

Lee Vining Hydroelectric Project

Welcome!

Technical Report Review Stakeholder Meeting May 14, 2024

Welcome and Land Acknowledgment

SCE would like to take a moment and recognize that the Lee Vining Project is located on the Mono Lake Kutzadika^a Tribes' traditional lands, which they have stewarded for generations.

Safety Moment



Welcome and Introductions: Lee Vining Relicensing Team



Matthew Woodhall Project Manager

Martin Ostendorf Senior Manager

Audry Williams Cultural Resources Manager

> **Seth Carr** Operations Manager

Consultant Team

Shannon Luoma Project Manager

Kelly Larimer Project Director

Carissa Shoemaker TWG Coordinator

Angela Whelpley Recreation and Land Use Lead

> Heather Neff Aquatics Lead

Finlay Anderson Technical Advisor

Lynn Johnson Tribal Lead

Jay King Cultural Lead

Bret Hoffman and Isha Deo Operations Model Leads

Allison Rudalevige and **Steve Norton** Botanical and Wildlife Leads

Meeting Agenda

- Safety moment, welcome, and introductions
- Meeting objectives
- Regulatory and Process, Look Back and Look Ahead
- Action Alternatives
 - No Action, Proposed Action
- Aquatics and Hydrology Studies
 - AQ-5, WQ-1, AQ-6, AQ-4, AQ-3, AQ-2, and AQ-1
- Terrestrial Studies
 - TERR-1, TERR-2
- Cultural and Tribal Studies
 - CUL-1, TRI-1
- Recreation and Land Use Studies
 - REC-1, REC-2, LAND-2, LAND-1
- Schedule, next steps, action items
- Final questions

Rules of Engagement

- Take breaks as needed
- Professional and polite
- Ask questions during appropriate times of the presentation
 - Raise your hand, wait for acknowledgement
- Try to hold discussion until the end of each study
- Will review action items at the end of the meeting

Meeting Objectives

- Review Technical Study Reports
- Address stakeholder questions
- Preview DLA

Regulatory and Process Look Back

- SCE is utilizing the Traditional Licensing Process (TLP)
 - FERC does not engage until end of process, following FLA filing
 - Less structured "formal" milestone schedule around studies
- Study Plans were developed in collaboration with Technical Work Group (TWG) members:
 - 12+ TWG meetings January-May 2021
 - Study Plan revisions February 2022
 - Final Study Plans filed April 2022
- Studies implemented between 2022 2024
- Tech Memos distributed January 23, 2023
- Technical Reports distributed April 2024.

Regulatory and Process Look Ahead

- May 2024 Technical Report Meeting
 - Discuss reports and findings
- 2024 studies:
 - Recreation Use and Needs
 - Additional cultural resources surveys
 - Focused YOTO studies
- Draft License Application due to FERC September 3, 2024
 - Comments due December 2, 2024
- Final License Application due to FERC January 31, 2025

Action Alternatives

No Action Alternative

 SCE would continue to operate and maintain the Project under current terms and conditions of the 1997 FERC license

Proposed Action

- SCE is proposing no new construction or change in operations as compared to current license conditions
 - Minor FERC boundary adjustments are being proposed to account for existing activities and improvements in mapping technology
 - New or modified protection, mitigation, or enhancement (PME) measures and management plans may be included in the DLA

Studies Overview

Studies and Year(s) Implemented

Study	Year(s) Implemented
Reservoir Fish Population Study (AQ-1)	2022
Stream Fish Populations Study (AQ-2)	2022
Aquatic Habitat Mapping and Sediment Characterization (AQ-3)	2023
Aquatic Invasive Plants Survey (AQ-4)	2023
Operations and Hydrology Model (AQ-5)	2022 & 2023
Lower Lee Vining Creek Channel Morphology (AQ-6)	2022 & 2023
Stream and Reservoir Water Quality Study (WQ-1)	2022 & 2023
General Botanical Resources Survey (TERR-1)	2022 & 2023
General Wildlife Resources Survey (TERR-2)	2022, 2023, & 2024
Cultural Resources (CUL-1)	2022, 2023, & 2024
Tribal Resources (TR-1)	2023
Recreation Use Assessment (REC-1)	2022 & 2024
Facilities Condition Assessment (REC-2)	2023
Project Lands and Roads Assessment (LAND-1)	2023
Aesthetic Resource (LAND-2)	2023

Technical Study Report Review

Aquatic Resources

- Operations Modeling (AQ-5)
- Stream and Reservoir Water Quality Study (WQ-1)
- Lower Lee Vining Creek Channel Morphology (AQ-6)
- Aquatic Invasive Plants Survey (AQ-4)
- Aquatic Habitat Mapping and Sediment Characterization (AQ-3)
- Stream Fish Populations Study (AQ-2)
- Reservoir Fish Population Study (AQ-1)

- Conducted via desktop in 2023-2024
- Goals for model development:
 - Facilitate understanding how Project operations interact with Lee Vining hydrology and hydraulics
 - Ability to make informed decisions regarding the implementation of, and results from, other relicensing studies by examining impacts associated with hydrologic availability and reallocation and potential local hydraulic changes

- Model system inflows, outflows, and generation nodes
- Align model efforts with needs of other relicensing studies and information needs
- Develop procedures to configure model for alternative operational scenarios and document results
- Determine effective operating limits of Poole
 Powerhouse (installed vs. dependable capacity)

- Model development process
 - Dataset availability review & selection
 - Selection of model period of record
 - Inflow datasets via mass balance
 - Physical constraints: stage-storage, Poole
- Challenges encountered
 - Negative inflows
 - Gaps in data
 - Unregulated ungauged inflows (Rhinedollar-Poole)
 - Active management through consultation (Saddlebag)



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- Calibration via model calculated outflow vs. sum of USGS outflows
 - 27,620 AF vs. 27,615 AF (respectively)
- User input / alternative operations
 - Potential for changing flows, currently have four start dates for each flow allocation for each year type (can add more but should be realistic based on access)
 - Release logic: min Q, storage depletion, historic year type
- Metrics need to add based on TWG input
 - Graph of hydrograph at select locations, representative years
 - Percent of time targets met

- Determine the frequency, magnitude, duration, and seasonality of intraday releases from the Poole Powerhouse in response to hydro-resource optimization needs
- Describe the stage/discharge relationship at discreet locations between the Poole Powerhouse and the Los Angeles Department of Water and Power (LADWP) diversion.

Available Data

- Powerhouse & spillway flow from October 2009 August 2023
- LADWP Gage Data from May 2013 August 2023
- Generation data from January 2015 October 2023
- Surveyed cross sections from Poole Powerhouse to Big Bend Campground (collected by Stillwater)
- LiDAR Surface (provided by HDR from previous study)

Flow in LVC downstream of Powerhouse

Goal: capture and understand the magnitude, duration, and frequency of these optimization events









Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Methods

- Moving average algorithm used to capture sudden changes in flow in Lee Vining Creek
 - Using total flows (including spill) as they better represent effects in the creek versus just powerhouse flow
- Similar method used to capture peaks in generation data
- Calibration Parameters:
 - Length of Rolling Window
 - Standard Deviations above Rolling Mean
 - Minimum Magnitude
 - Maximum Duration

Calibration Methods

• Flow calibration parameters optimized to maximize both:

A) Percent of flow peaks occurring during generation peaking events

B) Total number of Flow Peaks

- Where we have both flow and generation data:
 - Captured 931 peaks in flow
 - 82% of them corresponded with a generation peak event

Comparing Operational Parameters

- Very few events meeting the criteria prior to 2015
 - The algorithm pulls out events that met the characteristics of hydro optimization even in normal operations
- T-tests on pre- and post- 2015
 - Magnitude: significant increase in size of events
 - Duration: length of the events stayed the same before and after

Hydro Optimization Intraday Model Results by Season

Duration (hours)

Season	2010–2014	2015–2023
Fall	5.1	3.7
Winter	3.3	3.0
Spring	2.5	4.0
Summer	3.4	5.5

wagnitude (cts)		
Season	2010–2014	2015–2023
Fall	41.6	67.4
Winter	19.7	60.8
Spring	26.8	65.50
Summer	11.7	66.8

Frequency (# of events per season)

Season	2010–2014	2015–2023
Fall	1	28.1
Winter	1.4	37.8
Spring	1.6	21.9
Summer	0.4	18.8

Hydro Optimization Intraday Model Results by Water Year Type

Duration (hours)		Magnitude (cfs)			
Season	2010–2014	2015–2023	Season	2010–2014	2015–2023
Dry	4.5	4.3	Dry	29.6	61.4
Normal	4.1	3.9	Normal	19.8	65.2
Wet	1.9	4.1	Wet	28.7	56.8

Frequency (# of events per water year)

Season	2010–2014	2015–2023
Dry	3.3	79.3
Normal	2.5	153.5
Wet	8	67

Stage/Discharge Relationship in Lee Vining Creek



Hydraulic Model

 Uses surveyed cross sections and LiDAR data from HDR

HEC-RAS River Station (RS)	Distance downstream of culvert on Power Plant Road (ft)
4616	128
3967	777
2946	1,798
1321	3,423
834	3,910

Hydraulic Model – March 2017 Event

- Modeled three optimization events over a 2-day span in March 2017
- Can compare velocities and depths during events
- Can calculate average event travel times downstream



Depth and Velocity Results



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Questions?

WQ-1 Stream and Reservoir Water Quality

- Surveys conducted in 2022 and 2023
- Goals and Objectives
 - Characterize water quality in Project reservoirs and Project-affected stream reaches
 - Assess consistency of with water quality objectives in the Water Quality Control Plan for the Lahontan Region

WQ-1 Study Area



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Study Component	2022	2023
Stream and reservoir sampling - <i>in situ</i> , water chemistry, and nutrients	~	\checkmark
Bacterial sampling	\checkmark	\checkmark
Turbidity monitoring downstream of Poole Powerhouse	(summer– winter)	(winter–fall)
Turbidity monitoring in tributaries	No	\checkmark
Fish tissue mercury sampling	~	No

Modifications to Methods in 2022

- In situ water quality monitoring ice cover on Saddlebag Lake during spring prevented collection of depth profiles at maximum depth, turbidity was not measured during summer (probe malfunction)
- Saddlebag Lake and Tioga Lake chemistry sampling limited to surface water during summer
- Continuous Turbidity monitoring below Poole Powerhouse logger installation delayed from spring to summer, loggers were moved to new locations in October 2022
- Mercury testing of edible sized fish 8 of 9 rainbow trout and 9 of 9 brook trout were caught at Tioga Lake

- Modifications to Methods in 2023
 - Access limitations due to near record snow accumulation
 - Spring sampling event delayed to July, Saddlebag Lake, Tioga Lake, and two sites on Lee Vining Creek (LV-1 and LV-3) remained inaccessible
 - Added background turbidity sampling for Lee Vining Creek and Glacier Creek watersheds
 - Added surface water *E. coli* sampling to assess compliance with the June 2023 amendment of the Basin Plan water quality objective for bacteria.

– Data / Results (In situ)

Summary of 2022 and 2023 In Situ Results					
Analyte	Units	Upper Lee Vining Ck.	Lower Lee Vining Ck.	Glacier Creek	Reservoirs
Temperature	°C	1.9–18.4	4.8–16.8	2.5–16.0	4.2–16.8
Specific conductance	μS/cm	7–39	17–59	16–58	16–42
рН	s.u.	6–8.7	6.3–7.9	6.5–8.3	5.1–8
DO saturation	%	99–116	96–107	96–113	0–124
DO	mg/L	6.7–10.9	7.5–9.9	6.9–10.7	0.01–9.9
Turbidity	NTU	0.3–1.1	0.3–1.7	0.2–0.6	0–1.4

– Data / Results (Reservoir *In situ* Profiles)



– Data / Results (Analytical Chemistry)

Summary of 2022 and 2023 Analytical Results

Analyte	Units	Upper Lee Vining Ck.	Lower Lee Vining Ck.	Glacier Creek	Reservoirs
TDS	mg/L	<5–28	<5-44	12–43	8–39
TSS	mg/L	<2–2.0	<2-4.5	<2–4.0	<2–6.0
Total ammonia	mg/L	<0.025- 0.073	<0.025 - 0.044	<0.025 - 0.054	<0.025 - 0.12
Nitrate-nitrite	mg/L	<0.055-0.1	<0.055 - 0.13	<0.055 - 0.24	<0.055 - 0.087
TKN	mg/L	<0.040 - 0.46	<0.040 - 0.37	<0.040 - 0.32	<0.040 - 0.37
Orthophosphate	mg/L	<0.0051 - 0.051	<0.0051 - 0.027	<0.0051 - 0.034	<0.0051 - 0.035
Total phosphorus	mg/L	<0.023	<0.023	<0.023	<0.023

Data / Results (Bacteria)

- 2022
 - Fecal coliform ≤2–20 cfu/100 mL except for one date*
 - High levels (49–350 MPN/100 mL) observed at all sites on Sept 15, 2022
- 2023
 - Fecal coliform were ≤2 cfu/100 mL
 - *E. coli* levels were <1.8 MPN/100 mL



- Data / Results (lower Lee Vining Creek Turbidity)
 - Turbidity downstream of Poole Powerhouse was seasonally variable (0 – 500 NTU)
 - Small increases observed during hydro-resource optimization events monitored during July 2022
 - LVC-DSPP1
 - Baseline turbidity = ~0.5 to 1 NTU
 - Hydro-resource optimization = ~2 NTU
 - LVC-DSPP2
 - Baseline turbidity = ~0.5 to 1.5 NTU
 - Hydro-resource optimization = ~ 3.5 NTU
 - The observed increases in turbidity within the range of natural variability observed during the 2022–2023

- Data / Results (Mercury in Fish Tissue)
 - Concentrations were lowest in fish from Ellery Lake and greatest in fish from Saddlebag Lake
 - The highest concentrations were measured in large brook trout captured in Tioga and Saddlebag lakes



– Discussion

- Water Quality Results support existing Beneficial Uses
 - Other than naturally occurring variations in riverine and reservoir water quality (e.g., DO, pH), results are consistent with applicable Basin Plan water quality objectives
 - Turbidity increases downstream of Poole Powerhouse during hydroresource optimization within the range of natural variability observed during the 2022–2023
 - No indication that increased turbidity during hydro-resource optimization events is adversely affecting beneficial uses
- Mercury in Fish Tissue
 - Summer/Fall hypoxia/anoxia conditions in Saddlebag Lake and Tioga Lake have the potential to methylate mercury but observed mercury levels are low.

Questions?

- Fieldwork conducted in June/October 2022 and September 2023
- Goals and Objectives
 - Assess the potential geomorphic effects of reducing sediment supply (coarse and fine) and altering sediment transport in lower Lee Vining Creek
 - Classify transport and response reaches in lower Lee Vining Creek using existing GIS data, maps, and other remote sensing imagery
 - Characterize channel morphology, fluvial processes, and coarse sediment (greater than 2 mm) transport rates at responsive study sites in lower Lee Vining Creek between Poole Powerhouse and LADWP Diversion Dam
- No modifications to methods

Study Area Map



- Data / Results
 - Site LLV-G1
 - Plane bed and pool-riffle morphology, highly confined, large woody debris (LWD) jams
 - Average slope 0.07%, bankfull widths 25-30 feet
 - Dominated by gravel (45%) and cobble (30%)
 - 25 of 76 tracer rocks recovered (33% recovery rate)
 - 24 tracer rocks traveled more than 1 foot, one did not move



- Site LLV-G2
 - Morphology transitions from cascade to pool-riffle and plane-bed, LWD jams
 - Average slope 1.3%, bankfull widths 25-45 feet
 - Dominated by gravel (41%) and boulder (31%)
 - 21 of 68 tracer rocks recovered (31% recovery rate)
 - 10 tracer rocks traveled more than 1 foot, 11 did not move



- Site LLV-G3
 - Broad glacially sculpted valley, LWD jams
 - Average slope 1.4%, bankfull widths 25-40 feet
 - Dominated by boulder (54%), cobble (27%), and gravel (19%)
 - 12 of 70 tracer rocks recovered (17% recovery rate)
 - 10 tracer rocks traveled more than 1 foot, two did not move



– Discussion

- Ample wood and sediment supply observed in lower Lee Vining Creek
- No evidence for winnowing of sand and finer gravels from the channel bed suggesting channel morphology in lower LVC is generally unaltered by Project operations

Questions?

AQ-4 Aquatic Invasive Plants

- Conducted in September 2023
- Goals and Objectives
 - Assess the extent and distribution of invasive aquatic plants and algae, with a particular focus on *Didymosphenia geminata* (Didymo), in stream reaches downstream of Project reservoirs
- Modifications to Methods
 - 1-m² quadrat used instead of 30-cm diameter hoop for sampling for larger more standardized area for assessment
 - Quadrats placed in right bank, left bank, and center instead of random locations to ensure representative sampling

Aquatic Invasive Plants (AQ-4) Study Sites



AQ-4 Aquatic Invasive Plants

- Data / Results
 - No invasive aquatic algae or plant species observed, including *Didymo*
 - One native species of algae (brittlewort [*Nitella* sp.]) observed in Glacier Creek downstream of Tioga Dam; two native species of aquatic moss (fountain moss [*Fontinalis* sp.] and splashzone moss [*Scouleria* sp.]) observed in LVC between Poole Powerhouse and LADWP Diversion Dam



Brittlewort algae (Nitella sp.)



Lee Vining Creek: upstream of Ellery Lake



Splashzone moss (*Scouleria* sp.) on rocks in Lee Vining Creek



Fountain moss (Fontinalis sp.)

AQ-4 Aquatic Invasive Plants

- Discussion
 - No invasive aquatic algae or plant species observed, including *Didymo*
 - Low (<0.5 mg/L) nitrogen and phosphorus during 2022 and 2023 WQ-1 sampling indicate low potential for algae
 - Project O&M activities unlikely to result in adverse effects associated with the introduction or spread of aquatic invasive plant and algae.



Questions?

- Conducted in August and September 2023
- Goals and Objectives
 - Determine habitat conditions for fisheries within Projectaffected stream reaches and to characterize baseline conditions of channel substrate (e.g., fines and coarse sediments)
 - Characterize aquatic habitat types,
 - Characterize spawning gravel patches (i.e., coarse sediment), and
 - Determine potential habitat-related limiting factors for the trout population within Project-affected stream reaches.
- No modifications to methods



- Data / Results: Habitat conditions
 - Reaches primarily cobble and boulder substrate





Lower Lee Vining Creek



Glacier Creek

- Spawning gravel





ULVC between Slate and Ellery



ULVC between Saddlebag and Slate

- Passage Barriers
 - Six barriers observed: natural bedrock waterfalls or cascades, culverts under Hwy 120



Lower Lee Vining Creek

Lower Lee Vining Creek

ULVC between Ellery and Slate



ULVC between Slate and Ellery

Glacier Creek

Glacier Creek

- Discussion
 - Spawning gravel is prevalent in all Project-affected reaches, except between Saddlebag Dam and the confluence of Slate Creek
 - Aquatic Habitat quality within Project-affected stream reaches is generally excellent and provides adequate habitat for all life stages of trout
 - Project O&M activities unlikely to have adverse effects on spawning gravel and habitat quality in Project-affected stream reaches



Upper Lee Vining Creek



Lower Lee Vining Creek



Lower Lee Vining Creek

Questions?

AQ-2 Stream Fish Populations

- Conducted in September 2022
- Goals and Objectives
 - Assess fish populations in Project-affected stream reaches downstream of Project reservoirs
- No modifications to methods

Stream Fish Populations (AQ-2)

Study Area Map



AQ-2 Stream Fish Populations

- Data / Results
 - Fish species composition and distribution





Brook trout



Brown trout



Rainbow trout

AQ-2 Stream Fish Populations

Fish abundance, density, and biomass

- Abundance ranged from 2,256 to 4,136 fish/mile
- Density ranged from 0.19 and 0.69 trout/m²
- Biomass ranged
 between 4.85 and 25.63
 g/m²



AQ-2 Stream Fish Populations

Age-class distribution

 Most sites had brook trout and brown trout ranging from young-of-year up about 5 years old



AQ-2 Stream Fish Populations

Fish condition

- Mean condition factors ranged between 0.88 and 1.15, indicating healthy nutritional state
- Brown and brook trout showed signs of reproductive activity (milting and redds)



Stream	Study Site	Trout Species	Mean K- value
LowerLee	LLVC-F1	Rainbow trout	1.15
Vining Creek		Brook trout	0.99
		Brown trout	1.09
Upper Lee Vining Creek		Brook trout	0.96
	OLVETT	Brown trout	1.05
		Brook trout	1.09
	OLVC 12	Brown trout	1.07
		Brook trout	1.04
	OLVC 15	Brown trout	1.08
		Brook trout	0.95
	OLVCIT	Brown trout	1.08
		Brook trout	0.97
	OLVC TJ	Brown trout	1.08
Glacier Creek	GC-F1	Brook trout	1.04
		Brown trout	1.10
AQ-2 Stream Fish Populations

- Discussion
 - Population comparable to historical estimates and other similarly sized Sierra streams
 - Age-class distribution suggest natural recruitment of brown and brook trout
 - Healthy nutritional state
 - Project O&M activities unlikely to have adverse effects on stream fish populations





Questions?

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- Conducted in August 2022
- Goals and Objectives
 - To document the current fish populations within Project reservoirs
 - Obtain information on reservoir fish populations where background data are lacking
 - A subset of fish captured during this study was collected for mercury bioaccumulation lab analysis for the Study WQ-1 Reservoir and Stream Water Quality.
- Modifications to Methods
 - Gill net soak times during the night sampling period were decreased from 8 hours to 4 hours for all gill net locations at Tioga Lake and at two gill net locations at Saddlebag Lake, after fish mortalities were observed on the first night at Ellery Lake

Reservoir Fish Populations (AQ-1)

Reservoir Fish 2022 Study Sites— Saddlebag Lake



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Reservoir Fish Populations (AQ-1)

Reservoir Fish 2022 Study Sites—Ellery Lake



Reservoir Fish Populations (AQ-1)

Reservoir Fish 2022 Study Sites—Tioga Lake



- Data / Results
 - Fish species composition





Lahontan redside





Rainbow trout

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- Age-class distribution
 - Scales aged from 71 trout
 - Brook and brown trout were young-of-year to 5 years old
 - Rainbow trout were 3-6 years old
- Fish condition
 - Mean condition factors for trout ranged from 0.92 to 1.28 indicating a healthy nutritional state
- Site conditions
 - Water temperatures were cool, dissolved oxygen levels were high, little variation between Project reservoirs



- Discussion
 - Age-class distribution suggests natural recruitment of brown and brook trout
 - Low abundance of rainbow trout is likely due to lack of planting by CDFW in 2022
 - Healthy nutritional state
 - Project O&M activities unlikely to have adverse effects on reservoir fish populations





Questions?

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Terrestrial Resources

– General Botanical Resources Survey (TERR-1)

– General Wildlife Resources Survey (TERR-2)

- Conducted in July and August in 2022 and 2023
- Goals and Objectives
 - Ground-truth the existing USFS vegetation map, including identification of any sensitive natural communities
 - Document the presence of species listed by the federal and/or state Endangered Species Acts or proposed for listing, e.g., whitebark pine
 - Document the presence of other special-status plants including species with a California Rare Plant Rank (CRPR) of 1 or 2 and USFS Species of Conservation Concern
 - Document non-native, invasive plants identified in the Inyo National Forest Invasive Plant Inventory Database (NRM – TESP/IS, 2018) and on the California Invasive Plant Council (Cal-IPC) Inventory (Cal-IPC, 2020);
 - Incorporate results of the riparian monitoring study undertaken as part of the existing license (Read, 2004, 2012, 2017, 2022)
 - Perform a focused study of selected riparian habitat areas using Normalized Difference Vegetation Index (NDVI) to
 - Compare "test" reaches and "control" reaches and
 - To assess whether or not there have been changes resulting from hydroresource optimization.

- Modifications to Methods
 - Number of NDVI study sites increased to 8 instead of 2
 - Study Area expanded in select locations due to request of USFS
 - Study Area decreased in select locations due to access limitations/topography
 - Some survey areas were inaccessible in 2023 due to higher water levels or snowpack
 - Two rounds of surveys conducted in 2022 and 2023 instead of reference population checks



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- Data / Results
 - Vegetation mapping
 - 13 vegetation communities and other areas identified including areas dominated by grasses and forbs, conifers (including whitebark pine), quaking aspen, wet meadow, and willows.



- Data / Results
 - Special-status plant species
 - Whitebark pine (Federally Threatened) – observed at Rhinedollar Dam and Penstock Trail, Saddlebag Dam and Campgrounds (CGs), Ellery Lake CG, Sawmill CG, Tioga Dam and Auxiliary Dam, and Tioga Lake CG
 - Mountain bent grass (CRPR 2B.3) observed at Saddlebag Dam CG
 - Black cottonwood (riparian species important to stakeholders) – observed near Poole Powerhouse



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Saddlebag Dam

- Data / Results
 - Invasive plants
 - Cheatgrass observed at Poole Powerhouse and Ellery Lake CG



- Data / Results
 - Riparian monitoring
 - Variability in species cover among sites, vegetation types, and monitoring years.
 - Some vegetation is stable (e.g., riparian shrub cover at Site 1).
 - Some vegetation is variable (e.g., decrease in upland herb cover at Site 3 and a decrease in species richness across sites).
 - While there was variability in riparian cover/diversity, variability also occurs in upland vegetation, indicating that differences more likely caused by environmental factors outside the Project's control.



Energy for What's Ahead[™]

- Data / Results
 - NDVI analysis measures "greenness" as a proxy for health
 - Compared "test" sites (below SCE facilities) with "control" sites (not below SCE facilities) using 2016 and 2021 imagery.
 - Looked at willow riparian scrub and wet meadow areas.



- Discussion
 - Vegetation communities
 - No effects to vegetation communities from O&M activities
 - Special-status plants
 - O&M activities have potential to affect special-status species (i.e., mountain bent grass near Saddlebag Dam) at a level similar to present O&M activity
 - Invasive plants
 - O&M activities have potential to affect invasive plant species (e.g., cheatgrass near Poole Powerhouse) at a level similar to present O&M activity
 - RTE species
 - No effects to RTE plant species (i.e., whitebark pine) from O&M activities
 - Wetlands and riparian
 - No effects to wetlands/riparian habitats from O&M activities

Questions?

TERR-2 Wildlife Resources

- Conducted surveys in 2022 (summer months), and 2023 (summer and fall months)
- Goals and Objectives
 - Build a compendium of common, U.S. Forest Service At-Risk Species and Species of Conservation Concern (USFS, 2019), and other special status wildlife species occurring within the Project areas that may be affected by routine O&M activities.
 - Identify rare, threatened, and endangered riparian birds in the area during general wildlife surveys.
 - Assess willow flycatcher (*Empidonax traillii*) nesting habitat downstream of the FERC Project Boundary between Poole Powerhouse and the reservoir at the Los Angeles Department of Water and Power (LADWP) Diversion Dam, using vegetation classification as the primary tool as well as aerial photography review and ground-truthing.

TERR-2 Wildlife Resources

Modifications to Methods

- Two primary survey years instead of one (11 survey days in 2022, 20 survey days in 2023, plus one survey day in 2021)
- Trail cameras were deployed in summer and fall, but removed for the winter and spring; yearround camera deployment was initially proposed
- Sampled ultrasonic acoustics to document bat activity
- Yosemite toad (YOTO) survey modifications
 - Three consecutive survey years for YOTO (2022, 2023, 2024)
 - Expanded scope of visual encounter surveys
 - Deployed acoustic recorders
 - DNA sampling



TERR-2 Wildlife Resources

- Data / Results
 - Many observations and sign of common wildlife species documented
 - Large mammals observed with trail cameras: mountain lion, coyote, black bear, mule deer
 - Special-status species observed: Yosemite toad, bald eagle, golden eagle, olive-sided flycatcher, snowshoe hare, white-tailed jackrabbit, Sierra Nevada bighorn sheep
 - No bat roosting evidence
 - Ultrasonic acoustic recorders documented nine bat species with six occurring only below Poole PH.
 - Potentially suitable willow flycatcher habitat is present between Aspen CG and Lower Lee Vining CG (approximately 2 miles)

TERR-2 Wildlife Resources

- Data / Results (continued)
 - YOTO upland habitat observed throughout the Study Area
 - No evidenced of YOTO breeding
 - Northern Saddlebag Lake
 or
 - Along lower Lee Vining Creek
 - YOTO breeding observed
 - South of Saddlebag Lake
 - West of Upper Lee Vining Creek (along Slate Creek)
 - Southeastern side of Tioga Lake

TERR-2 Wildlife Resources

– Discussion

- Wildlife
 - No effects to wildlife or their habitats from O&M activities
- Migratory birds and raptors
 - No effects to migratory birds or raptors from O&M activities
- Bighorn sheep
 - No effects to bighorn sheep or the critical habitat from O&M activities
- RTE species (including YOTO)
 - No effects to RTE species from O&M activities
 - Dispersed use recreation activities have potential to affect YOTO and its habitat at the south end of Saddlebag Lake and the southern shoreline of Tioga Lake (outside of the Project Boundary)

Questions?

Cultural & Tribal Resources

- Cultural Resources (CUL-1)
- Tribal Resources (TR-1)



- Field work conducted in July and August 2022
- Goals and Objectives
 - Meet FERC compliance requirements in the Code of Federal Regulations, Title 18, Part 5 (18 CFR Part 5) and Section 106 of the NHPA, as amended, by determining if Project-related activities and public access will have an adverse effect on historic properties.
 - Identify all archaeological resources, built-environment (BE) resources, and Traditional Cultural Resources within the Area of Potential Effect (APE); determine which are historic properties; and develop the Historic Properties Management Plan (HPMP) based on those results.
 - Ensure that future Project facilities and operations are consistent with the Desired Conditions described in the Land Management Plan for the Inyo National Forest (USFS, 2019) for Social and Economic Sustainability and Multiple Uses.

- No modifications to methods
- Data / Results CUL-1 Archaeology
 - 20 cultural resources revisited or newly identified of these 4 are previously recorded and 16 newly recorded
 - 2 new precontact sites, 15 historic-period archaeological sites, and 3 sites with both precontact and historic-period components; 10 of the archaeological sites also contain built-environment resources
 - 2 previously recorded sites were not relocated
 - 2 new precontact sites consist of lithic scatters and remain unevaluated for listing in the National Register of Historic Places (NRHP) pending further investigations
 - 3 multicomponent sites with a precontact component are classified as isolate artifacts and are considered categorically ineligible for the NRHP
 - All historic-period sites or components (18) are related to the hydroelectric project, recreation, and transportation in the region and are recommended not eligible for listing on the NRHP

- No modifications to methods
- Data / Results CUL-1 Built-Environment
 - Background research identified 28 built-environment resources, many documented as features of a multicomponent complex
 - 13 complexes or individual resources are associated with the Lee Vining Hydroelectric Project (LVHP)
 - 1 resources is associated with transportation
 - 3 resources are associated with recreation



Built-Environment Resources Associated with the LVHP

Historic Name / Current Name	Date(s) of Construction	Previous NRHP Eligibility	In APE?	2022 NRHP Recommendations
Lee Vining Hydroelectric Project	1912–1929	Not Eligible	Yes (partially)	Not Eligible
Poole Powerhouse Complex	1919–1927	Not Eligible	Yes	Not Eligible
Poole Powerhouse (Building 0101)	1924	Not Eligible	Yes	Individually Eligible
Triplex Cottage (Building 0102)	1924	Individually Eligible	Yes	Individually Eligible
Poole Power Plant Road	1917	Not Eligible	Yes (partially)	Not Eligible
Bishop-Lundy (Mill Creek-Control) Transmission Line	1913-1924; 1940; 1965; 1987	Not Eligible	Yes (partially)	Not Eligible
Rhinedollar Circuit	1919	Not Eligible	Yes (partially)	Not Eligible
Flowline, Tunnel, Penstock	1920–1927	Not Eligible	Yes	Not Eligible
Rhinedollar Complex	1917–1927	Not Eligible	Yes	Not Eligible
Tioga Complex	1917–1929	Not Eligible	Yes	Not Eligible
Saddlebag Complex	1917–1921	Not Eligible	Yes	Not Eligible
Saddlebag Lake Road	1917	Not Eligible	Yes (partially)	Not Eligible
Lee Vining Substation Complex (formally Powerhouse No. 3)	1924	Not Eligible	No	Not Eligible

APE = Area of Potential Effects; NRHP = National Register of Historic Places

Built-Environment Resources Not Associated with the LVHP

Historic Name/ Current Name	Date(s) of Construction	Previous NRHP Eligibility	In APE?	Current NRHP Recommendations
Tioga Pass Road/Hwy 120	1902–1905; 1924; 1939–1940; 1965–1970	-	Yes (partially)	Not Eligible
Saddlebag Lake Resort	1946–1947	Not Eligible	Yes (partially)	Not Eligible
Saddlebag Wilderness Cabin Complex	1930	-	Yes (partially)	Not Eligible
Tioga Pass Resort	1914-Present	Eligible Historic District	Yes (partially)	Eligible Historic District

APE = Area of Potential Effects; NRHP = National Register of Historic Places

– Discussion

- Future O&M could potentially affect historic properties.
- No observed impacts were documented at the 2 lithic scatters, which are pending NRHP evaluation
- Poole Powerhouse and Triplex Cottage are both individually eligible under Criterion C in the area of Architecture as examples of the Greek Revival and French Eclectic styles, respectively
- Regular Project O&M should not constitute an adverse effect unless done in a manner inconsistent with the HPMP that the new license will require

Historic Properties Management Plan

• As part of the relicensing process, SCE will develop an HPMP to provide a guiding philosophy and specific steps for how SCE can assess potential Project-related effects to the historic properties under its control with the overarching goal of avoiding adverse effects to those properties whenever possible or minimizing those effects then they are unavoidable.



Questions?
TRI-1 Tribal Resources

- Conducted in 2022 to 2024
- Goals and Objectives
 - Assist FERC in meeting compliance requirements identified in 18 CFR Part 5 along with those requirements subject to NHPA Section 106 (as amended), among other federal laws and regulations, by determining if licensing of the Project would have an adverse effect upon Tribal resources, which may also include historic properties.
 - Identify and document Tribal resources identified within or immediately adjacent to the proposed APE.
 - Conduct a thorough American Indian ethnographic/ ethnohistoric survey of the proposed APE and Study Area.
 - Conduct outreach and contact with Tribal governments and their representatives.

TRI-1 Tribal Resources

- No Modifications to Methods
- Data / Results
 - Pending
 - Tribal report is in final draft stage, results will be shared after they are shared with Tribes and agencies.
- Conclusions
 - Future O&M could potentially affect historic properties.
 - HPMP will address any Tribal resources potential effects





Questions?

Recreation and Land Use Resources

- Recreation Use Assessment (REC-1)
- Facilities Condition Assessment (REC-2)
- Aesthetic Resources (LAND-2)
- Project Lands and Roads Assessment (LAND-1)



- 2022 First Study Season
 - User surveys conducted to collect primary reason for each recreator's visit
 - Data collected helped to determine sites or areas with a potential connection to the Project that would be included in the second study season
- 2023 Second Study Season
 - Postponed due to record snowfall received in the Lee Vining area
- 2024 Second Study Season
 - Visitor Intercept Surveys and spot counts will to be conducted once Tioga Pass Road is cleared and USFS has had time to open sites
 - Traffic and trail counters will be installed once Tioga Pass Road is cleared
 - Creel surveys will be conducted once Tioga Pass road is cleared.

- Goals and Objectives

- Determine which INF recreation facilities or activities have a potential connection to the Project and thus would warrant inclusion in the broader studies proposed in the second study season. (2022 study season)
- For the study sites and activities identified:
 - Characterize existing recreation opportunities and visitation.
 - Characterize existing recreation visitor characteristics, needs, and preferences.
 - Estimate current recreational fishing effort in Project creeks and reservoirs.
 - Estimate future recreational demand and needs, including the need for additional recreation facility and access enhancements or enforcement actions.
 - Assess consistency of current recreation opportunities with the Desired Conditions, Goals, Standards, and Guidelines described in the Land Management Plan for the Inyo National Forest (USFS, 2019).
- Modifications to Methods
 - Second season to be implemented spring and summer 2024

– Data / Results

- 2022 nexus surveys identified 10 sites that may have a potential nexus to the Project
- These 10 sites were moved forward to the second study season and included as part of the REC-2 study

- Consultation to Date

- March 1, 2023 presented data and results for the first study season to the Recreation and Land Use Technical Working Group (TWG)
- March 15, 2023 Met with TWG to review methods and approach for 2023 surveys and locations per Recreation Study Plans
- April 1, 2023 Met with TWG to discuss Recreation Study Plan implementation
- July 17, 2023 Emailed TWG to inform of Recreation Study being postponed due to 2022/2023 snowfall totals
- February 28, 2024 Met with TWG to review REC-1 work to date and present the 2024 implementation plans

- Preliminary data will be shared with TWG once surveys are complete in late fall 2024, prior to filing the FLA.
- 2024 data will not be included in the DLA



Questions?

REC-2 Facilities Condition Assessment

- Condition Assessment completed in August 2023
- Goals and Objectives
 - Identify existing dispersed or informal use areas, including documentation of existing conditions (2022 Study Season).
 - Conduct a facility inventory and condition assessment at existing recreation facilities and associated parking areas, including an evaluation of signage and public safety features (2023 Study Season).
 - Assess the carrying capacity and potential need for expansion, or alteration of existing recreation facilities (following data analysis of Study REC-1).
 - Assess the condition and potential for universal accessibility, where feasible (2023 Study Season).
 - Assess the consistency of current facilities with the Desired Conditions, Goals, Standards, and Guidelines described in the Land Management Plan for the Inyo National Forest (USFS, 2019) (2023 Study Season).
- Modifications to Methods
 - 2023 study implementation was delayed from June to August due to access
 - Tioga Lake Overlook Info Site and Glacier Canyon Trailhead are co-located, so only one data form was collected

REC-2 Facilities Condition Assessment

- Data / Results
 - Facilities Inventory and Condition
 - Saddlebag Lake Area
 - $\circ~$ CG with 20 sites, restrooms, potable water
 - o Day Use Area with boat launch, restrooms, potable water
 - o Trailhead with group campsite, picnic tables, potable water, restrooms
 - Tioga Lake Area
 - o CG with 13 sites, restrooms, potable water
 - o Overlook and trailhead with restrooms, picnic tables
 - Ellery Lake and Rhinedollar Dam Area
 - o CG with 15 sites, restrooms, potable water
 - Bennettville Trailhead
 - Junction Campground
 - o 14 sites, restrooms
 - Sawmill Walk-In Campground
 - o 11 sites, restrooms
 - Dispersed Use
 - Saddlebag Lake: 7,047.5 linear feet of trails
 - Tioga Lake: 9,923.6 linear feet of trails
 - Ellery Lake: 8,930.1 linear feet of trails
 - Rhinedollar Dam: 3,607.1 linear feet of trails



REC-2 Facilities Condition Assessment

- Discussion
 - Overall sites were noted to be in good condition with a minimal number of amenities needing maintenance or repairs
 - Of the dispersed use noted, trail counters will be placed in 5 locations as part of the REC-1 Study to help inform recreation use.
 - This study was found to be consistent with many Inyo National Forest-wide desired conditions, goals, standards, and guidelines. Additionally, the study was found to align with many Area-Specific desired conditions, goals, standards, and guidelines.



Questions?

LAND-2 Aesthetic Resources

- Conducted in August 2023
- Goals and Objectives
 - Characterize the visual resources of Project lands, document the visual quality and management objectives in the USFS INF Land Management Plan, and document the existing visual character of Project facilities and features from affected viewsheds and representative Key Observation Points (KOPs).
 - Inventory, map, and describe existing Project infrastructure, O&M, and construction activities that may affect visual resources of the Project Area.
 - Obtain data and maps from the USFS GIS and characterize existing visual resource inventories and management objectives associated with the Project lands as developed under the INF Land Management Plan. Summarize variety classes, sensitivity levels, distance zones, and Recreation Opportunity Spectrum classifications.
 - Conduct a desktop viewshed analysis and assess what portion of Project lands are visually affected by Project-related activities.
 - Select KOPs with TWG.
 - Assess the KOP locations to document the existing scenic character and potential use.
- No modifications to methods



LAND-2 Aesthetic Resources

- Data / Results
 - Visual character of Project features and lands
 - Impoundments and creek areas, undeveloped shorelines with occasional recreation facilities and structures
 - Evergreen trees, shrubs, grasses, meadows, wetlands, barren rock, distant views of hills and mountains beyond
 - INF Land Management Plan
 - Scenic Integrity Objectives of FERC Project Boundary lands are High (99.9%)
 - Recreation Opportunity Spectrum area is "Modified/Roaded"
 - Wild and Scenic Rivers and Scenic Highways
 - No National Wild and Scenic Rivers in FERC Project Boundary, but Lee Vining Creek is eligible for inclusion
 - Highway 120, through the Project, is National Forest Scenic Byway
 - Eight key observation points documented
 - Viewshed analysis
 - Saddlebag Dam would be visible from KOP 1 (Saddlebag Lake Day Use Area / CG)
 - Both Tioga Auxiliary Dam and Tioga Dam would be visible from KOP 3 (Tioga Lake CG) and KOP 4 (Tioga Lake Overlook)
 - Poole Powerhouse would be visible from KOP 7 (Poole Powerhouse Gate)
 - All Project facilities are in USFS "High" Scenic Integrity Objective area and "Modified/Roaded" Recreation Opportunity Spectrum area



LAND-2 Aesthetic Resources

- Existing visual requirements

- Requirements for Approval
 - Need USFS approval before affecting any resource on FS lands
- Facility Design and Placement
 - Facilities are painted in earth tones and are landscaped to break up the lines of the buildings
 - New structures are co-located with existing structures
 - USFS reviews and approves re/vegetation plans

- Pipeline and Similar Structure Placement
 - Pipelines are buried or painted in earth tones
 - Ground disturbances revegetate naturally
- Transmission Lines
 - None in Project Boundary
- Roads and Cleared Areas
 - Roads and cleared areas are located to minimize visual impact
 - Revegetated with native species to blend in with surroundings



Energy for What's Ahead[™]

Questions?

- Conducted via desktop in fall 2023
- Goals and Objectives
 - The goal of the study is to assess potential modifications to the FERC Project Boundary to account for future O&M of Project facilities.
 - Identify whether additional Project lands may be needed for operation of the Project, including laydown and spoil areas, or whether current Project lands or facilities are no longer needed for Project operation.
 - Confirm existing land ownership and federal lands within the existing FERC Project Boundary are accurately represented.
 - Identify which roads or access trails are used for access to and maintenance of the Project, and identify existing agreements related to maintenance of those roads and access trails.
 - Inventory and assess the condition of those identified Project-related roads and access trails, including the potential need for improvements.
 - Identify for purposes of describing in the Draft License Application all Project facilities and structures used for hydroelectric generation (e.g., buildings, roads, and spillways).

- No modifications to methods
- Data / Results
 - Proposed changes to Project lands
 - o Add 0.14 acre of USFS lands at Tioga Dam for operations
 - o Add 0.52 acre of USFS land at Tioga Dam for an access road
 - o Add 2.05 acres of USFS land at Saddlebag Dam for roads
 - o Remove 11.45 acres of SCE land on north side of Ellery Lake
 - All of the FERC Project Boundary is within USFS lands, except the rectangular area at Ellery Lake







Questions?

Schedule & Next Steps

Relicensing Process Schedule

Date	Activity
April 16, 2024	Technical Reports to Stakeholders, start of 60-day comment period
May 14, 2024	Technical Report Review Stakeholder Meeting
June 11, 2024	Technical Report Comment period ends, send comments to SCE & Relicensing Team
July – August 2024	Focused TWG meetings, as needed
Spring – Fall 2024	 2024 field studies, collect last pieces of data REC-1 Yosemite Toad Cultural Resources
September 2024	SCE Files Draft License Application, including Final Technical Reports
October/November 2024	Recreation TWG Discussions
December 2, 2024	DLA comments due
January 2025	SCE Files Final License Application

How to Stay Involved

- Check the Project website for updates/news at <u>www.sce.com/leevining</u>
- You can view other SCE relicensing Projects at <u>www.sce.com/regulatory/hydro-licensing</u>
- Sign up to receive Project-related emails through the Contact Registration Form/Project Questionnaire on the Project website
- Sign up for FERC's for e-subscription (docket number "P-1388") at <u>www.ferc.gov</u>
- Email Carissa Shoemaker with questions <u>carissa.shoemaker@kleinschmidtgroup.com</u>

Final Questions?

Thank you!