design plans. The Division openly discussed the removal of hydropower with project partners in writing and to the public to deflect criticism about the massive project cost for the LPP. Yet, the Division failed to notify FERC that their plans for the LPP no longer included hydropower, which would have disqualified it from FERC’s jurisdiction. Once the abandonment of hydropower generation was brought to FERC’s attention via public comments, FERC rightly discontinued the license process for the LPP.	Comment is unrelated to the relicensing of the Cutler Project.
17	Utah Rivers Council	4	Water; Cumulative Impacts	FERC should not permit any expansion or use of Cutler Reservoir for the proposed Bear River Municipal Project absent a comprehensive NEPA process. The use of Cutler Reservoir and its relicensing process for the purpose of facilitating Bear River Municipal Development and the potential use of municipal water from the Bear River for the populous Wasatch Front has not been addressed in this licensing process. Any future reservoir management aspect of Cutler Reservoir for use as a storage facility of Bear River Municipal Development in the future, absent a thorough public disclosure and review process during this relicensing process, would constitute an egregious violation of the National Environmental Policy Act (NEPA).	There is no proposal to expand Cutler Reservoir for Bear River Development or for any other use; as noted above, any such proposal would require license amendment and water rights analysis. Because no such proposal exists, this and similar comments are unrelated to Cutler relicensing.
18	Utah Rivers Council	4	Water; Cumulative Impacts	The regulations implementing NEPA define “connected actions” as those that “are closely related and therefore should be discussed in the same impact statement.” ¹ Actions are connected if they “[a]re interdependent parts of a larger action and depend on the larger action for their justification.” ² Further, “[p]roposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement.” ³ An agency must consider all “connected actions” in a single EIS. ⁴ The “purpose of this requirement is to prevent an agency from dividing a project into multiple actions, each of which individually has an insignificant environmental impact, but which collectively have a	Comment is unrelated to Cutler relicensing.

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				substantial impact.” ⁵ The Tenth Circuit utilizes an “independent utility test in which it concludes that projects that have independent utility are not connected actions under 40 C.F.R. § 1508.25(a)(1)(iii).” ⁶ Where projects are interdependent, they must be reviewed together. ⁷ The Ninth Circuit has required the Forest Service to prepare a single EIS for multiple post-fire timber sales that were planned in response to the same fire and located in the same watershed. ⁸	
19	Utah Rivers Council	5	Water; Cumulative Impacts	If the relicensing of the Cutler Dam were to play a role in the Bear River Development, then it would need to be the subject of an extensive environmental review in accordance with the NEPA regulations regarding cumulative impacts and segmentation. The Cutler Dam was constructed in 1927, long before the Bear River Development Act was passed in 1991. If the purpose of the dam is now going to be altered to further the Bear River Development, then it must undergo a more thorough environmental review than what is required by FERC’s typical relicensing procedures.	See previous responses above; there is no proposal to change the purpose of the dam (which includes providing irrigation water and hydroelectric power generation).
20	Utah Rivers Council	5	Water; Socioeconomics; Cumulative Impacts	Using Cutler Reservoir as a Bear River Development Municipal Project is disconcerting to tens of millions of Americans including farmers and ranchers, hunters, anglers, birders, taxpayers and ratepayers of Utah alongside Native American Tribes and bird refuge managers from across the Western Hemisphere.	See previous responses; since relicensing began in 2019, there is not now nor has there ever been a proposed Project operation change that would encompass the concerned use.
21	Utah Rivers Council	5	--	II. FERC should require a modification to initial studies to consider the impacts of the relicensing proposal further downstream on the Bear River.	<p>In SD2, FERC determined the geographic scope for analyzing the cumulative effects for individual resource issues. The cumulative effects will be analyzed in the DLA and FERC’s EA.</p> <p>The study area for each study was defined in the RSP based on an understanding of the potential direct and indirect effects for respective resource areas. The defined study areas in the respective study plans were approved in the FERC SPD on February 7, 2020.</p> <p>Please also see response to Comment 7.</p>
22	Utah Rivers Council	5	Several ISR resources	The scope of the initial studies for the Cutler project should not just include the area in and around Cutler Reservoir, they should account for the Bear River downstream and the Great Salt Lake. The Hydraulic Model Study Area in the ISRMS only covers 1.5 miles of the Bear River downstream from the Cutler Dam, and the Fish and Aquatic and Water Quality Studies only cover two miles of the Bear River downstream from the Cutler Dam (39). The Water Quality, Sedimentation, Shoreline Habitat Characterization, Land Use, Recreation Resources, Threatened and Endangered Species, and Cultural Resources Studies only focus on the geographical area in or directly adjacent to the Cutler Reservoir. All of these studies neglect to mention impacts further downstream on the Bear River in areas that would likely be impacted by the relicensing of the Cutler Dam.	<p>Also see response to Comment 7.</p> <p>The geographic scope for respective resource areas was established in FERC’s SD2 issued September 13, 2019. Study plans were developed accordingly. The study area for each study was defined in the RSP based on an understanding of the potential direct and indirect effects for respective resource areas. FERC issued an SPD approving the defined study areas for the respective study plans on February 7, 2020. Detailed analysis of the direct, indirect, and cumulative effects will be included in the DLA/FERC’s EA for the geographic scope specified in each approved study plan.</p> <p>Also note that as stated in the ISR and above in response to Comment 4, the ISR was submitted in accordance with FERC’s ILP regulations and describes PacifiCorp’s overall progress implementing the FERC-approved RSP and SPD, including an explanation of variances, if any, from the SPD for each study plan. The ISR documents how the study was implemented</p>

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					and what data were collected in accordance with the FERC SPD (the study results). The ISR, in most cases, does <i>not</i> include detailed analysis of the study results; that analysis will be presented in the DLA.
23	Utah Rivers Council	5	Geology & Soils; Sediment ISR	The preliminary studies should consider impacts on the full reach of the river down to the Bear River Bird Refuge, rather than just 1.5-2 miles downstream. Considering what was said at the site visit in 2019 about the possibility of dredging or flushing large quantities of sediment downstream by removing Wheelon dam currently inundated under the reservoir, the possible impacts of the sediment could reach much further downstream than two miles. This could have implications not only for the Bear River Canal Company, who already has to manually remove large amounts of sediment from their canals, but for the management objectives of the Bear River Migratory Bird Refuge, where the Bear River enters the Great Salt Lake.	Please also refer to response to Comments 7, 21, and 22. Wheelon Dam removal was considered as part of the Sediment Study (ISR Appendix H, Section 2.0), but hydraulic modeling determined it would not provide a benefit for future Project operations yet would result in substantive costs. As a result, and as stated in the ISR and in the materials related to the ISR public meeting, removal of Wheelon Dam has been eliminated from further consideration and does not require further analysis. Similarly, mechanical dredging (while leaving Wheelon in place) was determined to not provide benefits to future Project operations.
24	Utah Rivers Council	5	Several ISR resources	The scope of the initial studies should include not only the entire reach of the Bear River below Cutler Dam, but the Great Salt Lake as well. These studies should include any impacts to the managed wetlands, mudflats and other habitat at the Bear River Migratory Bird Refuge, some of which have shallow depths and could be impacted by significant amounts of sediment moving downstream and settling in the Refuge’s canals and ponds.	Please refer to response to Comments 7, 21, and 22.
25	Utah Rivers Council	5-6	Several ISR resources	This may seem like a substantial request to make of PacifiCorp, but the ecological, cultural, and economic significance of the Bear River and Great Salt Lake ecosystems warrants and requires this level of thoroughness. We are requesting that FERC require an expansion of the geographical areas analyzed in the aforementioned studies in order to include the Bear River downstream of the Cutler Dam and the Great Salt Lake. As it stands, the ISRMS does not adequately address the cumulative impacts of the Cutler Dam relicensing.	Please refer to response to Comments 7, 21, and 22. Also note that because the ISR, by design, contains no analysis of cumulative impacts, a summary of the ISR meeting (referred to throughout URC’s comments as the ISRMS) also would not contain a cumulative impacts analysis. Future documents will assess cumulative impacts of the collectively proposed new operations and mitigation measures.
26	Utah Rivers Council	6	--	III. FERC should require a study on the environmental effects of the Wheelon Dam removal or require written confirmation that this project will not be pursued.	Please refer to response to Comment 23; as previously noted, written confirmation was included in both the ISR and ISR public meeting materials.
27	Utah Rivers Council	6	Geology & Soils; Sediment ISR	The ISRMS’s Sediment Study did not meet all of its approved goals. The “Sediment Study Goals” section explicitly states that one of the goals of the study is to: “Address practicality and environmental effects of dredging and removal of Wheelon Dam as a sediment management measure.” (Pg. 96, emphasis added) The study, as described in the ISRMS, does not fulfill this goal. While it does mention that Wheelon Dam affects sediment distribution in the reservoir, it does not address the environmental effects of removing this dam. The summary for the Sediment Study gives no indication that the environmental effects of the Wheelon Dam removal have been addressed, which warrants a modification to this study, or an entirely new study on the Wheelon Dam removal.	As stated in the response to Comments 23 and 26, Wheelon Dam removal and dredging are no longer under consideration as part of the proposed operating condition and will not be addressed further (ISR Section 1.3 and Appendix H). For the record, the study goals and objectives outlined in Section 3.4.2 of the RSP and approved by FERC in the February 7, 2020 SPD do not state that one of the goals of the study is to, “Address practicality and environmental effects of dredging and removal of Wheelon Dam as a sediment management measure” and do not indicate that analyzing the effects of dredging and the removal of Wheelon Dam are goals for this study. Section 3.4.1 of the RSP does indicate that, “The study will also address the practicability of dredging as a sediment management measure and assess its potential environmental effects”; however, this was a part of the Project Nexus and Rationale and was not a specific goal for the study.

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					As these were never goals for this study, a modification to the current study or a new study are not warranted.
28	Utah Rivers Council	6	Geology & Soils; Sediment ISR	The Wheelon Dam was inundated when the Cutler Dam was constructed, and there have been discussions of removing the submerged dam in order to address sediment distribution. This proposal is troubling because of the potential that exists for harmful sediment to be washed downstream through agricultural lands, the Bear River Migratory Bird Refuge, and the Great Salt Lake during the removal process. Removal of the Wheelon Dam could release sediment downstream and create an ecological disaster.	Please refer to response to Comments 23, 26, and 27. See also ISR Section 1.3 and Appendix H.
29	Utah Rivers Council	6	Geology & Soils; Sediment ISR	A project of this magnitude and risk should be the subject of a rigorous environmental analysis, which did not occur in this Sediment Study, despite it being one of the study’s objectives. If PacifiCorp does not wish to fulfill this objective and address the dire environmental hazards of removing the Wheelon Dam, then they should be required to provide official documentation that confirms that they will not pursue this project during this relicensing process.	Please refer to response to Comments 23, 26, and 27. See also ISR Section 1.3 and Appendix H for documentation that this project was evaluated and will not be a part of relicensing.
30	Utah Rivers Council	6	--	IV. FERC should complete a study that considers climate change’s impacts on Bear River flow reductions and hydropower generation.	<p>URC appears to be directing this request for a study on climate change and associated impacts on Bear River flow reductions to FERC and not to PacifiCorp.</p> <p>In SD2, FERC responded previously to the URC’s comments on SD1 as follows: <i>“We are unaware of any climate change models for stream flows that are able to predict to any degree of accuracy and reliability the specific resource effects sufficient to serve as the basis for informing license conditions. It is common practice for the Commission to evaluate a range of flow release alternatives that take into consideration both high and low water years and to condition any license that may be issued to adaptively manage for these variations in water years. Similar to other hydroelectric licensing cases, the effects of the projects on environmental resources in the projects’ area can be effectively studied and evaluated using conventional hydrologic studies and monitoring techniques to address any potential effects of climate change on the projects and the environmental resources of the Bear River. However, if a Bear River model were to become available to the Commission and was proven to accurately and reliably predict specific resource effects sufficient to serve as the basis for informing license conditions, we may consider using the model when evaluating the cumulative effect of climate-induced changes may have on the flow regime of the Bear River; and therefore, on the Cutler Project.”</i></p> <p>FERC’s SD2 is consistent with previous responses to this sort of request (see FERC February 23, 2009, SPD for the Yuba-Bear, Drum-Spaulding, and Rollins projects).</p> <p>Hydroelectric facilities can play a potentially significant role in addressing climate change. Not only do they produce zero-carbon emissions electricity, hydroelectric projects are fully dispatchable, generally meaning</p>

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					that they can help integrate variable energy resources, such as wind and solar.
31	Utah Rivers Council	6	Water; Cumulative Impacts/Climate Change	In order to truly understand whether the Cutler Project will be a viable source of hydropower production deserving of a new 30-year license, FERC must require a study that examines whether there will be adequate flows in the Bear River, and therefore adequate water storage in Cutler Reservoir, in light of climate change impacts.	Please refer to response to Comments 7 and 30. Also note that hydroelectric generation at Cutler does not require Cutler storage (it is by most measures an inflow-dependent/run-of-river project); only minor changes to potential timing (hours), but not amounts, of water moving through and downstream of the Project are possible as a result of proposed Project operations.
32	Utah Rivers Council	7	Water; Cumulative Impacts/Climate Change	Northern Utah has already experienced rising air temperatures as a function of climate change. Increasing air temperatures will result in more rain and less snow in the Bear River watershed. This, in turn, threatens Bear River snowpack, which will have significant impacts on Bear River water users, including PacifiCorp. Climate models indicate there may be a 5-15% increase in precipitation levels in Northern Utah, but rising temperatures mean this will occur more frequently as rain—leading to less snow accumulation and an earlier snowmelt. This is projected to cause up to a 50% decline in runoff in the Bear River Basin. ⁹ Additionally, snowpack is instrumental in holding water and preventing loss through runoff, less total snow and earlier snow melting could lead to more frequent droughts and shortages. Before the Cutler Hydroelectric Project is relicensed, a study should be conducted to address how water shortages could affect the project’s function.	Please refer to response to Comments 7 and 30.
33	Utah Rivers Council	7	Cumulative Impacts/Climate Change	Additionally, while PacifiCorp repeatedly states in the application documents and on their website that Cutler produces clean, emission-free energy, this is not an accurate statement. Reservoirs like Cutler trap large amounts of sediment and organic matter behind them. Tiny organisms in the sediment eat decaying algae, which is converted to methane. Methane is a more powerful greenhouse gas than carbon dioxide and contributes to rising air temperatures and climate change. According to a 2016 study, hydropower dams emit about a billion metric tons of methane into the atmosphere every year. Methane can contribute three-times as much to global warming as carbon dioxide. Reservoirs like Cutler, which receive higher levels of nitrogen or phosphate as a result of agricultural practices upstream, produce even more methane. FERC should require an independent study of methane emissions from Cutler and make it clear that the Cutler Project is not considered an “emission free” power source.	Analysis of direct, indirect (such as potential methane production occurring in reservoir and naturally occurring organic-containing sediments), and cumulative effects will be presented in the DLA/FERC EA, not the ISR; see also response to Comments 4 and 22. Regarding the climate change aspect of methane, also see response to Comments 7, 30, and 31.
34	Utah Rivers Council	7	--	V. FERC should conduct a thorough, independent analysis of the socioeconomic impacts of the Project.	In SD2, FERC responded to a nearly identical comment from URC requesting socioeconomic analysis: <i>“While we find that conducting a socioeconomic analysis of Rocky Mountain Power’s entire service area (which includes most of Utah, and portions of Wyoming and Idaho) to be excessive, we have added section 4.2.8, Socioeconomic Resources, to SD2 and the environmental analysis will include a socioeconomic impact analysis of the project’s effect on communities in the project’s vicinity. This change is also reflected in the proposed EA Outline included in section 7.0.”</i>

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					<p>Accordingly, FERC SD2 included a preliminary list of environmental issues to be addressed in the EA. Section 4.2.8 in SD2 specifies “<i>Socioeconomic Resources: Effects of continued project operations on the socioeconomics of the communities in the project’s vicinity.</i>”</p> <p>The objective of the ISR (see also responses to Comments 4, 22, and 33) is to show progress on the studies and clarify any variance from the SPD; analysis of effects, per FERC regulation, is presented in the DLA/FERC EA. The intent of the PacifiCorp RSP and resultant FERC SPD is to cover studies that would be required to address information gaps that may occur, and which would prevent adequate analysis if they persisted. There is no gap that needs to be addressed regarding potential socioeconomic effects of the Cutler Project; therefore, no separate study is required to ultimately generate an appropriate socioeconomic analysis in the DLA and in FERC’s subsequent analysis.</p>
35	Utah Rivers Council	7	Socioeconomics	Many things can change over the course of a new 30-year hydropower license. Primarily agricultural economies can become largely urbanized. Extractive industries that dominate a local economy can be replaced by recreation-based economies, tech industries, and other businesses. Communities can decide to prioritize different energy sources, different land uses, and different water resource needs. To assume that the communities that depend on Cutler and their respective economies will remain the same for the next 30 years is not realistic, especially considering climate change and other factors that will have a cascade of impacts.	The length of the license term can range from 30 to 50 years and is determined by FERC, although the default term of licenses is now 40 years. FERC makes a determination on a license term in consideration of mitigation and capital improvements to the Project, but also in considering opportunities for aligning the license with other activities in the basin. FERC will make this determination at the conclusion of the EA. No assumptions regarding the static condition of various resources have been made; in fact, cumulative impacts analyses are specifically designed to address potential foreseeable future changes to specific resources.
36	Utah Rivers Council	7-8	Socioeconomics	There are several possible issues related to the proposed action that should be studied by FERC to determine the socioeconomic impacts of the project. These include, but are not limited to, the cost of the power generated by the Cutler Project to consumers and the financial feasibility of the Cutler Project over the next 30 years as other, cheaper sources of clean energy continue to occupy a larger share of the market.	Please see response to Comment 34.
37	Utah Rivers Council	8	Socioeconomics	No proposed study of socioeconomic impacts of the project was listed in the Scoping Documents for the Cutler Relicensing, and we filed comments that requested an analysis in our comments on those documents. Despite this, there is no mention of socioeconomic impacts in the ISRMS. This is surprising to our organization, as FERC has asked applicants for an analysis of socioeconomic impacts for other license applications in Utah, namely the Lake Powell Pipeline, P-12966. Therefore, we ask that FERC require a thorough, independent analysis of the socioeconomic impacts of a new 30-year license for the Cutler Project and what it would mean for local communities as well as power users across Rocky Mountain Power’s service area.	Please see response to Comment 34. The analysis noted would not be presented in either the ISR or a summary of the ISR meeting; analysis of socioeconomics and other resources will be presented in the DLA.
38	Utah Rivers Council	8	--	VI. FERC should consider alternatives to issuing a new 30-year license for the Project	FERC SD2 includes a proposed outline for the Cutler Project EA document. Section 4 in the proposed EA outline titled “Development Analysis” will include an analysis of the power and economic benefits of the Project as well as a comparison of alternatives.

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39	Utah Rivers Council	8	Alternatives	FERC should require studies on alternatives to the Cutler Reservoir relicensing that would enhance the environmental protection, mitigation, and function of Cutler Reservoir and the Bear River system below the dam.	In SD2, FERC states, <i>“Commission staff will consider and assess all alternative recommendations for operational or facility modifications, as well as protection, mitigation, and enhancement (PM&E) measures identified by the Commission, the agencies, Indian tribes, NGOs, and the public.”</i>
40	Utah Rivers Council	8	Alternatives	Considering the significant cost of dredging and other likely measures to be taken to prolong the usefulness of Cutler Dam for hydropower operations, PacifiCorp should consider these costs alongside the likely market price of this power over the next 30 years, as compared to wind, solar and other power sources that are becoming more and more popular with Utah residents. PacifiCorp should analyze the viability of replacing the power generated by the Cutler Project with a truly “emission free” alternative power source like solar generation. Considering that Utah has the potential to generate 200% of its current energy portfolio with solar alone, it seems likely that RMP will be adding more solar power generation to its Utah portfolio.	As noted previously in this Response to Comments as well as in the ISR itself, dredging is not a likely measure to be taken. Both PacifiCorp and FERC conduct financial analyses regarding potential Project PM&E measures; these will be presented in the DLA/Final License Application (FLA) and FERC’s EA. Also see response to Comments 33, 34, 38, and 39.
41	Utah Rivers Council	8	Alternatives	Additionally, the primary function of Cutler Dam is for supplying irrigation water to farmers and ranchers in Cache and Box Elder Counties, it is not necessarily to generate hydropower. Without hydropower generation, Cutler Dam could still provide water to the irrigators that rely on water storage in Cutler Reservoir.	Cutler Dam was built specifically to both provide irrigation water and generate hydroelectric power. Cutler supplanted the earlier and lower-height Wheelon Dam, which also provided both functions, but Cutler was specifically constructed to improve both these functions. Although it would technically be possible to operate Cutler solely to provide irrigation power, the costs to decommission a fully functioning renewable source of generation that specifically functions to back other variable renewable generation (such as solar), would, perversely, limit PacifiCorp’s ability to provide additional variable generation sources without utilizing other non-renewable generation sources to back the variable renewable sources. Also see response to Comments 38 and 39.
42	Utah Rivers Council	8	Alternatives; Water; Wetlands; Recreation; Fish & Aquatics	Decommissioning, for example, could allow the dam to be operated differently in order to change the flow regime and more closely mimic the natural, pre-Cutler Dam, hydrological cycle. If decommissioning is out of the question, then the dam could still be operated in a way that would provide the maximum benefit to the riparian habitat and wetlands in and around the project area. For example, fluctuations in flow volume can be beneficial for riparian areas and fisheries because it flushes nutrients downstream. The dam could also be operated to enhance recreation opportunities on the Bear River and to create habitat valued by sportsmen and birders at the Bear River Migratory Bird Refuge, and even irrigators downstream of Cutler dam.	<p>In SD2, FERC responded to a nearly identical comment from URC requesting decommissioning analysis: <i>“Decommissioning of the Cutler Project would require denying the license application and surrender or termination of the existing licenses with appropriate conditions. There would likely be significant costs involved with decommissioning of the project and/or removing any projects’ facilities. The project provides a viable, safe, and clean renewable source of power to the region. With decommissioning, the project would no longer be authorized to generate power. Therefore, until we fully understand the potential effects of the proposed projects on the environment, we do not consider decommissioning to be a reasonable alternative for the Cutler Project. We have, however, deleted section 3.5.3 Project Decommissioning from SD2 as an alternative considered but eliminated from detailed study in section 3.5 and modified section 7.0 Proposed EA Outline, accordingly.”</i></p> <p>SD2 notes that the analysis would be presented in the application (as noted previously, the place for that analysis is not in the ISR). Also note that decommissioning the Project would eliminate any requirement to operate the Project to benefit any of the resources listed in this comment (i.e., these resource benefits stem from operation under the Federal</p>

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					Power Act [FPA]). If this Project solely provided irrigation water, there would be no inherent requirements to benefit any non-power resources, as required by the FPA, let alone to provide the “maximum benefit” noted.
43			Cultural/Tribal	It should also be considered how dam operations might work to benefit or be detrimental for the Tribes and their sacred sites in and around the project area.	Under Section 106 of the National Historic Preservation Act, FERC and PacifiCorp, as the designated Section 106/Tribal Consultation contact, invited Tribes with patrimonial claims to the Cutler area to identify sacred sites, traditional cultural properties, and other cultural resources of concern and provide input on how operations of the hydroelectric facility currently affect or might affect those resources under the terms of the new license. Tribes have also been given the opportunity to request an ethnographic study of the Project Area to assist in the identification and understanding of resources and landscapes that may be of concern to the Tribes. The invitation to provide input into the relicensing process includes written letters, emails, and phone calls to the designated Tribal representatives. The Tribal Consultation process will continue throughout the relicensing process, and PacifiCorp will continue to accept input from the Tribes. If Tribes identify resources of concern or sacred sites during the relicensing process, PacifiCorp will thoroughly evaluate existing and potential impacts to those resources and sites from Project operations, including operations of the dam as well as recreational access and agricultural leasing.
44	Utah Rivers Council	9	Alternatives	We hope that FERC will require studies to investigate these and any other alternatives that would enhance the environmental protection, mitigation, and function of Cutler Reservoir and the Bear River system below the dam.	Please refer to response to Comments 38 through 42.
45	Utah Rivers Council	9	Several ISR resources	We respectfully request that FERC consider downstream impacts on the Bear River and Great Salt Lake ecosystems through a geographical expansion of existing studies.	Please refer to response to Comments 7, 21, and 22.
46	Utah Rivers Council	9	Geology & Soils; Sediment ISR	We request a study of the environmental impacts of the Wheelon Dam removal or a written confirmation by PacifiCorp that this project will not be pursued.	Please refer to response to Comments 7, 23, and 26 through 29.
47	Utah Rivers Council	9	Water; Cumulative Impacts/ Climate Change	We request a study of how Bear River flows as a function of climate change and warmer air temperatures would impact the water supply for the Cutler Hydroelectric Project.	Please refer to response to Comments 7 and 30.
48	Utah Rivers Council	9	Socioeconomics	We also ask that FERC conduct a thorough, independent analysis of the socioeconomic impacts of awarding another 30-year license for the Cutler Project.	Please refer to response to Comments 34, 35, 37, and 38 through 42.
49	Utah Rivers Council	9	Alternatives	Lastly, we respectfully urge FERC to consider the numerous viable alternatives to relicensing the Cutler Hydroelectric Project.	Please refer to response to Comments 35 and 38 through 42.
50	USFWS	2	Sediment	The sediment modeling that has been conducted does not appear sufficient to accurately estimate the effect of sediment mobilization due to a change in the reservoir operation plan. The model calibration to cross-sections of the reservoir pre and post drawdown has a poor fit to the data and many of the modeled elevations of the bed surface are off by 5 feet or more in several of the cross sections as seen in Attachment G-8 (see graphs copied from G-2 of the ISR pasted below). The model appears to over-predict the amount of bed scouring by	On April 15, 2021, PacifiCorp and staff from the United States Fish and Wildlife Service (USFWS) participated in a conference call. The conference call was requested by PacifiCorp to better understand the USFWS ISR comments, explain information contained in the ISR, and clarify PacifiCorp’s proposed operations for Cutler. Each of the ISR comments from USFWS were discussed by the participants on the call. PacifiCorp’s

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				<p>approximately four or five times of water actually occurred based on the figures provided in Attachment G-8. This poor accuracy of the model leads the Service to believe that the results from the full draw down would provide a more accurate estimate of the amount of sediment that may be mobilized and moved downstream due to the new reservoir operation plan. [see the two sediment quantification requests below]</p>	<p>responses below to the USFWS ISR comments incorporate components of the conference call discussion.</p> <p>During the conference call, PacifiCorp clarified that the study goals and objectives were to supply qualitative assessments for the sediment transport model and not quantitative values. PacifiCorp pointed out that the fall 2019 full drawdown was not representative of the potential changes resulting from proposed normal and extended operations. Consequently, using the total sediment load during the full drawdown would substantively overestimate the volume of sediment potentially transported during the proposed Project operations, and therefore would result in less clarity regarding the effects of proposed operations rather than more. During the conference call, PacifiCorp shared graphs plotting turbidity data measured downstream of the Cutler Powerhouse during the fall 2019 drawdown event (included as Attachment 4 to this Response to Comments). The turbidity values remained similar when Cutler Reservoir was drawn down from 4,407.5 to 4,405.0 feet, through the entire normal and extended range of proposed Project operations.</p> <p>The study goals and objectives outlined in Section 3.3.2 of the RSP do not indicate that the goal of the study was to supply quantitative data on the sediment transported downstream of Cutler Dam. The goal of the study was, “A calibrated hydraulic model will provide a tool that could be used to predict impacts to the hydraulics and sediment transport for any changes to Project operation.” The calibrated model produced from this study meets this study goal and objective by supplying qualitative predictive comparisons between the proposed Project operations.</p> <p>The calibrated model actually over-predicts the amount of bed scour that occurs within the reservoir, but not to a degree that obscures the predictive, comparative results. The overestimation results in a bias that is protective of downstream resources. Because the model is biased towards the protection of resources, the calibrated model is sufficient to estimate the effects during proposed operations. The study provides a comparison of the two operational scenarios relative to one another as intended in the study plan. Any overestimation from the model for the proposed normal operations would be proportional to overestimations in the proposed extended operations, and thus the model is sufficient to qualitatively compare the impacts associated with each operational scenario.</p> <p>Additionally, the 2D and 1D hydraulic models are consistent with the observed WSEs throughout the reservoir, indicating that the hydrodynamics of the reservoir are accurately captured in the calibrated 2D and 1D models. Further analysis of the velocities produced from the calibrated 2D hydraulic model support the conclusions drawn from the sediment transport model and adds confidence to the results.</p>

Comment No.	Commenter/ Requester	Comment Letter Page	Study Report or Resource Area	Stakeholder Comment	PacifiCorp Response to Comment
					Please also refer to the response to Comment 53 for additional discussion of velocities during proposed operations.
51	USFWS	4	Sediment	This summary conclusion [see pg 3 of comment letter] appears to confirm that the goals of the approved RSP cannot be met with the current study plan data that were collected. The study plan listed the goal of this project was to create: “A calibrated hydraulic model will provide a tool that could be used to predict impacts to the hydraulics and sediment transport for any changes to Project operation.” Based on the information provided in the ISR, this study plan goal to be able to have predictive analysis of the impacts to the sediment transport of the change in reservoir operations was not achieved.	As discussed in the April 15 USFWS conference call, the model does supply qualitative comparisons between the proposed normal and extended project operations. The model is capable of performing predictive analysis of sediment transport as specified in the study goals and objectives. Please also see the response to Comment 50.
52	USFWS	4	Sediment	Additionally, the conclusions regarding this study do not seem to match much of the other data regarding the reservoir bed sediment mobility, the increase in water velocity throughout the reservoir due to the new operation plan, and the sediment transport modeling results. On page G34 of the ISR, the text reads: “Based on these model results it can be concluded that increasing the operational range of Cutler Reservoir from 4407.5-4406.5 to 4407.5-4405.0 will not result in a significant increase in bed sediment erosion within the Model Boundary and expected increases in average TSS concentrations would be mostly limited to the Canyon reach of Cutler Reservoir.” We do not believe that the sediment and hydraulic data collected during the drawdown and present in the Appendices support this study conclusion. The Total Suspended Solids measurements that are given in the tables in Attachment G-2 appear to show one to two orders of magnitude increase in TSS readings during the time of drawdown. A map showing the location of where these TSS readings were collected could not be found, but based on the textual description, it appears that the areas downstream of Cutler do show increased sediment transport in response to the drawdown, contrary to the predicted modeling results. We believe that further clarification regarding where the TSS readings were collected is warranted and a more thorough explanation of why the modeling results do not match the observed data is needed.	In the April 15 call with USFWS, PacifiCorp reiterated the differences between the fall 2019 full drawdown and the proposed Project operations. The ISR conclusions noted by USFWS were applicable to the proposed normal and extended Project operations and not the full drawdown. As requested by USFWS, an additional map showing the locations of the water quality sampling sites are provided as an attachment to this response (Attachment 5). As clarified with USFWS, the model results do reflect the observed data for the drawdown event, and even overestimate the bed erosion and Total Suspended Solids (TSS) concentrations measured downstream. The 2019 drawdown event was a much larger drawdown of the reservoir than what is proposed for Project operations in the next license. Conclusions made in the hydraulic study report were specific to the changes in TSS concentration applicable to the reservoir elevations in the proposed Project operations, and not to the full drawdown event that took place in the fall of 2019. The proposed Project operations are quite similar to the current operations. The Project would operate under the proposed normal operations for 85% of the year (310 days annually, and identical to current conditions from March to December). The proposed extended operations would occur for up to 15% of the year (a maximum of 55 days annually). It is also possible that future Project operations may not immediately make maximum use of the flexibility that the proposed operations would permit; i.e., currently, the extended range offers limited power generation benefits, and the Project would likely not operate under these conditions for the full 15% (55 days) of the year. Additional photos are provided as an attachment to this ISR Response to Comments to illustrate the lack of bank erosion, scour in the reservoir, and overall low turbidity during the fall 2019 drawdown event (Attachment 6). The photos show little turbidity within the water column at all stages during the drawdown event, and limited sloughing and erosion in the

Comment No.	Commenter/ Requester	Comment Letter Page	Study Report or Resource Area	Stakeholder Comment	PacifiCorp Response to Comment
					<p>exposed bed material. The physical observations made during the fall 2019 drawdown support the conclusions made in the ISR that operating the Project in the proposed extended range will neither quantitatively nor qualitatively result in a substantive change in annual sediment transport downstream, particularly given that even the lowest limit of the proposed extended operations range would be almost 20 feet higher in elevation at Cutler Dam than the full drawdown.</p> <p>Also see response to Comments 53 and 55 for additional discussion of velocities and TSS concentrations.</p>
53	USFWS	4-5	Sediment	<p>The hydraulic modeling data would appear to indicate based on Attachment G-15 for the 2.5 foot drawdown proposal, that the water velocity has increased by about 50 % [the legend on the 1.0 foot drawdown (G-15 page 6 for example) shows a maximum velocity of 2 ft/s, while the 2.5 feet scenario legend (G-15 page 13 for example) shows a maximum velocity of 3 ft/s]. The increase in water velocity, combined with the fine-grained nature of most of the reservoir sediments would suggest there is a high likelihood for bed erosion and mobilization of sediment from the reservoir to areas downstream due to repeated power cycles that cause rapid reservoir drawdown.</p> <p>The sediment transport model appears to indicate that there is the potential for greater sediment mobilization and bed scouring than was observed based on the comparison with bathymetry changes (see Attachment G-8, page 2 above - the modeled green line shows much more erosion than what actually occurred as depicted by the red line). It is concerning that the calibrated model would indicate that there is the potential for large releases of sediment due to high bed erosion within the reservoir, but it does not predict there is an increase in TSS concentrations downstream of Cutler Reservoir. We suggest a further explanation regarding the contradictory results from the sediment transport modeling.</p>	<p>Following the April 15 conference call with USFWS, and after a closer review of the velocity maps provided in the ISR Appendix G Attachment G-15, PacifiCorp identified a discrepancy in the mapped velocity relative to the model results. The discrepancy between simulated and mapped maximum velocities is likely due to small artifacts in the model output that skewed the values displayed on the legend of the maps to improperly indicate high velocities. These artifacts led to small instances of high velocities, both at a temporal and spatial scales (i.e., over the duration of a single simulation time step of 1 second or over a single terrain raster cell used to develop the velocity map of 1 square foot). These artifacts are statistical outliers, which have a negligible effect on simulation results as long as they remain instantaneous and do not persist. The model results were reviewed, and with no persistent high velocity “hot spots” found, the artifacts should be removed for mapping purposes</p> <p>Following the conference call with USFWS, the velocity maps for Attachment G-15 in the ISR were corrected to accurately represent the spatial distribution of velocities within the study area; these updated/corrected maps will be included in the Updated Study Report (USR), currently scheduled for submittal prior to the DLA in 2021. A copy of the corrected velocity maps is also included as part of this ISR Response to Comments (Attachment 7).</p> <p>The updated spatial distributions show a negligible increase in velocities between the proposed normal and extended operations. PacifiCorp has also provided an additional map set showing the relative change in velocity between the proposed normal and extended operations. Keep in mind, the velocities simulated during the fall 2019 drawdown event were as much as 15 times greater than the proposed Project operations. This is evident within the reach extending from Wheelon Dam to Cutler Dam where the largest amount of sediment was mobilized (which also matched model predictions) and is likely why the drawdown event experienced spikes in TSS during higher flow events as the reservoir began to reach full drawdown conditions. The velocity within the water column is a major component of the sediment transport functions that are applicable for Cutler Reservoir conditions; high velocities and low depths lead to</p>

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					<p>increased sediment transport. It is also important to again note that the minimum reservoir depth during the lowest point of proposed operations would result in water column depths almost 20 feet higher near the dam than those during the full drawdown event, and the sediment in the affected reach would not be exposed and therefore not subject to erosive forces, such as occurred during the 2019 drawdown.</p> <p>PacifiCorp concluded that the calibrated hydraulic model did predict increases in TSS during the drawdown event. As noted, the fall 2019 full drawdown greatly exceeds the proposed Project operations. Conclusions made as part of the hydraulic modeling study report regarding TSS concentrations apply to comparisons of the proposed operations. Modeling results indicated there would be no substantial increase in TSS concentrations downstream of Cutler Reservoir under the proposed extended operation range relative to the proposed normal operating range.</p> <p>Please see response to Comment 55 for additional information relevant to this topic.</p>
54	USFWS	5	Sediment	<p>Using the available information in the ISR, it is difficult to determine where the reservoir bed cross-sections were measured; in Appendix G, Attachment G-8, page 1 through page 8, the labels of the cross sections showing the changes in bed profiles do not correspond with the labels of the cross-sections shown in Attachment G-17, page 1 (see below). There is no way to currently determine where the greatest bed scouring and sediment mobilization will occur in the reservoir with the current information that has been provided. We request that the cross section labels be checked for accuracy, or that a map be created showing where the cross sections are located.</p>	<p>In the April 15 conference call between PacifiCorp and USFWS, the figures in Attachment G-8 of Appendix G in the ISR were discussed. The cross-sections included in Attachment G-8 were located within the Wheelon Reach of the study area, which is located between Wheelon Dam and Cutler Dam. In response to the USFWS request for an additional map, PacifiCorp shared during the call the requested additional map (Attachment 8) illustrating the location and model stationing of the calibration cross sections. This figure will be included in the USR and as noted, is also attached to this Response to Comments (Attachment 8). The cross-sections were selected for model calibration, as observed bed mobilization during the drawdown event was mostly limited to the Cutler Canyon portion of the reservoir. The 2D hydraulic model velocity results support this assumption, as substantial increases in velocities are generally limited to locations downstream of Wheelon Dam. Wheelon Dam acted as a main hydraulic control during the full drawdown event (note that Wheelon Dam would still be approximately 5 to 6 feet below the water surface during the lowest elevation of proposed operations, similar to current operations), with a substantially steeper gradient (energy grade line) downstream of Wheelon Dam than in the reservoir upstream of the dam.</p> <p>As explained in the conference call with USFWS, the cross-section locations referenced in Table 6-5 of ISR Appendix G are also shown in Appendix G, Attachment G-17, and are separate from those shown in the additional map provided for the calibration sections.</p>

Comment No.	Commenter/ Requester	Comment Letter Page	Study Report or Resource Area	Stakeholder Comment	PacifiCorp Response to Comment
					Please refer to the response to Comment 53 for additional relevant information.
55	USFWS	5	Sediment	<p>Suggested Resolution</p> <p>1) Calculate the volume of sediment that was eroded and released downstream during the full draw down as an estimate of the maximum amount of sediment that could be released from each new power generation reservoir cycle. Estimate the number of times in a year that a 2.5 foot draw down may occur in the reservoir to calculate the total increase in sediment delivered downstream.</p> <p>As the Refuge is likely the location in which increased sediment released from the Cutler Reservoir will eventually be deposited once it is released from Cutler Reservoir, the Service believes that the impacts from increased sediment loads being released downstream have not been sufficiently quantified or accurately modeled as was outlined in the approved RSP. The Service does not believe that a new study is needed and is not making that request. Instead, we request that a calculation of the total volume of sediment released from the 2019 drawdown period be used as a proxy for determining the maximum amount of sediment that could be released from each new power generation cycle.</p> <p>Appendix G indicates that a Triangulated Irregular Network (TIN) and a Terrain dataset was part of the deliverable items for the hydraulic modeling contract. The Service requests that PacifiCorp calculate the volumetric difference of the pre and post reservoir bed elevations to determine how much bed sediment was mobilized during the drawdown. This calculation should provide valuable insight into how much sediment may be released with each 2.5-foot reservoir generation cycle.</p>	<p>In the April 15 conference call with USFWS, PacifiCorp explained that using data from the full drawdown would grossly overestimate the TSS load and not be representative of the proposed extended operations, and therefore would not clarify potential effects of proposed Project operations. The fall 2019 drawdown drew the reservoir down more than 20 feet, which is substantially greater than the proposed extended operation range of up to 2.5 feet. As an alternative, PacifiCorp proposed a modified approach for estimating sediment load downstream of Cutler by using the empirical TSS and turbidity data collected during the 2019 drawdown to estimate the sediment load for the proposed normal and extended operations. Analysis of these data determined there is relatively little change in TSS concentration between the proposed normal and extended operation range. As a result, PacifiCorp does not anticipate a change in sediment transport downstream of Cutler Dam in the future license given the lack of change in TSS concentration between the proposed normal and extended operation WSEs simulated during the fall 2019 drawdown. PacifiCorp will follow up with the USFWS directly concerning this additional information.</p> <p>Please refer to the response in Comment 50 for additional information.</p>
56	USFWS	6	Sediment-Water Quality	<p>2) Use the reservoir bed cores average phosphorous concentrations, and the total volume of sediment eroded during the full draw down to estimate the total amount of phosphorous that potentially could be mobilized. Estimate the number of times in a year that a 2.5 foot draw down may occur in the reservoir to calculate the total increase in phosphorous delivered downstream.</p> <p>The Service would like an estimate of how much phosphorous will be transported downstream due to the mobilization of bed sediments from a draw down (a flux of phosphorous due to sediment mobilization). We again believe that all of the information to make these calculations has already been collected and is present within the ISR. The average total phosphorous concentrations within the sediment of the reservoir bed core samples (found in Appendix H) combined with the total volume of sediment transported (as described in 1) above) would provide an estimate of the maximum amount of phosphorous that may be released due to the new reservoir operation parameters.</p>	<p>As noted in the response to Comment 55 and discussed with the USFWS during the April 15 conference call, using data from the full drawdown would grossly overestimate the TSS load and not be representative of the proposed extended operations. Similarly, USFWS’s proposed estimate would grossly overestimate the volume of phosphorous potentially mobilized. Further, based on studies from similar lakes and the Cutler Total Maximum Daily Load study, a large percentage of the phosphorus is believed to be bound to calcium carbonate (CaCO3) in the sediments and other mineralized forms such that it is now relatively inert and would not be released via the mechanism of sediment transport; this potential effect will be discussed in the DLA, as it also relates to an analysis of phosphorus transport in Cutler requested by another stakeholder.</p>

ATTACHMENT 2

**BRIDGERLAND AUDUBON SOCIETY COMMENTS ON THE
INITIAL STUDY REPORT**

Bridgerland
Audubon
Society

P.O. Box 3501
Logan, Utah
84323-3501

Bridgerland Audubon Society's comments on
PacifiCorp's Cutler Hydroelectric Project FERC
NO. 2420. Initial Study Report, Vol. 1
dated February 2021.

April 5, 2021

Ms. Eve Davies
Cutler Licensing Project Manager
PacifiCorp
1407 West North Temple, Room 210
Salt Lake City, UT 84116
Cutlerlicense@gmail.com

Ms. Davies,

Thank you for the opportunity to respond to your Initial Study Report (Feb. 2021) regarding relicensing of Cutler Reservoir Dam, and the presentation of that report February 23, 2021.

We are concerned that the study and the presentation did not address issues we raised in our December 11, 2019 letter addressing the study plan. In that letter we wrote:

"The current FERC permit allows for up to 2.0 feet (1.5 ft + 0.5 ft tolerance) of reservoir fluctuation during the year. Because the mean depth of Cutler Reservoir is only 2.55 feet, fluctuations of even 1.5 feet desiccate approximately 60 percent of the bottom. Additional fluctuations being requested would have even larger impacts on the reservoir and could cause considerable harm to the fish community, the sport fishery, the benthic invertebrates, and the birds that are dependent on these food resources.

Consequently, we request that PacifiCorp's evaluation of increased reservoir drawdowns carefully evaluate how both the magnitude and the frequency of these fluctuations would influence the fish community and benthic invertebrates. In a review of reservoir fluctuations on aquatic communities, Szluha et al. (1979) emphasized "that efforts to develop small hydroelectric sites that entail water level fluctuation should include a careful analysis of the types of impacts described." Additionally, justification of the removal of fish 'spawning' as a consideration for reservoir operations is needed, particularly since the majority of the sport and nongame species mentioned above spawn in the reservoir during the April-June period that is currently protected (PAD; Fig. 53)."

The stated goals of PacifiCorp's Fish & Aquatic Initial Study were to: "determine the status of aquatic organisms and their habitat and characterize the benthic invertebrate and mollusk community within the Project Area; to evaluate the effects of the fall 2019 reservoir drawdown on the aquatic community; and to relate potential Project operational changes and the resultant effects on the aquatic community within the reservoir."

Although the study largely met the first goal of determining the status of the aquatic organisms, the study methodology did not allow managers to address the effects of the 2019 drawdown on the aquatic community, and more importantly to evaluate the effects of potential operational changes [increased drawdowns] on the benthic invertebrates and aquatic macrophytes in the reservoir.

Reservoir drawdowns primarily effect aquatic benthic organisms by stranding them, desiccation, and freezing if the drawdown is done during cold seasons (Carmignani & Roy 2017), as is proposed for the new Cutler operations. Consequently, to determine if drawdowns influence benthic organisms one needs to measure densities and diversity before and after drawdowns in the desiccated (and frozen) areas. During the 2019 Cutler drawdown study benthic invertebrates were first sampled prior to drawdown in the shallow areas, but during the drawdown the sampled transects were moved to deeper water and no sampling was done in the desiccated area after the reservoir refilled. The study found that benthic invertebrates were somewhat higher in the areas sampled during the drawdown, but this could have either been because the organisms were always higher in the deeper water, or because invertebrates drifted from the desiccated areas to the deeper water as the reservoir was drawn down. We do not know which. Regardless, no effort was made to determine invertebrate densities in the desiccated (and likely frozen) shallow areas after the reservoir refilled. Indeed, *“investigators took care to select sites that did not become dewatered during the drawdown.”*

Given the results of other studies (e.g., Carmignani & Roy 2017, Rose & Mesa 2013, Szluha et al. 1979) it is highly likely that benthic invertebrates in Cutler are already influenced by hydroelectric drawdowns, and increased desiccation from the proposed operating parameters would exacerbate this problem. Although some invertebrate species might recover relatively quickly, others that are univoltine (1 generation/year) could be impacted throughout the year if they are killed by the proposed operational desiccations. The benthic invertebrates are a critical part of the food web that supports birds and sport fishes (Figure 1.; Armstrong and Wurtsbaugh, 2019; Budy et al., 2011; Budy et al., 2006). Drawdowns directly impact not only benthic invertebrates, but the submerged and emergent aquatic vegetation that many of the invertebrates and fishes depend on for cover (Carmignani & Roy 2017). The 2019 drawdown study in Cutler did not address this potential impact, but additional analyses should.

In our December 2019 letter we also requested for PacifiCorp to justify the removal of fish ‘spawning’ as a consideration for reservoir operations, since the majority of the sport and nongame species in the reservoir spawn during the April-June period that is currently protected. We renew that request here. Additionally, we request the exact period for which increased drawdowns are being requested—the current request is somewhat nebulous in this respect.

It is clear that the studies done to date by PacifiCorp have not addressed their stated goal of *“to relate*



Figure 1. Above—Black-necked stilt feeding on chironomid larvae (photo, R. Mellenthin). Below—Young angler with largemouth bass caught in Cutler Reservoir (photo, C. Carpenter).

potential Project operational changes and the resultant effects on the aquatic community within the reservoir.” Consequently, additional work is needed to address this oversight. We suggest four potential avenues of investigation:

1. The published literature on reservoir drawdown effects on the biota needs to be thoroughly reviewed and the results related to the proposed operational changes for Cutler Reservoir.
2. A second drawdown similar to that done in 2019 could be performed and the invertebrates and macrophytes in the desiccated zone could be resampled after filling. In addition to the bare sediments that were sampled in 2019, additional efforts should be done to quantitatively sample the invertebrates inhabiting the emergent vegetation on the periphery of the reservoir, as this habitat is particularly important for the larger crawling invertebrates (e.g., mayflies, dragonfly nymphs, caddisflies) that fish and some birds rely on as a food source.
3. The existing authorized drawdowns in Cutler already desiccate sediments and likely impact benthic invertebrates and aquatic macrophytes in the reservoir. A careful study of the areas periodically desiccated compared to those that aren't may help identify the magnitude of the problem.
4. An experimental study might be possible in the three Logan Mitigation Ponds west of the county landfill that are operated by the city of Logan. If the city agreed, and if additional water resources could be obtained, it would be possible to perform a BACI analysis (Before-After-Control-Impact design; Green 1979). With this approach the ponds would need to be filled with water for approximately one year, invertebrate and aquatic macrophyte samples taken, and then 1-2 of the ponds would be partially drawn down during the appropriate season and for the proper length of time, refilled, and benthic invertebrates and macrophytes again sampled in the control pond and in the desiccated and non-desiccated portions of the treatment ponds. This is a powerful approach for looking at environmental impacts on organisms.

Bridgerland Audubon would be happy to discuss these issues with you or the environmental consultants assisting you in your FERC relicensing application. We know that PacifiCorp is concerned with the health of the ecosystem and we look forward to resolution of the previous oversights.

Respectfully submitted,



Wayne Wurtsbaugh, Ph.D.
Water Quality Specialist
Bridgerland Audubon Society

Cc: Hilary Shughart, President, Bridgerland Audubon Society
Marcelle Shoop, National Audubon Society Director, Saline Lakes Program
Brian Dixon, Bridgerland Audubon

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ATTACHMENT 3

**AERIAL PHOTOS REPRESENTATIVE OF CUTLER
RESERVOIR INUNDATION BOUNDARIES AT ELEVATIONS
LOWER THAN THE LOWEST LIMIT OF EXTENDED RANGE
OPERATIONS**

The fall 2019 full drawdown lowered Cutler Reservoir well below the lower limit of the proposed Project extended operations; that is, the full drawdown lowered the reservoir almost 20 feet below the lowest limit of the proposed extended operating range, water surface elevation (WSE) 4,405.0 as measured at Cutler Dam (NGVD29 projection). Full pool at Cutler is approximately 4,407.5 WSE at Cutler Dam. As the full 2019 drawdown began, Cutler Dam elevation on October 28 was 4,404.58 feet, approximately 0.4 foot lower than the proposed minimum limit of 4,405.0 feet in the extended range. Therefore, the October 28 field observations represent the most similar conditions to the proposed minimum reservoir elevation, albeit 0.4 foot lower. Recreation site observations on October 28 were used because the Cutler Dam reservoir elevations on those dates are the most applicable to assess conditions regarding areas of potential reservoir desiccation under future proposed Project operations.



Photo 1. Cutler Marsh Marina Recreation Site (located in the South Marsh Management Unit) on October 28, 2019, Cutler Dam WSE 4,404.58, 0.4 foot below the lower limit of the proposed extended operation range.



Photo 2. Benson Marina Recreation Site (located in the Reservoir Management Unit) on October 28, 2019, Cutler Dam WSE 4,404.58, 0.4 foot below the lower limit of the proposed extended operation range.



Photo 3. Clay Slough Recreation Site (also located in the Reservoir Management Unit) on October 28, 2019, Cutler Dam WSE 4,404.58, 0.4 foot below the lower limit of the proposed extended operation range.



Photo 4. Cutler Canyon Recreation Site (located at the boundary of the Reservoir and Canyon Management Units) on October 28, 2019, Cutler Dam WSE 4,404.58, 0.4 foot below the lower limit of the proposed extended operation range.

ATTACHMENT 4

TOTAL SUSPENDED SOLIDS CHARTS

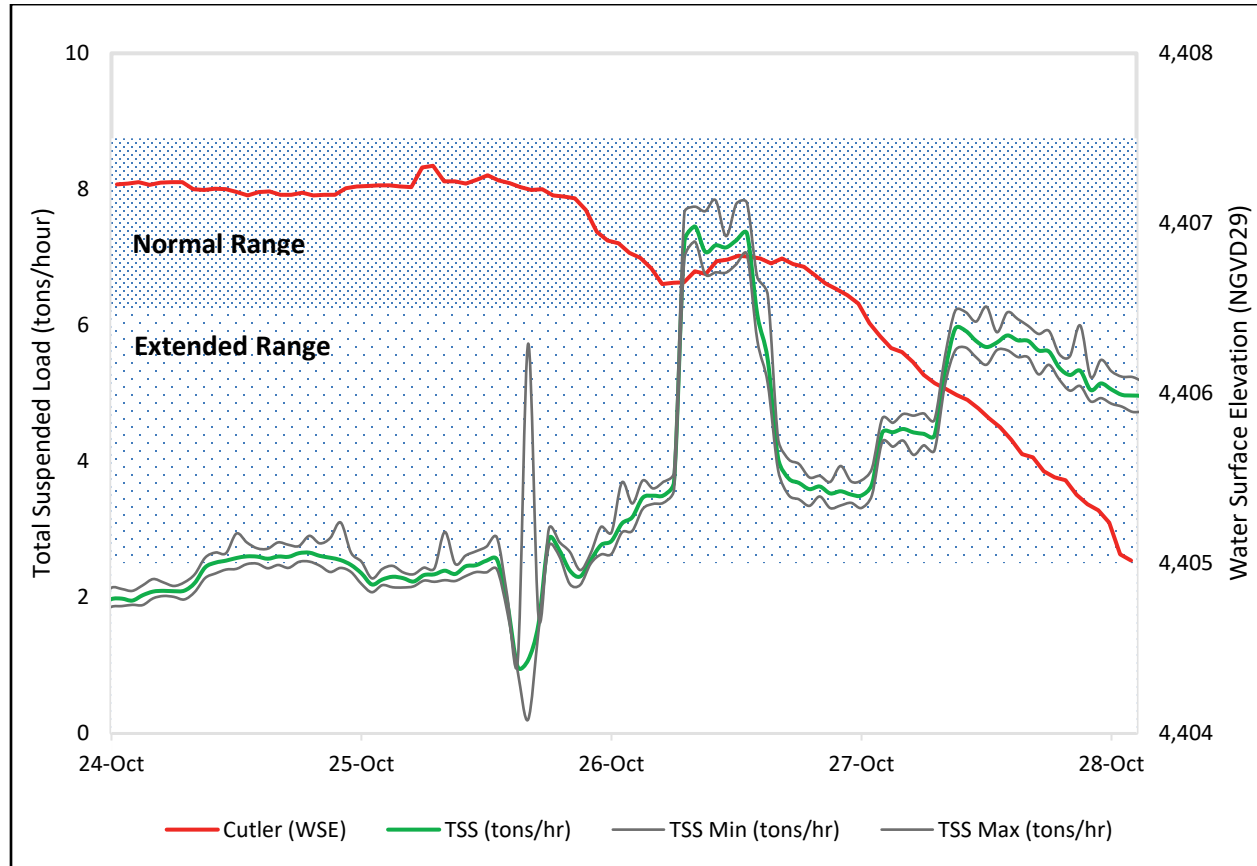


Figure 1. Calculated hourly loads at the PacifiCorp gauge downstream of powerhouse during the 2019 drawdown. Hourly load is calculated with turbidity data collected from a Troll 9500 sonde deployed prior to the drawdown. The total suspended load (TSS) vs turbidity relationship (see Figure 3 of this attachment) is used along with flow data from the gauge to calculate the hourly sediment loads. Water surface elevation (WSE) at Cutler Dam during the drawdown is plotted on the secondary Y axis. The proposed normal operating range (4,407.5 to 4,406.5) is depicted in the upper fine pattern box. The proposed extended operating range (4,406.5 to 4,405.0) is delineated in the lower patterned fill. During the drawdown, sediment loads remain low and stable through the extended operating range lower limit of 4,405.

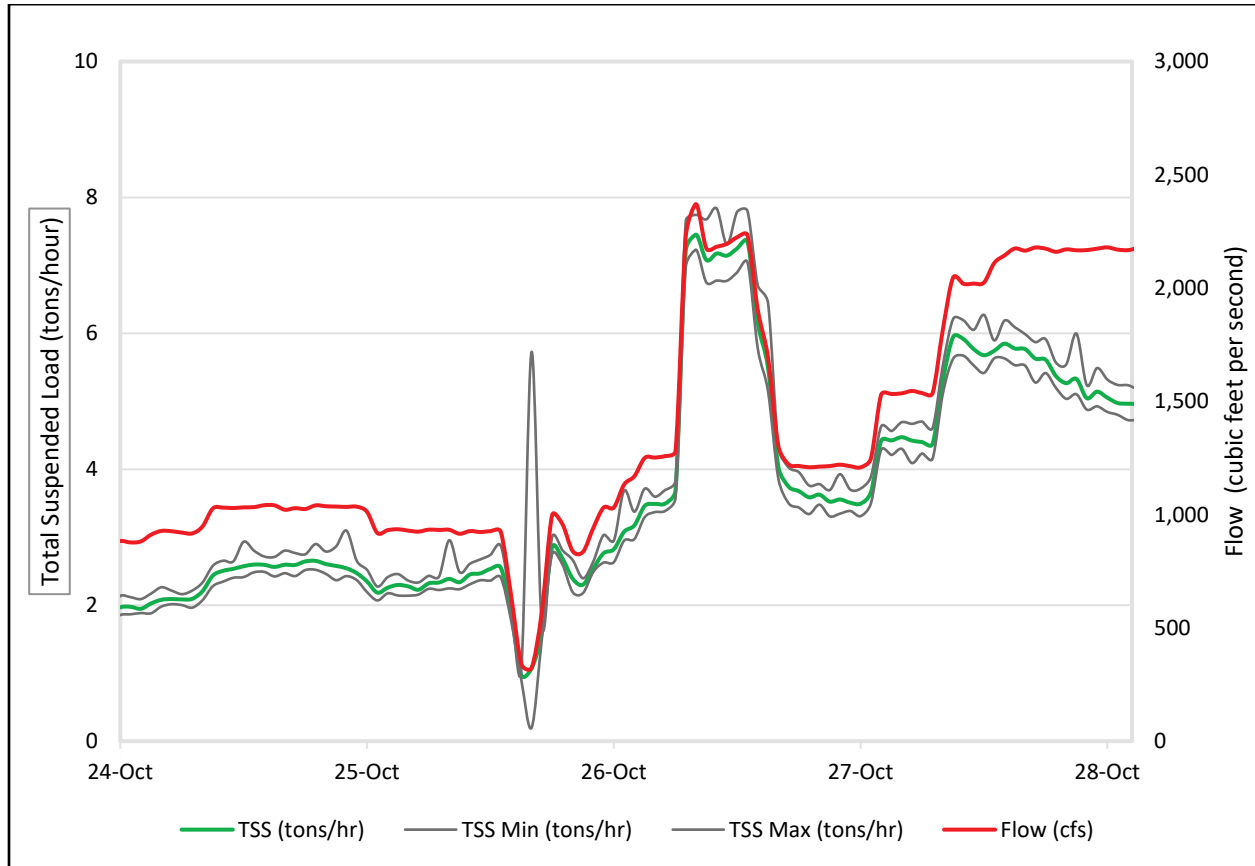


Figure 2. Sediment load and discharge during the 2019 drawdown when water surface elevations at Cutler were within the proposed normal and extended operation ranges. As flows increase, the sediment load is proportional to the flow.

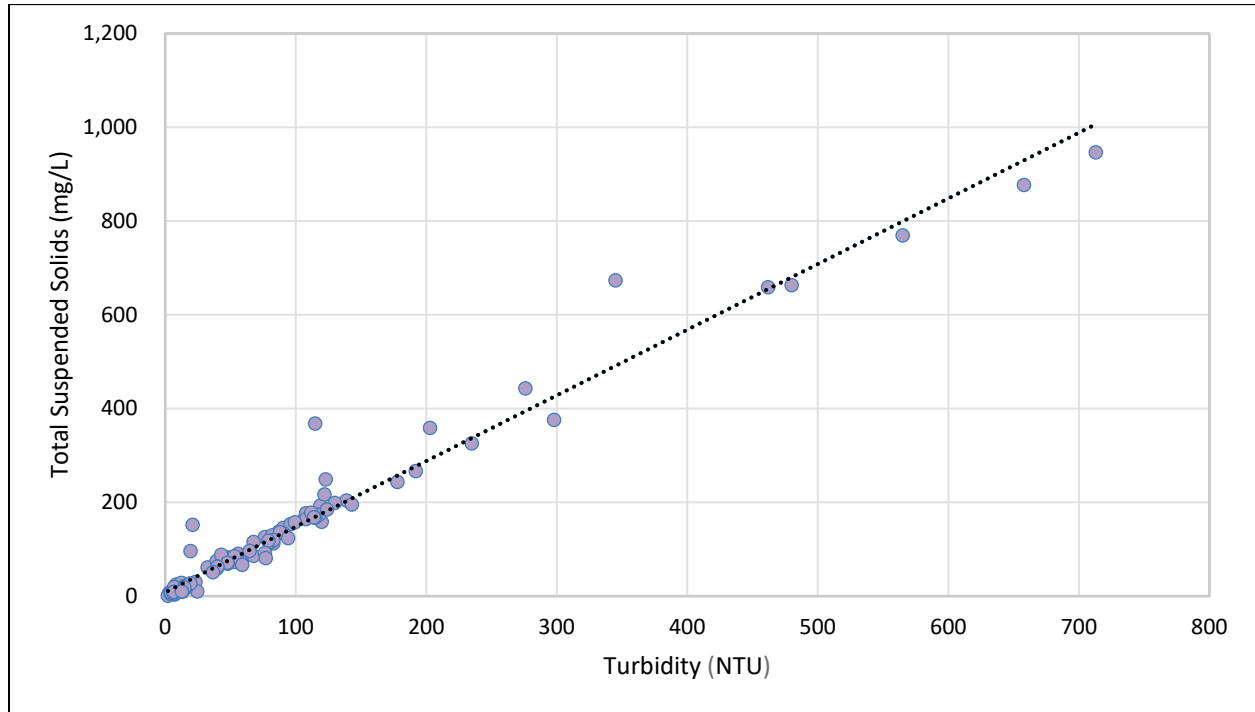
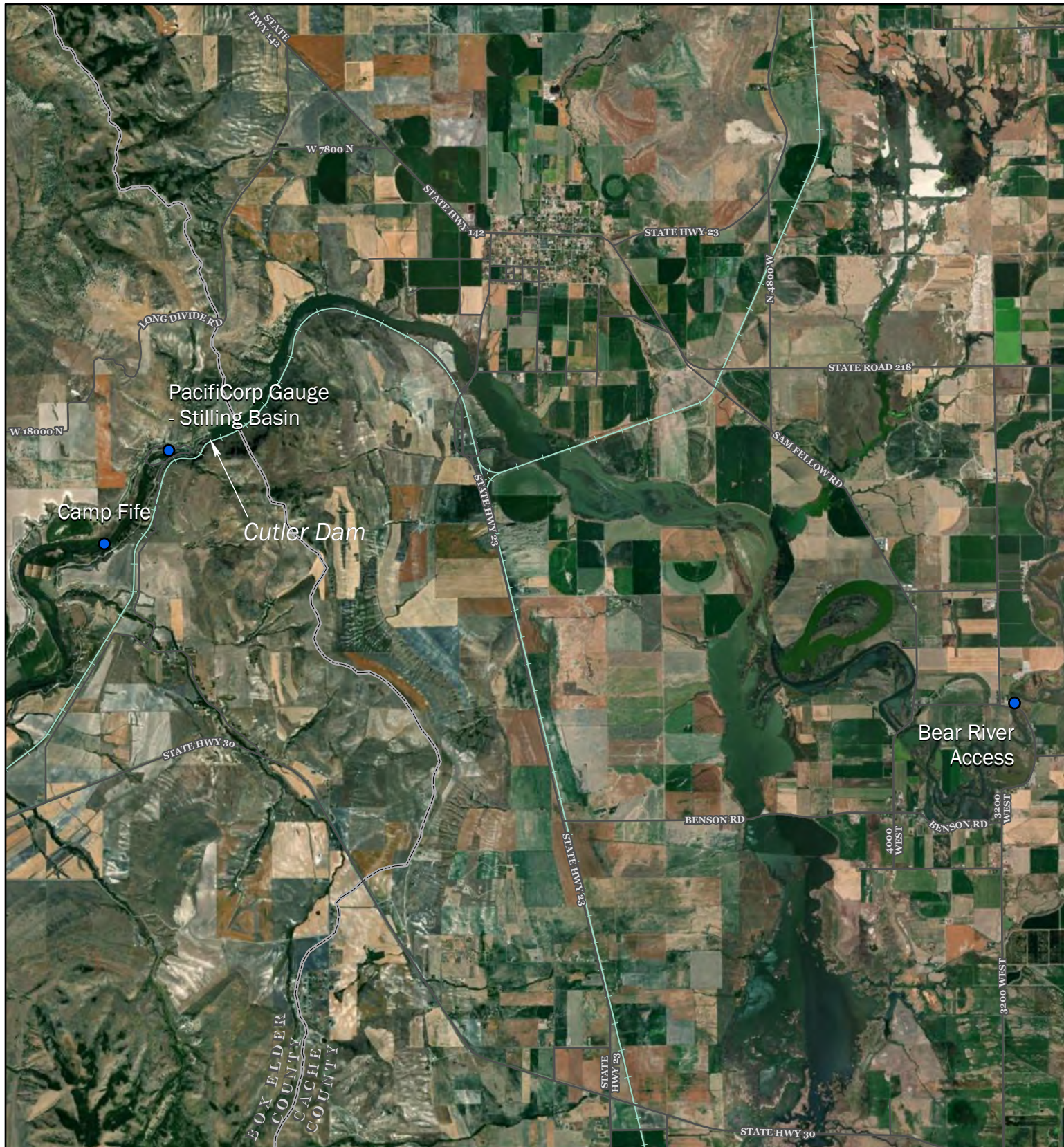


Figure 3. TSS and turbidity relationship developed from water samples collected in October and November 2019 during the full drawdown of Cutler Reservoir. A total of 130 paired samples were used to plot the relationship to develop the slope formula and calculate hourly loads from instantaneous turbidity measurements at the gauge downstream of the powerhouse. Paired TSS and turbidity data has an $R^2 = 0.9228$, indicating a strong relationship. mg/L = microgram per liter; NTU = Nephelometric Turbidity Unit

ATTACHMENT 5

MAP OF WATER QUALITY SAMPLING LOCATIONS



- Water Quality Sampling Locations
- Road
- Railroad
- County



0 2,500 5,000
Feet

PacifiCorp collects data from a variety of government and private sources. This map is not to be released nor put into any location that is accessible electronically or otherwise available to market affiliates. PacifiCorp makes no warranty as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. For complete validation, the source organization should be contacted or source documents consulted to verify the findings of this product.

Water Quality Sampling Locations

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



ATTACHMENT 6

**PHOTOS OF CUTLER RESERVOIR BED AND BANKS
DURING THE FALL 2019 MAXIMUM DRAWDOWN
CONDITIONS**



Photo 1. Looking downstream (westerly) towards Cutler Dam from the south side of Cutler Canyon during the 2019 full drawdown (November 4). Water surface elevation (WSE) at Cutler Dam was 4,386.97 (NGVD29), approximately 17 feet below the lowest proposed operating level of 4,405.0. Note that the majority of the bank longitudinally and laterally is stable under this extreme drawdown event except for a limited area delineated by the red square.



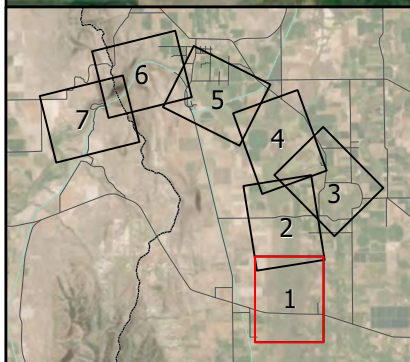
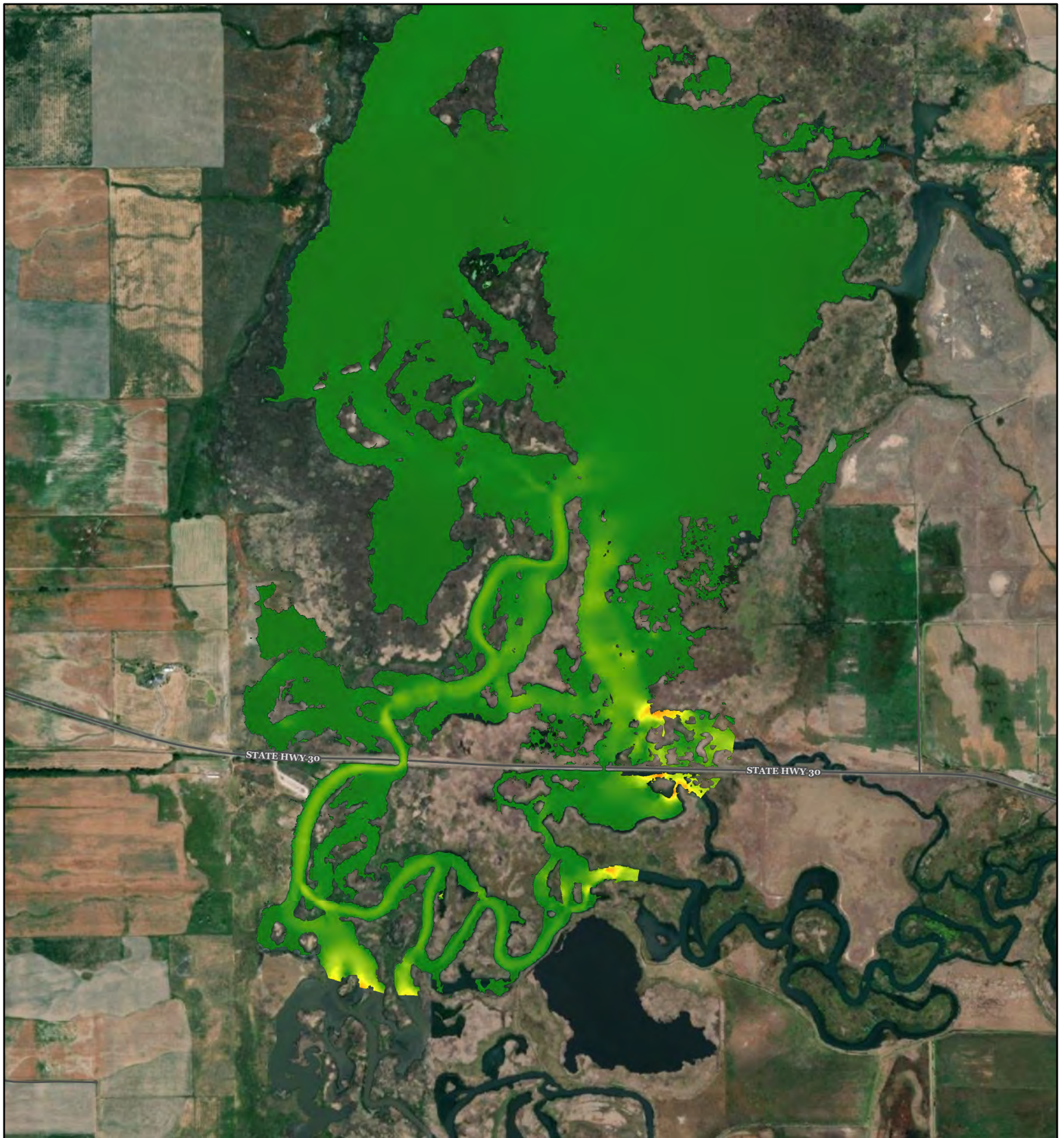
Photo 2. View downstream of Wheelon Dam, looking westerly through Cutler Canyon during the 2019 full drawdown (November 4). Cutler Dam WSE elevation is the same as Photo 1 (17 feet below the lowest proposed operating elevation). Note the stability of the exposed reservoir bed and banks. This area would be completely inundated at the lowest limit of the proposed extended Project operations at WSE of 4,405 feet at Cutler Dam.



Photo 3. Downstream of Newton Bridge looking upstream toward easterly bank with PacifiCorp's Cutler Canyon Recreation Site in the background. Note the lack of head-cutting in the exposed reservoir bed and along the wetted perimeter. WSE in this reach is hydraulically controlled by Wheelon Dam during the 2019 extreme drawdown event, approximately 17 feet below the lowest proposed operating limit. Photo taken on November 4, 2019, same WSE as Photos 1 and 2.

ATTACHMENT 7

VELOCITY MAPS



Max Velocity (ft/s)



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.

N



Coordinate System:

0 500 1,000
Feet

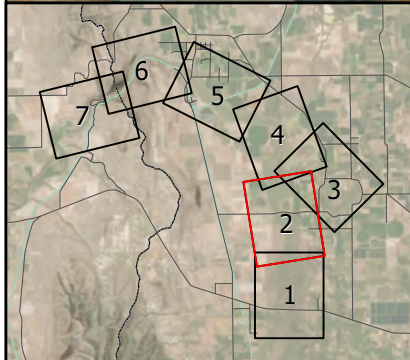
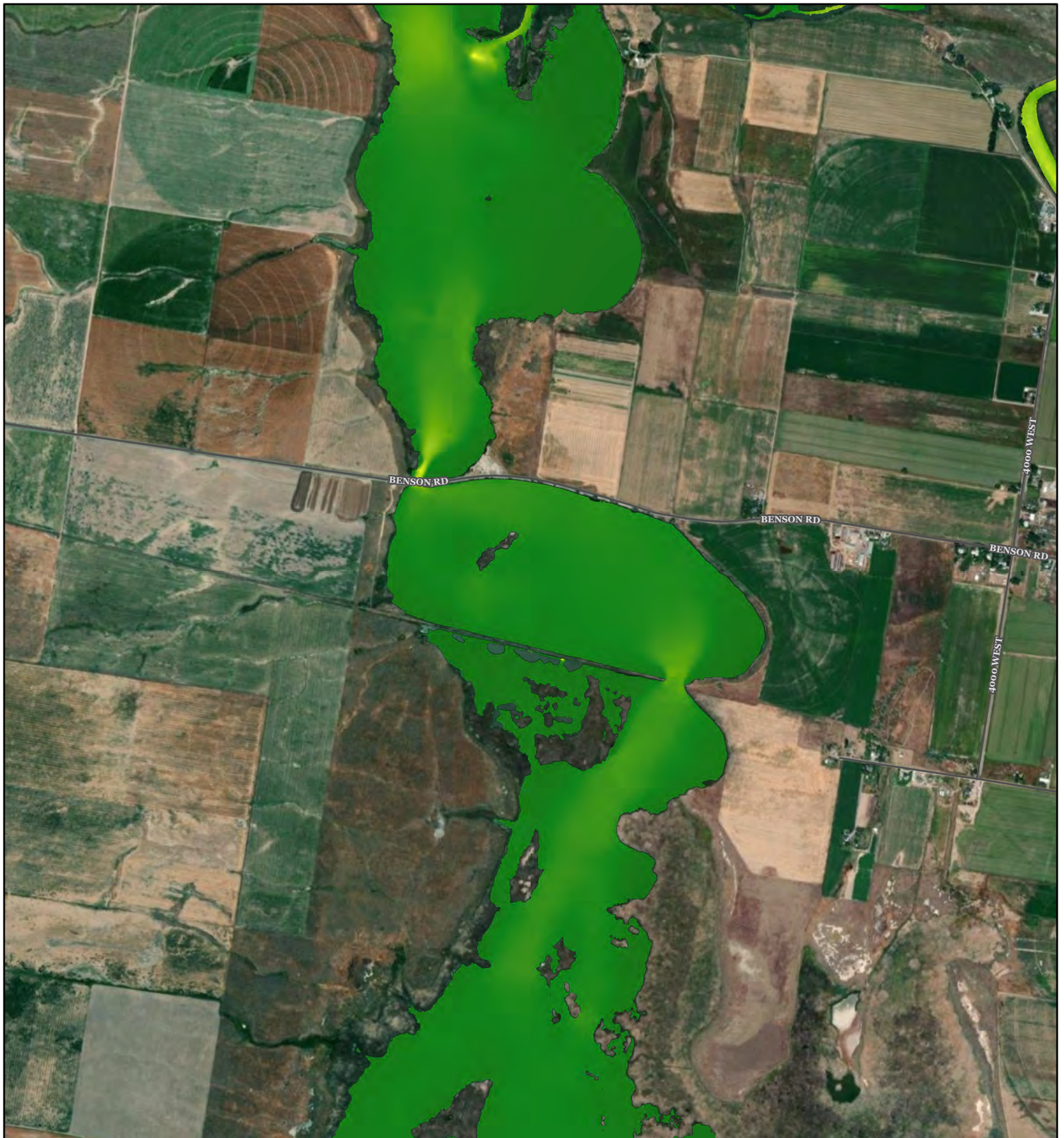
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**1.0 Ft Proposed Normal
Operating Range Velocity**

Sheet 1 of 7

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



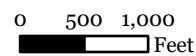


Max Velocity (ft/s)



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.



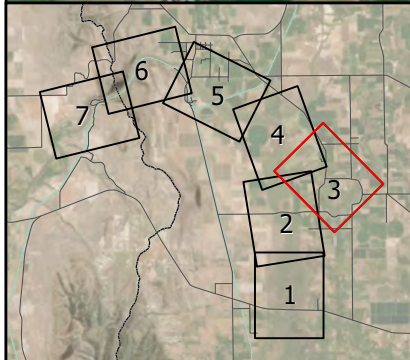
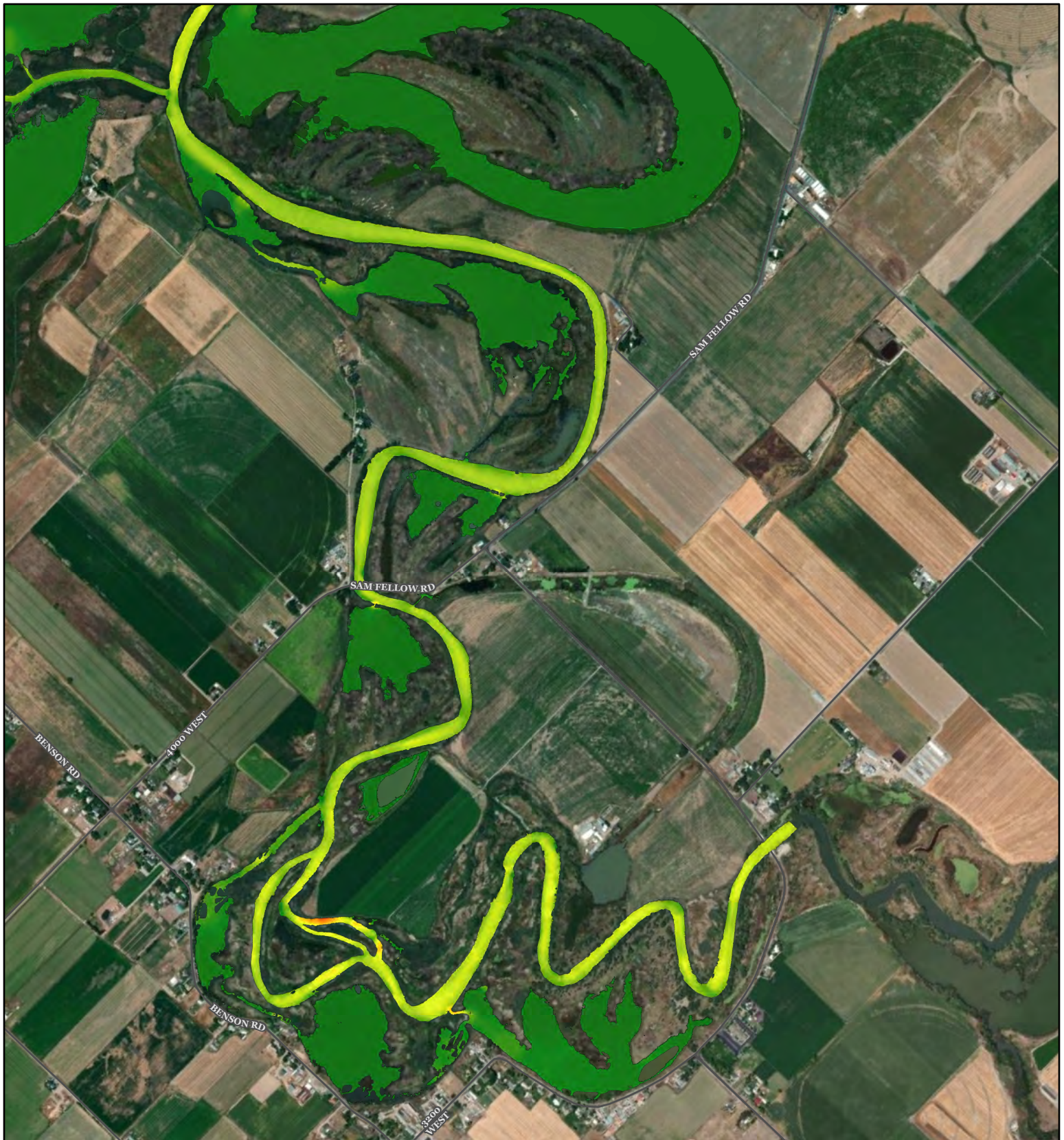
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1.0 Ft Proposed Normal Operating Range Velocity

Sheet 2 of 7

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





Max Velocity (ft/s)

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.

Coordinate System:

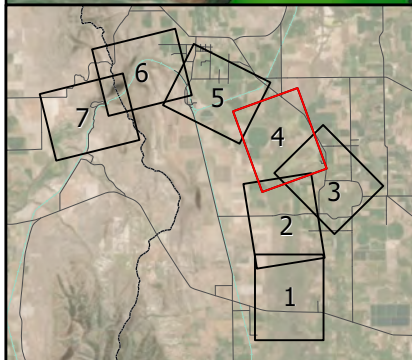
0 500 1,000 Feet

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1.0 Ft Proposed Normal Operating Range Velocity

Sheet 3 of 7

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



Max Velocity (ft/s)

2
0

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.

N

Coordinate System:

0 500 1,000 Feet

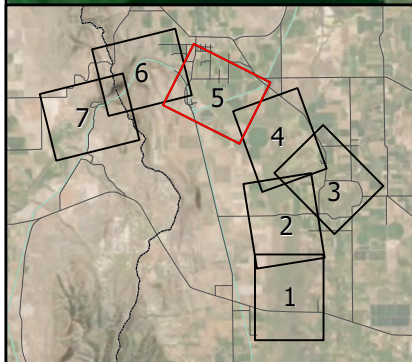
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1.0 Ft Proposed Normal Operating Range Velocity

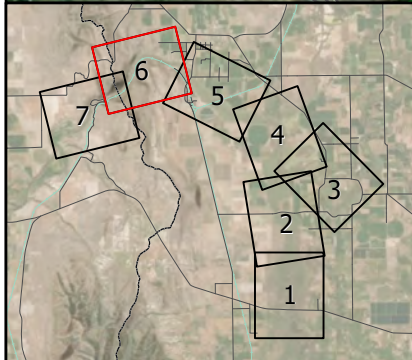
Sheet 4 of 7

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

PACIFICORP



<p>Max Velocity (ft/s)</p> <p>Notes</p> <ul style="list-style-type: none"> - 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. 	<p> 1</p> <p>Coordinate System:</p> <p>0 500 1,000 Feet</p> <p><small>PacifiCorp collects data from a variety of government and private sources. This map is not to be released nor put into any location that is accessible electronically or otherwise available to market affiliates. PacifiCorp makes no warranty as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. For complete validation, the source organization should be contacted or source documents consulted to verify the findings of this product.</small></p>	<p>1.0 Ft Proposed Normal Operating Range Velocity</p> <p>Sheet 5 of 7</p> <p>CUTLER HYDROELECTRIC PROJECT FERC PROJECT NO. 2420</p>
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Max Velocity (ft/s)

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.

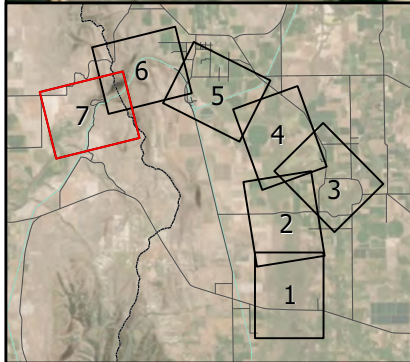
Coordinate System:
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 Feet

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1.0 Ft Proposed Normal Operating Range Velocity

Sheet 6 of 7

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



Max Velocity (ft/s)



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.



Coordinate System:

0 500 1,000
Feet

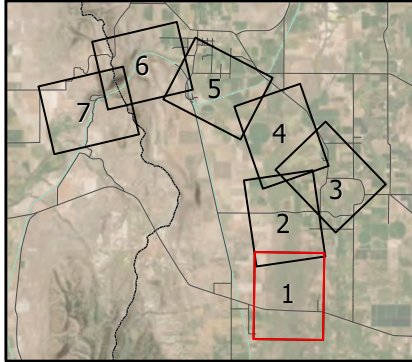
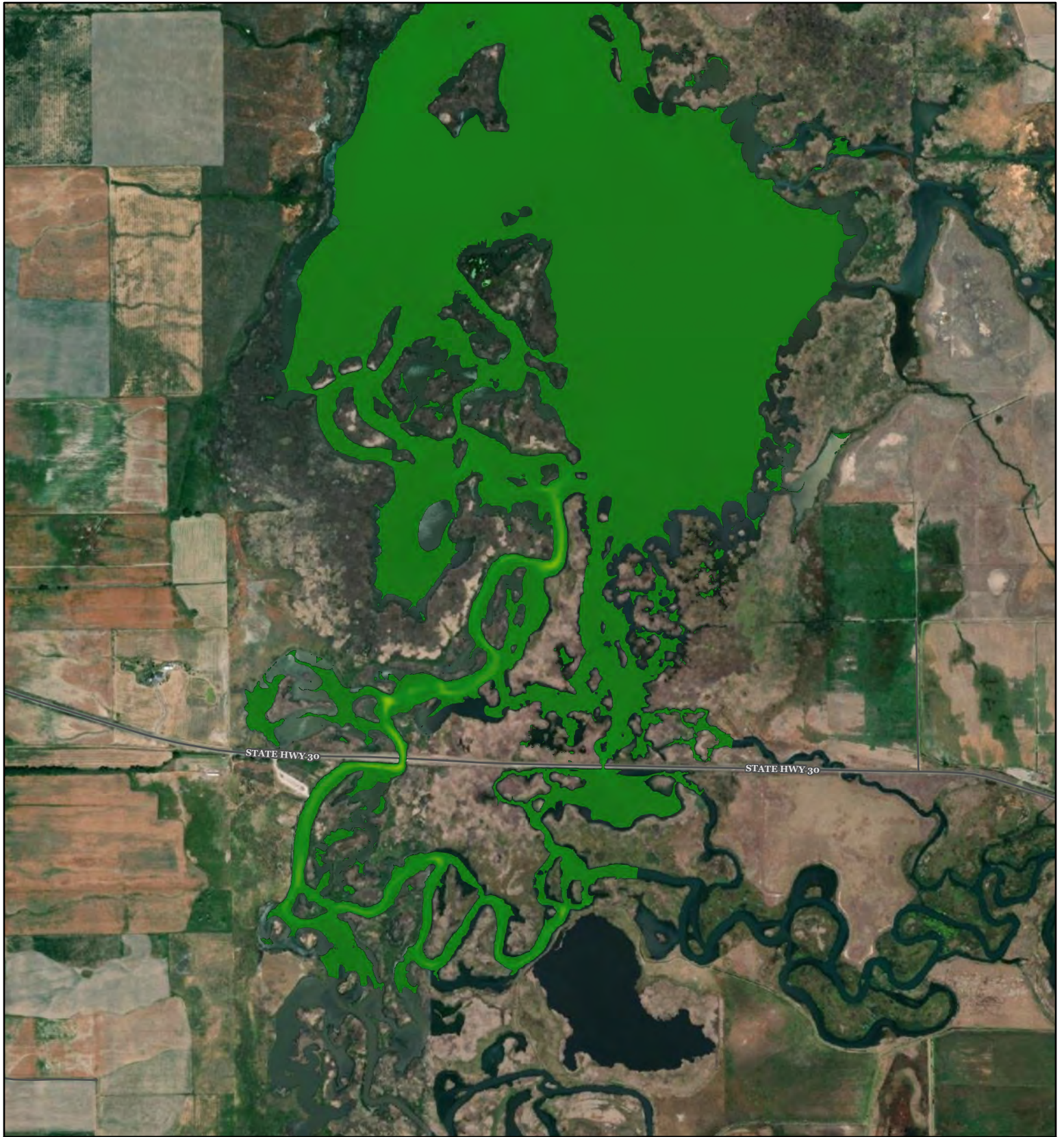
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**1.0 Ft Proposed Normal
Operating Range Velocity**

Sheet 7 of 7

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





Max Velocity (ft/s)



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.

N



Coordinate System: NAD 1983 UTM Zone 12N
Projection: Transverse Mercator
Datum: North American 1983

0 500 1,000
Feet

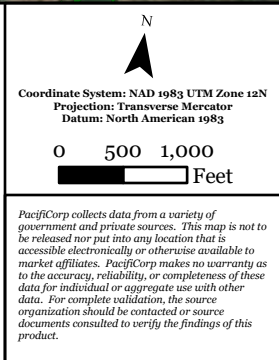
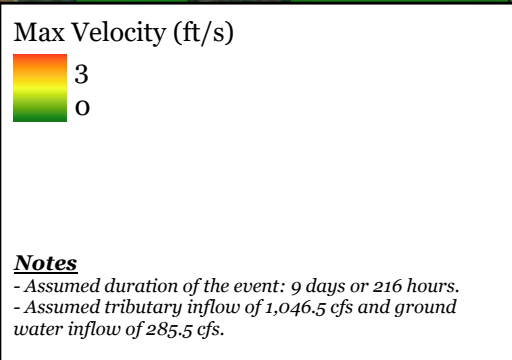
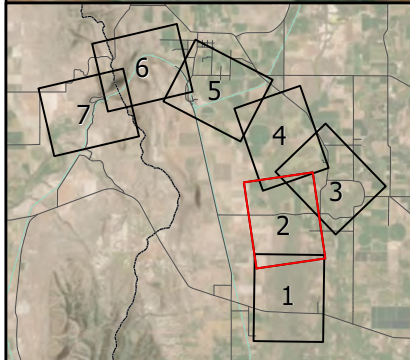
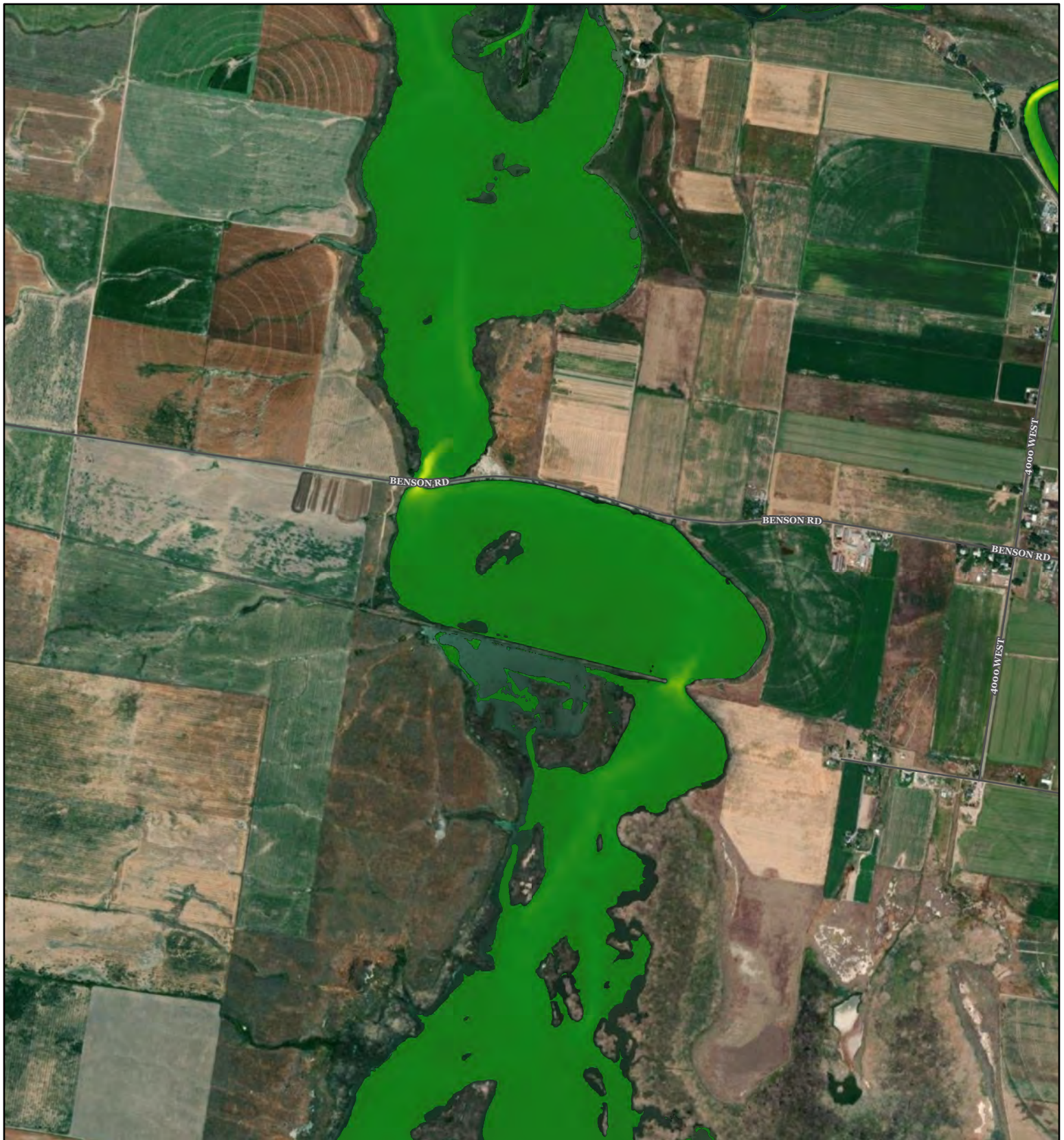
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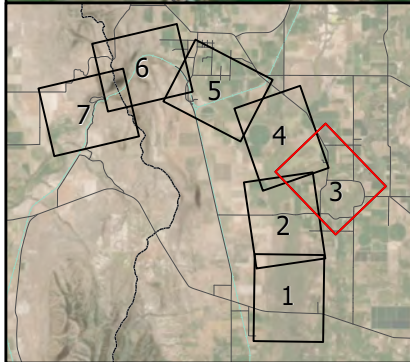
**2.5 Ft Proposed Extended
Operating Range Velocity**

Sheet 1 of 7

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







Max Velocity (ft/s)



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.

Coordinate System: NAD 1983 UTM Zone 12N
Projection: Transverse Mercator
Datum: North American 1983

0 500 1,000
Feet

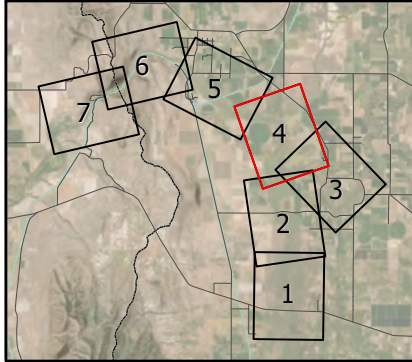
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2.5 Ft Proposed Extended Operating Range Velocity

Sheet 3 of 7

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





Max Velocity (ft/s)



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.

N



Coordinate System: NAD 1983 UTM Zone 12N
Projection: Transverse Mercator
Datum: North American 1983

0 500 1,000
Feet

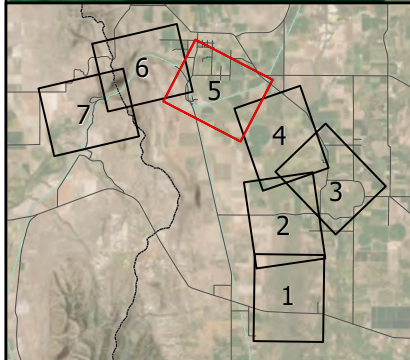
**2.5 Ft Proposed Extended
Operating Range Velocity**

Sheet 4 of 7

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



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Max Velocity (ft/s)

3
0

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.

Coordinate System: NAD 1983 UTM Zone 12N
Projection: Transverse Mercator
Datum: North American 1983

0 500 1,000 Feet

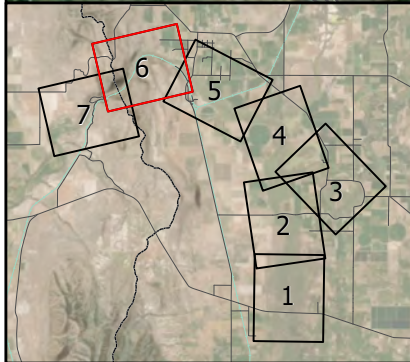
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2.5 Ft Proposed Extended Operating Range Velocity

Sheet 5 of 7

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

PACIFICORP



Max Velocity (ft/s)



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.



Coordinate System: NAD 1983 UTM Zone 12N
Projection: Transverse Mercator
Datum: North American 1983

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Feet

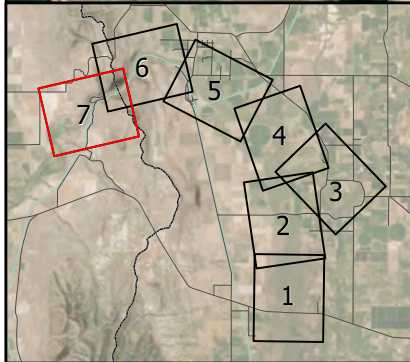
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**2.5 Ft Proposed Extended
Operating Range Velocity**

Sheet 6 of 7

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





Max Velocity (ft/s)



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.



Coordinate System: NAD 1983 UTM Zone 12N
Projection: Transverse Mercator
Datum: North American 1983

0 500 1,000
Feet

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2.5 Ft Proposed Extended Operating Range Velocity

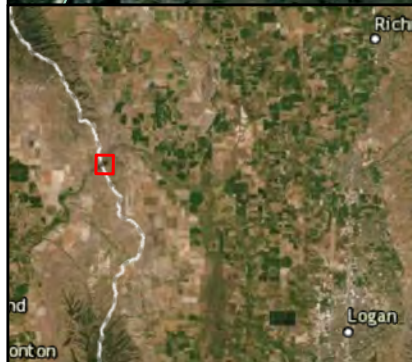
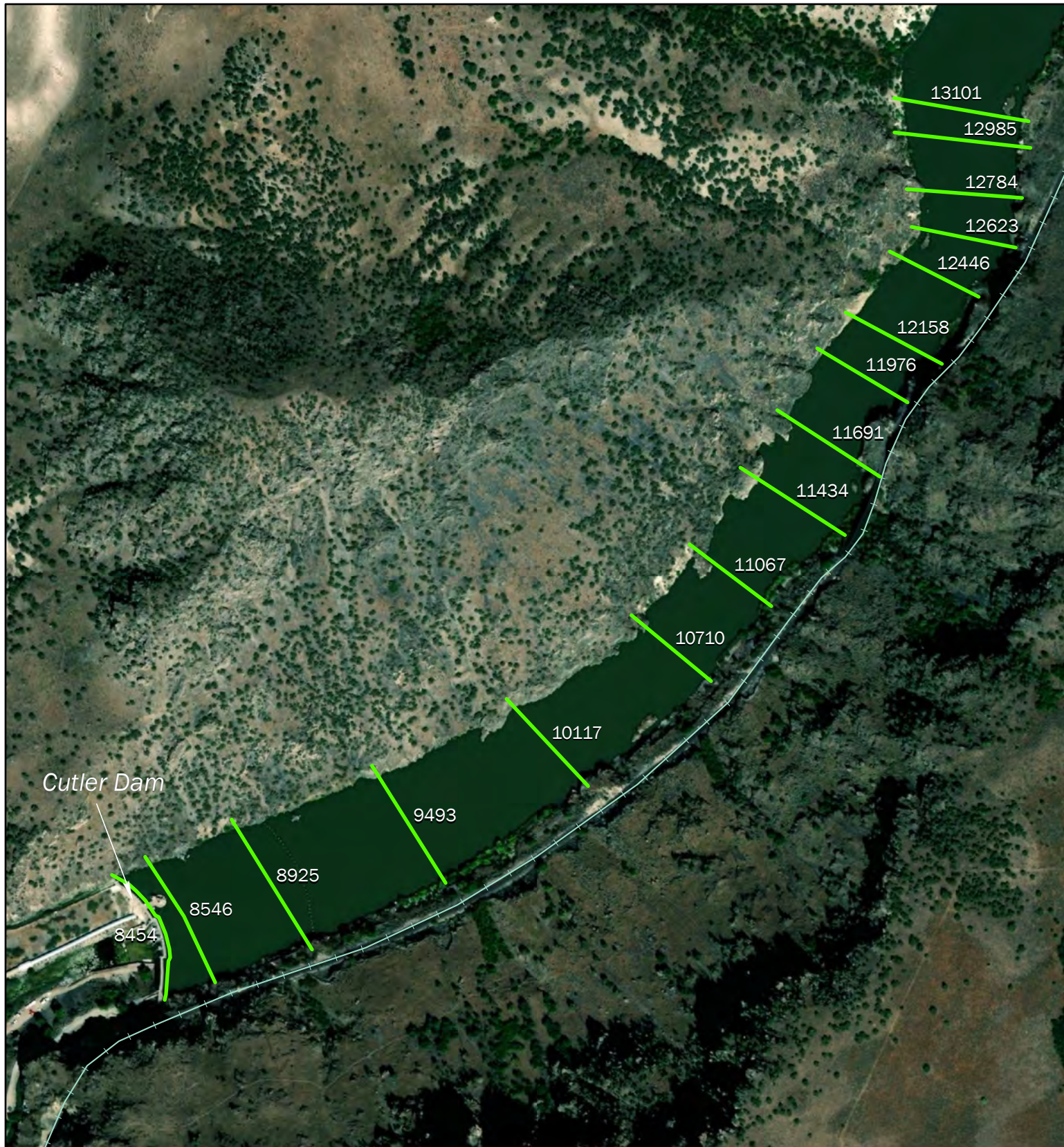
Sheet 7 of 7

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

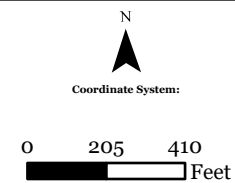


ATTACHMENT 8

CALIBRATED CROSS SECTION MAP



- Cross Sections with River Stationing
- Road
- Railroad



Sediment Model Calibration Locations

**CUTLER
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