

Monitoring Program 2017 Final Annual Report Sacramento Municipal Utility District

Hydro License Implementation • June 2018

Upper American River Project

FERC Project No. 2101

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TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	MONITORING FREQUENCY.....	2
3.0	MONITORING PROGRAM CONDITIONS	3
4.0	LITERATURE CITED	13

LIST OF TABLES

Table 1.	Monitoring Program Frequency First Five Years.....	2
Table 2.	Status of Ecological Condition Monitoring 2017.....	4

LIST OF APPENDICES

APPENDIX A	2017 Hardhead Monitoring Report.....	14
APPENDIX B	2017 Amphibian and Aquatic Reptile Monitoring Report	15
APPENDIX C	2017 Water Temperature Monitoring Report	16
APPENDIX D	2017 Water Quality Monitoring Report.....	17
APPENDIX E	2017 Bear Management Monitoring Report.....	18
APPENDIX F	2017 Bald Eagle Monitoring Report	19

Acronyms and Abbreviations

Acronym	Definition
AREC	Annual Review of Ecological Conditions
BLM	Bureau of Land Management
CDFW	California Department of Fish and Wildlife
cfs	cubic feet per second
FERC	Federal Energy Regulatory Commission
USFS	U.S. Department of Agriculture, Forest Service
SMUD	Sacramento Municipal Utility District
SWRCB	State Water Resources Control Board
UARP	Upper American River Project

1.0 INTRODUCTION

This Monitoring Program Annual Report (Report) is being submitted to the Federal Energy Regulatory Commission (FERC) by the Sacramento Municipal Utility District (SMUD), in accordance with State Water Resources Control Board (SWRCB) Condition 8 of the 401 Water Quality Certification and U.S. Department of Agriculture, Forest Service (USFS) 4(e) Condition 31 (hereafter Conditions), located in Appendices A and B, respectively, of FERC's Order Issuing New License (License; FERC 2014) for the Upper American River Project (UARP).

SWRCB 401 Condition 8 states:

The Licensee shall prepare an annual report that fully describes the monitoring efforts of the previous calendar year, including the data collected and analysis of that data. The report shall be filed with the Commission by June 30 of each year for the preceding year. USFS, CDFW, USFWS, and the State Water Board shall have at least 30 days to review and comment on the draft report prior to filing with the Commission. The Licensee shall provide copies of the final annual report to USFS, CDFW, USFWS, and the Deputy Director.

USFS 4(e) Condition 31 states:

The Licensee shall file with FERC by June 30 of each year an annual report fully describing the monitoring efforts of the previous calendar year. FS, CDFG, FWS, and SWRCB shall have at least 30 days to review and comment on the draft report prior to filing with FERC. The licensee shall provide copies of the annual report to FS, CDFG, FWS, and SWRCB.

Additionally, SWRCB Condition 10 requires SMUD to include a summary of the efforts made to pass large woody debris at several Project reservoirs in the Annual Monitoring Report.

SWRCB 401 Condition 10 states:

The Licensee shall ensure that mobile instream large woody debris continues downstream beyond Robbs Peak Reservoir Dam, Junction Reservoir Dam, Camino Reservoir Dam, and Slab Creek Reservoir Dam. This requirement will not be in effect when access and working conditions are dangerous or unsafe. At a minimum, all sizes greater than both 20 centimeters wide and 12 meters in length shall be allowed to continue downstream beyond Robbs Peak Reservoir Dam, Junction Reservoir Dam, Camino Reservoir Dam, and Slab Creek Reservoir Dam. Smaller sizes are also allowed but are not required to be moved beyond these dams. To demonstrate compliance with this condition, the Licensee shall include in the annual monitoring report that is required in Condition 8 (Monitoring Program) a summary of the efforts made during the year to pass large woody debris below the dams.

Furthermore, Article 401(b) of the License requires SMUD to file the Annual Report with FERC, along with any comments received by the Agencies during the review period, by June 30 of each year.

Finally, the preface to the Conditions states that:

For purposes of the ecological resources adaptive management program, each year is defined on a calendar year basis (i.e., January through December). This Monitoring Program covers monitoring to be conducted during all years until a new license is issued. Where years are specified, Year 1 is the first year during which all initial minimum streamflows required by the license are implemented by May 1.

All minimum streamflows required by the License were implemented in October 2014; therefore, Year 1 as it pertains to the Monitoring Program was 2015. This Report summarizes results of Monitoring Year 3 (2017). Refer to the Monitoring Frequency section of this report for information about the frequency of resource-specific monitoring effort required by the License. Some monitoring activities have specific reporting requirements and deadlines in lieu of this Report which are noted in the summaries presented in Section 3.0.

For context in considering the monitoring results, the California Department of Water Resources (DWR) May Bulletin 120 forecast the 2017 water year type Wet, and the UARP was operated under this scenario for the remainder of the water year. The final 2017 water year type remained classified as “Wet” based on DWR’s Full Natural Flow record for the American River at Folsom in October 2017.

2.0 MONITORING FREQUENCY

The Monitoring Program covers monitoring to be conducted during all years until a new license is issued. Table 1 describes the monitoring frequencies for the first five years of the License. As noted in Section 3.0, some monitoring activities have specific reporting requirements and deadlines in lieu of this Report.

Table 1. Monitoring Program Frequency First Five Years.

Monitoring Effort	License Monitoring Year				
	1	2	3	4	5
	(2015)	(2016)	(2017)	(2018)	(2019)
Trout Population Monitoring					X
Hardhead Population Monitoring		X	X		X
Aquatic Macroinvertebrate					X

Monitoring Effort	License Monitoring Year				
	1	2	3	4	5
	(2015)	(2016)	(2017)	(2018)	(2019)
Amphibian and Aquatic Reptile Monitoring (including Foothill Yellow-legged Frog)		X	X	X	X
Sierra Nevada Yellow-legged Frog (formerly Mountain Yellow-legged Frog) Monitoring					X
Riparian Vegetation Monitoring					X
Algae Species Identification and Monitoring		X			
Geomorphology (Sensitive Site Investigation and Mitigation Plan Development)	X	X			
Geomorphology (Continuing Evaluation of Representative Channel Areas)					X
Water Temperature		X	X	X	X
In Situ Water Quality	X	X	X	X	X
Bacteria Monitoring	X	X	X	X	X
Metals bioaccumulation		X			
Water General Chemistry			X		
Robbs Peak Powerhouse Entrainment	X	X	X		
Bear Management Monitoring		X	X	X	X
Bald Eagle Monitoring		X	X	X	X
Large Woody Debris	X	X	X	X	X

3.0 MONITORING PROGRAM CONDITIONS

Table 2 documents the status of the 2017 ecological monitoring specified in the License, including the status of SMUD's resource Monitoring Program as specified in USFS 4(e) Condition 31 which also encompasses all those measures listed in SWRCB's 401 Condition 8, as well as SWRCB Condition 10.

Table 2. Status of Ecological Condition Monitoring 2017.

Condition	Title	Status ¹	Comments
General Conditions			
USFS 4(e) Condition 27; SWRCB Condition 1	Minimum Streamflows	Current	Implement specified minimum streamflows within three months following License issuance.
USFS 4(e) Condition 27; SWRCB Condition 1	Silver Creek "Block of Water" Plan	Current	Plan approved by FERC June 2016. Both Junction and Camino Dams were in uncontrolled spill through July 2017. This resulted in the loss of all gaging stations in these reaches; consequently, no water temperature data were available to inform this Plan. See Appendices B and C, respectively, of this Report for the Amphibian and Water Temperature Monitoring results in these reaches.
USFS 4(e) Condition 28; SWRCB Condition 2	Pulse Flows	Current	Pulse flow requirements were met at Rubicon Reservoir during three different spill events occurring in October 2016, and in January-February 2017. Pulse flow requirements were met at Ice House Reservoir dam by timing the five day releases to coincide with a winter storm event starting on February 9, 2017. Per the License, these were based on the prior year's water year type of Below Normal. No pulse flows were required below Loon Lake reservoir pending the USFS and SWRCB final determination of the appropriate pulse flow magnitudes.
USFS 4(e) Condition 29; SWRCB Condition 3	Ramping Rates	Current	Use ramping rate of 1 foot per hour when implementing pulse flows, minimum streamflows, or recreational streamflow releases.
USFS 4(e) Condition 30	Coordination with Chili Bar Licensee	Current	Plan approved by FERC October 2015, implementation ongoing.

Condition	Title	Status ¹	Comments
USFS 4(e) Condition 49; SWRCB Condition 5	Reservoir Levels	Current	Variations to the end-of-month reservoir levels were approved at both Loon Lake and Ice House Reservoirs to facilitate the reconstruction of a boat ramp and repair of an auxiliary dam toe drain, respectively. All end-of-month reservoir levels were met for Union Valley Reservoir. Variations to the end-of-month reservoir levels will be utilized again in 2018 for Ice House reservoir as project was not approved by FERC in time to complete prior to winter 2017-2018.
USFS 4(e) Condition 50; SWRCB Condition 4	Recreation Streamflows	Current	Recreation flows released from Ice House under Wet water year type requirements in 2017 (9 days). No releases were made from Slab Creek due to SMUD's inability to restrict spills to $\leq 1,500$ cfs stemming from the winter storm events. Releases were rescheduled and subsequently canceled throughout May, per the License. Recreation flows are scheduled for 2018 under both the Dry and Below Normal Water Year type scenarios.
USFS 4(e) Condition 51; SWRCB Condition 7	Public Information Services	Current	Plan approved by FERC November 2016, implementation ongoing.
Monitoring Program			
USFS 4(e) Condition 31.1; SWRCB Condition 8.a	Fish Populations Monitoring	Current	Hardhead Monitoring Plan approved by FERC August 2016, and Trout Monitoring Plan December 2016. Hardhead monitoring was conducted for the second consecutive year in 2017. The Final Report containing the data and analysis from the 2017 monitoring effort is attached in Appendix A. Both hardhead and trout monitoring are next scheduled in 2019.
USFS 4(e) Condition 31.2; SWRCB Condition 8.b	Aquatic Macroinvertebrates Monitoring	Current	Plan approved by FERC December 2016. Monitoring scheduled for 2019.

Condition	Title	Status ¹	Comments
USFS 4(e) Condition 31.3; SWRCB Condition 8.c	Amphibian and Aquatic Reptile Monitoring	Current	Plan approved by FERC May 2016. Monitoring conducted in 2017 and scheduled again for 2018. Activities completed in 2017 under the approved Plan included monitoring at five sites within five Project reaches. The Final Report containing the data and analysis from the 2016 monitoring effort is attached in Appendix B.
USFS 4(e) Condition 31.3; SWRCB Condition 8.c.6–8	Sierra Nevada Yellow-Legged Frog (formerly Mountain Yellow-legged Frog) Monitoring	Current	Plan approved by FERC February 2018. Monitoring scheduled for 2019.
USFS 4(e) Condition 31.5; SWRCB Condition 8.e	Riparian Vegetation Monitoring	In Progress	Plan filed with FERC November 2016, approval pending. Monitoring scheduled for 2019.
USFS 4(e) Condition 31.7; SWRCB Condition 8.g	Geomorphology: Sensitive Site Investigation and Mitigation Plan	In Progress	Plan approved by FERC June 2015, study conducted in 2015-2016, final report filed with FERC October 2016. USFS and SWRCB have concurred with the proposed pulse flow magnitudes for WET water year types, supplemental filing made to FERC in March 2018
USFS 4(e) Condition 31.8; SWRCB Condition 8.h	Geomorphology: Continuing Evaluation of Representative Channel Areas	Current	Plan approved by FERC July 2017. Monitoring scheduled for 2019.

Condition	Title	Status ¹	Comments
USFS 4(e) Condition 31.9; SWRCB Condition 8.i	Water Temperature Monitoring	Current	Plan approved by FERC September 2015, monitoring conducted in 2017 and is scheduled annually. Five gaging stations were rendered inoperable by the winter 2017 storms. These were repaired and put back online in September 2017. Additionally, dataloggers were lost at two other sites during the same storm events. The Final Report containing the data and analysis from the 2017 monitoring effort is attached in Appendix C.
USFS 4(e) Condition 31.10; SWRCB Condition 8.j	Water Quality Monitoring	Current	This Plan was approved by FERC July 2015, monitoring conducted in 2017 and is scheduled annually. Activities implemented in 2017 under the approved Plan included in situ water quality, bacterial monitoring, and water chemistry sampling in reservoirs and stream reaches of the UARP. The Final Report containing the data and analysis of the 2016 monitoring effort is attached in Appendix D.
USFS 4(e) Condition 31.12; SWRCB Condition 8.k	Robbs Peak Powerhouse Entrainment	Complete	Plan approved by FERC July 2015, monitoring conducted 2015- 2016. Report being prepared for Agency review. Final report due to FERC May 2017. July 2017 FERC accepted the report findings and issued statement that Condition requirements were satisfied, and no further actions were required.
USFS 4(e) Condition 31.13; SWRCB Condition 8.l	Bald Eagle Monitoring	Current	This Plan was approved by FERC July 2015. Monitoring was conducted in 2017 and is scheduled annually. Activities implemented in 2017 under the approved Plan included nesting surveys and two night roost surveys at Union Valley Reservoir, and nesting surveys at Loon Lake. The Final Report containing the data and analysis from the 2017 monitoring effort is attached in Appendix F.
USFS 4(e) Condition 31.13	Bear Human Interaction Monitoring	Current	This Plan was filed with FERC May 2015. Monitoring was conducted in 2017 and is scheduled annually. Activities implemented in 2017 under the approved Plan included preparing a bear-human interaction data form; installing deposit boxes and initiating monitoring at developed UARP-related recreation facilities within the UARP Project Area including hosted and unhosted day-use and overnight facilities; and development of initial estimate of bear-human interactions. The Final Report containing the data and analysis from the 2017 monitoring

Condition	Title	Status ¹	Comments
			effort is attached in Appendix E.
USFS 4(e) Condition 31.13	Avian Protection Plan	Current	Plan approved by FERC August 2015, implementation ongoing.
Resource Management Plans			
USFS 4(e) Condition 33	Gerle Creek Channel Stabilization Plan	In Progress	One year extension approved by FERC October 2017. Plan released to CG for 30-day review and comment period in March 2018.,Plan is due to FERC by November 2018.
USFS 4(e) Condition 34	Fish Passage Plan for Gerle Creek Reservoir	Complete	Plan approved by FERC August 2015, monitoring conducted 2015- 2016. Draft report with Agencies for review, final report due to FERC April 2017. July 2017 FERC accepted the report findings and issued statement that Condition requirements were satisfied, and no further actions were required.

Condition	Title	Status ¹	Comments
USFS 4(e) Condition 35; SWRCB Condition 10	Large Woody Debris	Current	All woody debris was passed downstream at Robbs Peak Forebay, and Junction, Camino, and Slab Creek Reservoirs during the spill events of 2017.
USFS 4(e) Condition 36; SWRCB Condition 6	Streamflow and Reservoir Elevation Gaging	Current	Plan approved by FERC July 2015, implementation ongoing. Five gaging stations were rendered inoperable by the winter 2017 storms. These were repaired and put back online in September 2017.
USFS 4(e) Condition 39	Vegetation and Invasive Weed Management Plan	Current	Plan approved by FERC March 2018. Scheduled for annual implementation in 2018.
Recreation Measures			

Condition	Title	Status ¹	Comments

Condition	Title	Status ¹	Comments

Condition	Title	Status ¹	Comments

¹ Status designations include: 1. Complete – meaning monitoring obligations have been completed for the term of the license. 2. Current – meaning monitoring is ongoing and up-to-date according to agreed upon schedule. 3. In Progress – meaning the plan is still under development.

4.0 LITERATURE CITED

FERC (Federal Energy Regulatory Commission). 2014. Federal Energy Regulatory Commission Order 148 FERC 62,070 Issuing New License for the Sacramento Municipal Utility District Upper American River Hydroelectric Project No. 2101. Issued July 23.

APPENDIX A**2017 Hardhead Monitoring Report**

APPENDIX B**2017 Amphibian and Aquatic Reptile Monitoring Report**

APPENDIX C**2017 Water Temperature Monitoring Report**

APPENDIX D**2017 Water Quality Monitoring Report**

APPENDIX E**2017 Bear Management Monitoring Report**

APPENDIX F**2017 Bald Eagle Monitoring Report**