NORTH UMPQUA HYDROELECTRIC PROJECT

FERC No. P-1927

Protection, Mitigation, and Enhancement Measures



2017 Annual Report



June 2018

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Front cover photo: Wild, marked steelhead and salmon about to be released into the Soda Springs fish ladder as part of the SA 19.2 Predator Study.

1.0 INTRODUCTION

Located on the west side of the Cascade mountain range in southern Oregon, the North Umpqua Hydroelectric Project (FERC No. P-1927; Project) consists of eight dams and power plants that have a combined capacity to generate 194 megawatts of power. The project was constructed between 1947 and 1956.

In the early 1990s, as the expiration of the first Federal Energy Regulatory Commission (FERC) license approached, PacifiCorp initiated the relicensing application process with FERC. In June 2001, the relicensing process resulted in the development and signing of the North Umpqua Hydroelectric Project Settlement Agreement (Settlement Agreement, SA). The Settlement Agreement identifies annual reporting requirements ranging from fiduciary reporting to narrative descriptions of actions. This annual report documents a calendar year (January 2017 through December 2017) and fulfills reporting requirements of the following Settlement Agreement sections:

- SA Section 7.2.3 (amended) Gravel Augmentation Program Funding and Accounting— Written annual report describing the amounts deposited and disbursed;
- SA Section 8.3.5 (amended) North Umpqua River Habitat Restoration/Creation Project Funding and Accounting—Written annual report describing the amounts deposited and disbursed;
- SA Section 19.1.1.3 Tributary Enhancement Program Funding and Accounting—Written annual report describing the amounts deposited and disbursed;
- SA Section 19.3.1 Mitigation Fund Annual Reporting—Written annual report describing the amounts deposited and disbursed; and
- SA Section 21.4.2 Environmental Coordinator Reports—Written annual report on the activities of the RCC and on the implementation of the PM&E Measures.

1.1 Background

On June 13, 2001, PacifiCorp filed a Settlement Agreement pursuant to FERC Rule 602 (Title 18 Code of Federal Regulations § 385.602) to resolve issues concerning the relicensing of the North Umpqua Hydroelectric Project. Parties to the Settlement Agreement include PacifiCorp, the USDA Forest Service (USDA-FS), the USDI Fish and Wildlife Service (USFWS), the USDI Bureau of Land Management (BLM), the National Marine Fisheries Service (NMFS), the Oregon Department of Environmental Quality (ODEQ), the Oregon Department of Fish and Wildlife (ODFW), and the Oregon Water Resources Department (OWRD), collectively referred to as the "Parties." As required by statute, FERC conducted a National Environmental Policy Act (NEPA) process that concluded with a Final Environmental Impact Statement (FEIS) issued in

March 2003. Based on the findings of the FEIS, FERC developed new license articles for the Project. FERC formally issued the new license on November 18, 2003, designating a license term of 35 years.

Under the provisions of the Settlement Agreement, the license is not final until all administrative and judicial appeals are exhausted. The license was appealed to the Ninth U.S. Circuit Court of Appeals on May 21, 2004. On September 1, 2005, the Court ruled the case in favor of FERC, USDA-FS, and PacifiCorp. The license was considered final on October 18, 2005.

Copies of the Settlement Agreement and the FERC license are available from FERC upon request or on the PacifiCorp Web site at: <u>http://www.pacificorp.com/es/hydro/hl/nur.html#</u>.

1.2 Resource Coordination Committee

SA Section 21 establishes a process to facilitate coordination and decision-making concerning implementation of Settlement Agreement measures. To accomplish this objective, SA Section 21.1 provides for the creation of the Resource Coordination Committee (RCC) consisting of representatives from the signing Parties. The purposes of the RCC, discussed in detail in SA Section 2.0, are to 1) facilitate coordination and consultation on plans developed by PacifiCorp for the implementation of protection, mitigation, and enhancement measures (PM&E Measures); 2) coordinate the implementation of PM&E Measures and ongoing monitoring requirements by PacifiCorp; 3) establish appropriate procedures for conducting activities; and 4) establish subcommittees to accomplish these objectives.

1.3 Report Organization and Review

The 2017 North Umpqua Hydroelectric Project Annual Report provides information on RCC roles, responsibilities, members, and meetings; PM&E Measure implementation; FERC license actions; and fiduciary reporting.

2.0 RESOURCE COORDINATION COMMITTEE

This section provides an overview of RCC roles and responsibilities according to the Settlement Agreement and as subsequently implemented. It also presents a summary of RCC meetings held during the reporting period, including major discussion points, decisions, and action items associated with each meeting.

2.1 RCC Roles and Responsibilities

The purpose and role of the RCC, as defined in SA Section 21.1, is to facilitate coordination and implementation of PM&E Measures. The RCC also looks at implementation requirements, and through collaboration and sharing of information, works to achieve desired results. Specifically excluded from RCC responsibility and authority is the administration of the Tributary Enhancement Program and Mitigation Fund set forth in SA Sections 19.1 and 19.3, respectively. However, responsible Parties may consult with the RCC concerning measures conducted pursuant to the program and fund.

The structure and process of the RCC is intended to provide a forum to address time-sensitive matters, give early warning of problems, and coordinate member organization actions, schedules, and decisions to save time and expense. As described in the Settlement Agreement, the RCC must endeavor to conduct its business by consensus. However, in the event of disagreements, the Parties may refer disagreements to appropriate policy-level decision-makers. Decisions of the RCC may not usurp the authority of individual Parties or specific governmental agencies identified in the Settlement Agreement as having approval authority regarding specific PM&E Measures.

The RCC is responsible for the following measures pursuant to the Settlement Agreement:

- coordinating implementation of the Resource Coordination Plan (RCP), including ongoing operations and maintenance (SA Section 21.1);
- coordinating implementation of PM&E Measures and ongoing monitoring requirements by PacifiCorp (SA Section 21.1);
- coordinating responses and evaluations specifically assigned to the RCC (SA Sections 8.2.2, 8.3.3, 12.2, 14.3.3, 14.5, 17.8, 19.2.1 and 22.5.2, and SA Amendment Section 7.2);
- coordinating and consulting on plans developed by PacifiCorp (SA Section 21.1);
- reviewing and commenting on the draft annual report of RCC activities and implementation of PM&E Measures (SA Section 21.4.2); and

• serving as a common point of contact for public information regarding Settlement Agreement implementation.

The following measures are specifically excluded from RCC responsibility:

- administration of the Tributary Enhancement Program through ODFW's Memorandum of Understanding (SA Section 19.1);
- administration of the Mitigation Fund through USDA-FS (SA Section 19.3); and
- approval of plans and actions regarding specific PM&E Measures assigned to individual organizations for resource protection (SA Section 21.2).

The RCC defined discrete goals and functional responsibilities to enhance its effectiveness, including the following:

- interpretating the Settlement Agreement through provisions to on-the-ground planning and implementation;
- monitoring implementation of the Settlement Agreement as a whole to provide a wider view than one agency's perspective;
- avoiding surprises and errors through effective communication;
- tracking progress as the interface for the Parties during implementation;
- identifying policy issues by working collectively to define and clarify the issues and options for transmittal to the executive members of the Parties;
- providing public information as a source of information regarding Settlement Agreement implementation with a collective voice;
- promoting efficiency through sharing of information among organizations; communicating changes in policy, procedure, or regulation; consulting before decision-making; and sharing technical resources;
- implementing the Settlement Agreement collaboratively to ensure that all Parties' interests continue to be valued throughout the new license term; and
- communicating its progress through the development of a website at: <u>http://www.pacificorp.com/es/hydro/hl/nur.html#.</u>

2.2 RCC Members

The Parties have each appointed a member and an alternate to the RCC. The members are shown in Table 1. The RCC members work with a designated caucus within their respective organizations.

TABLE 1. 2017 Resource	Coordination	Committee Members
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RCC Member	Organization
Pam Sichting	USDA Forest Service, Umpqua National Forest, Roseburg, Oregon
Jim Thrailkill	USDI Fish and Wildlife Service, Roseburg, Oregon
Barbara Machado	USDI Bureau of Land Management - Roseburg District, Roseburg, Oregon
Jim B. Muck	NOAA Fisheries West Coast Region, Roseburg, Oregon
Dave Harris	Oregon Department of Fish and Wildlife, Roseburg, Oregon
Chris Stine	Oregon Department of Environmental Quality, Eugene, Oregon
Craig Kohanek	Oregon Water Resources Department, Salem, Oregon
Steve Albertelli	PacifiCorp, Medford, Oregon

2.3 RCC Meetings

During the reporting period, the RCC conducted four meetings to review work plans, discuss implementation objectives for current and future PM&E Measures, and facilitate the overall Settlement Agreement implementation. The formal ground rules established and adopted by the RCC provide the functional framework for this collaborative approach. These ground rules are provided on the PacifiCorp website at:

http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Hydro/Hydro_Licensin g/North_Umpqua_River/RCC_Ground_Rules.pdf

Meeting summaries are drafted and distributed to the RCC members for review and comment. After corrections have been made as appropriate, the RCC approves the summaries by consensus. Meetings are open to the public for comment, and any comments received are added to the meeting summaries.

This section provides highlights of items discussed at RCC meetings during the reporting period. Detailed meeting summaries are provided on the PacifiCorp website at: <u>http://www.pacificorp.com/es/hydro/hl/nur.html#</u>.

- The RCC approved the following expenditures, funding proposals, and other requests with regards to the SA 19.2 Long Term Monitoring/Predator Control Program:
 - \$3,050 for smolt trap repairs due to damage caused by high flows at the beginning of the predator control study.
 - An additional \$10,000 for emergency smolt trap recovery/repair due to heavy storm damage, which resulted in the smolt trap slipping its cable mooring and becoming snagged on a mid-river rock.
 - \$18,465 for 2017 PacifiCorp staff involvement with the emergency smolt trap recovery and implementation of the overall program. Ongoing estimated monthly implementation expenditures are \$3,156.
 - Emergency ramping request to aid the smolt trap recovery effort.
 - \$6,000 for three ODFW helicopter flights to aid in counting Chinook salmon (*Oncorhynchus tshawytscha*) and redds per the monitoring plan. These river flight opportunities were necessitated by a wildfire and associated river closure, which made the river too dangerous for floating this year and into the foreseeable future.
- The annual public tour was held on October 7, 2017. Twenty-three people, including RCC representatives, attended the tour. Positive comments were shared by the public with respect to the presentation, the complexity of the project, and PacifiCorp's commitment to implementation of natural resource protection, mitigation, and enhancement measures.



Figure 1. Small groups took turns touring the narrow walkways of the Soda Springs Dam and fish passage facilities during the public tour.



Figure 2. Eight tour members atop the Soda Springs Dam view the fish passage facility below.

3.0 PROTECTION, MITIGATION, AND ENHANCEMENT MEASURES

This section presents a progress report of PM&E Measures defined in the North Umpqua Settlement Agreement and FERC License implemented during calendar year 2017. A summary and status report of all License- and Settlement Agreement-related documents submitted to FERC is also presented.

During the current license term, the Parties may agree to modify the schedule of PM&E Measures, when necessary. In such instances, the Parties will convene and modify Settlement Agreement implementation schedules only if all Parties are in agreement that such modifications are warranted. Delays in implementation are typically only needed to further refine plans for the action in order to ensure greater success.

3.1 Implementation of PM&E Measures

The implementation schedule for remaining PM&E Measures is presented in Table 2. PM&E measures that are not ongoing and/or were completed in prior years have been removed from the table. The current status of the PM&E Measures is presented in Table 3.

During 2017, Settlement Agreement and license actions focused on implementing management and monitoring plans and operating and maintaining existing PM&E Measures. All Parties have worked cooperatively toward meeting Settlement Agreement schedule commitments.

TABLE 2. PM&E Measures Implementation Schedule

											Key		
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							YE	AR					
SA	DM 8 E	012	013	014	015	016	017	018	019	020	021	022	023 +
Section	PM&E	N	N N	N	Ř	Ř	ñ	Ř	Ř	ñ	Ř	ñ	Ř
	Slide Creek Demning Monitoring Plan	0.0	KAM	PING									
6.2.1	Implementation		•	•	•	•	•						
6.4	Wild & Scenic Ramping Restrictions	•	•	•	•	•	•						
6.5	Bypass Reach Ramping Restrictions	•	•	•	•	•	•						
6.6	Project Maintenance - Appendix D Schedule	•	•	•	•	•	•						
6.7	Emergency Shutdown Ramp Restrictions	•	•	•	•	•	•						
	7.0 RESTORA	TION	OF F	LUVI	AL PI	ROCE	SSES						
7.2	Gravel Augmentation Program	•	•	•	•	•	•						
7.3	Passage of Woody Debris	•	•	•	•	•	•						
7.4	Passage of Sediment (if high flows	•	•	•	•	•	•						
			АДІТ	AT EN	THE A NU	CEM	ENT						
835	Soda Springs Funding and Accounting					CENI							
0.3.3	Soda Springs Funding and Accounting				•		•						
	9.0 RESERVOII	R ANI) FOR	EBAY	(MAI	NAGE	CMEN	Т					
9.1	Stocking of Rainbow Trout Funding	•	•	•	•	•	•						
9.3	Reservoir	•	•	•	•	•	•						
9.5	Fish Salvage during Shutdowns	•	•	•	•	•	•						
	12.0 VEG	ETA	FION	MAN.	AGEN	1ENT	'						
12.1	Vegetation Management Plan Development and Implementation	•	•	•	•	•	•						
12.2	Noxious Weed Control	•	•	•	•	•	•						
	13.0	AVIA	N PR	OTE	CTION	1							
13.4	Records & Database Management System	•	•	•	•	•	•						
	14.0 EROS	ION &	SED	IMEN	тсо	NTRO	ЭL.						
14.5	Erosion Monitoring	•	•	•	•	•	•						
15 0 TRANSPORTATION													
	Transportation Management Plan	U I KA			HON								
15.1	Implementation	•	•	•	•	•	•						
15.2	PPL Roads to USDA-FS Standards	•	•	•	•	•	•						
15.3	Cost Sharing for Joint Roads and Maintenance	•	•	•	•	•	•						
15.5	Bridges - Inspections/Maintenance	•	•	•	•	•	•						
15.5.1	Bridge Maintenance Cost Sharing	•	•	•	•	•	•						
15.6	Culvert Maintenance - PPL Use Roads	•	•	•	•	•	•						

TABLE 2. PM&E Measures Implementation Schedule

Key						
	Due Date					
•	Complete					

							YE	CAR					
SA Section	PM&E	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 +
	16.0 AESTHETICS												
16.1	Aesthetics Management Plan Implementation	•	•	•	•	•	•						
		17.0 F	RECR	EATI	ON								
17.2	Recreation O&M Funding	•	•	•	•	•	•						
17.7	Law Enforcement Funding	•	•	•	•	•	•						
17.8	Recreation - Capital Improvements	•	•	•	•	•	•						
17.9	Public Information Funding	•	•	•	•	•	•						
17.10	Annual Monitoring Funding	•	•	•	•	•	•						
		18.0	CULT	ΓURA	L								
18.1	Historic Properties Management Plan Implementation	•	•	•	•	•	•						
18.3/18.6	Site Discovery/Monitoring	•	•	•	•	•	•						
18.4	Protection, Restoration, and Recovery	•	•	•	•	•	•						
		19.0 I	MITIC	GATIO	ON								
19.1.1	Tributary Enhancement Account - Use of Funds	•	•	•	•	•	•						
19.2	Long-Term Monitoring/Predator Control Funding	•	•	•	•	•	•						
19.2.1	Long-Term Monitoring/Predator Control Disbursements	•	•	•	•	•	•						
19.3.3	Federal Mitigation Funding	•	•	•	•	•	•						
19.4.1	Monitoring and Oversight	•	•	•	•	•	•						
21.0 COORDINATION & DECISION-MAKING													
21.1	Resource Coordination Committee	•	•	•	•	•	•						
21.1	Resource Coordination Plan - Developed and Implemented	•	•	•	•	•	•						
21.4.2	Annual Report	•	•	•	•	•	•						
21.5	Site Specific Plan Development	•	•	•	•	•	•						

TABLE 3. PM&E Measures Status

SA Section	PM&E Measure	Due Date	Current Status
4.1	Fish Passage at Soda Springs Dam Operations and Maintenance	2012-2038	Annual O&M reports are reviewed by the agencies and filed with FERC. Fish passage is monitored annually as part of the SA 19.2 Long-term Monitoring Program.
5.1	Instream Flow Increases in Project Bypass Reaches	2005-2038	License-required minimum flows continued to be provided and managed within required ramp rate allowances.
5.5	Instream Flow Monitoring	2002-2038	Monitoring and reporting continued as required in the Plan.
6.2.1	Slide Creek Ramping Monitoring Plan Implementation	2013-2020	Study conditions (e.g., aggressive load following operations) did not occur this year, so field study was not implemented.
6.4	Wild and Scenic Ramping Restrictions	2001-2038	Ramping restrictions were followed within equipment limitations per the Flow Monitoring Plan. An emergency flow change was made June 23, 2017 at the sheriff's request and with agency approval to recover a car and passengers from the river.
6.5-6.6	Bypass Reach Ramping Restrictions	2001-2038	Ramping restrictions and reporting requirements were followed per the Flow Monitoring Plan. In 2017, special flow changes were made twice in Soda Springs bypass reach to support long-term monitoring.
7.2	Gravel Augmentation Program (as per SA Amendment No. 1)	2002-2038	Monitoring of augmentation sites continued per the Plan. A 5-year monitoring report was submitted to the RCC in 2017.
7.3	Passage of Woody Debris at Soda Springs and Slide Creek Dams	2002-2038	Passage of woody debris continued according to the Plan.
8.2.1-8.2.2	Slide Creek Bypass Reach Habitat Project Implementation/ Monitoring	2002-2038	Monitoring continued according to the Plan. A 5-year monitoring report was submitted to the RCC in 2017.

SA Section	PM&E Measure	Due Date	Current Status
8.3.2-8.3.3	North Umpqua River Habitat Restoration/ Creation Implementation/ Monitoring	2004-2038	Annual monitoring occurred according to the Plan, with an annual report submitted to the RCC. Minor maintenance also occurred.
9.1	Funding for Production of Rainbow Trout for Stocking	2004-2038	PacifiCorp provided \$20,487.01 to ODFW in 2017 for the production of trout.
9.3	Lemolo Reservoir Management Plan and Limits on Drawdown Rate and Elevations	2001-2038	Water levels and drawdown rates were monitored according to the Flow Monitoring Plan. Reservoir management and consultation occurred according to the Lemolo Reservoir Management Plan.
9.5	Salvage of Fish During Maintenance Shutdowns	2001-2038	Advance notice of planned maintenance shutdowns was made to the appropriate agencies, and the salvage and liberation of fish continued as required.
11.5	Wetland Enhancement	2006-2016	Four of the wetland enhancement sites continue to be monitored for a period of five years post-construction and maintained for self-sustaining, native wetland plant communities.
12.1	Vegetation Management Plan Implementation	2004-2038	The Vegetation Management Plan (VMP) continues to undergo implementation. Noxious weed treatments were conducted on USDA-FS lands in 2017. Noxious weed training occurred per the Plan, and implementation of the horticultural invasive species program continued as necessary to satisfy VMP requirements. The 5-year rolling action plan (RAP) was developed and presented to both the USDA-FS and BLM in December.
13.1	Power Pole Modification	2001-2038	Transmission structures were replaced on transmission lines within the FERC boundary in 2017 to achieve NERC under-clearance compliance requirements and repair storm damage to structures. The new structures were constructed to "avian-safe" standards.
13.4	Records Database Management System	2001-2038	The database for management of birds on power lines was maintained. An annual report summarizing avian- power line interactions occurring within the Project area was submitted to the USDA-FS in January.

SA Section	PM&E Measure	Due Date	Current Status
14.2	Canal Shutoff and Drainage Systems (CSDS) Operation and Maintenance	2007-2038	The three CSDS on the Clearwater 2, Fish Creek, and Lemolo 2 waterways continue to be operated and maintained consistent with SA requirements.
14.5	Erosion Control Monitoring	2001-2038	Erosion sites were monitored, and an annual report was produced and distributed to the agencies in October.
15.1–15.4	Transportation Management Plan Implementation Cost Sharing	2004-2038 2007-2038	The Transportation Management Plan continues to undergo implementation. The 5-year RAP was developed in consultation with the USDA-FS and the BLM. The total cost of road maintenance on roads jointly-maintained by USDA-FS and PacifiCorp in 2017 was \$70,306, of which PacifiCorp's share was \$19,089.
15.5, 15.5.1	Bridge Inspections, Maintenance Cost Sharing	Annual & Biennial Inspections 2005-2038	Cost-sharing continued or commenced for bridges on jointly-maintained hydro roads following completion of non-critical, deferred maintenance. Fracture critical bridges are inspected annually as part of the annual inspection program. Biennial bridge inspection was completed in 2017 for 34 bridges. The 2018 annual bridge inspection will include U-15, U-29, U-31, U- 39, U-41, and U-42.
16.1, 16.3, 16.4	Visual Resources (Aesthetics) Management Plan	2005-2038	The Visual Resources (Aesthetics) Management Plan continued to undergo implementation. The 5-year RAP was developed in December.
17.1	Recreation Resources Management Plan Implementation	2004-2038	The Recreation Resources Management Plan continued to undergo implementation. The 5-year RAP was developed and updated in consultation with the USDA-FS. Identified actions were completed.
17.2	Campground Operations and Maintenance	2004-2038	PacifiCorp provided \$119,941 to the USDA-FS in 2017 for campground operations and maintenance.
17.7	Law Enforcement	2004-2038	PacifiCorp provided \$10,872 to the USDA-FS in 2017 for law enforcement service.

SA Section	PM&E Measure	Due Date	Current Status
17.8	Capital Improvements	2002-2015; future years' funding will be monitoring- dependent	No funding was provided to the USDA-FS in 2017 for capital improvements to recreation facilities.
17.9	Public Information	2004-2038	PacifiCorp provided \$8,888 to the USDA-FS in 2017 for public information projects.
17.10	Recreation Monitoring Recreation Monitoring (Periodic Surveys)	2004-2038 2007, 2012, 2017, 2022, 2027, and 2032	PacifiCorp provided \$8,888 to the USDA-FS in 2017 for routine recreation monitoring and an additional \$16,294 in 2017 for periodic recreation monitoring surveys.
18.1	Cultural Resources (Historic Properties) Management Plan Implementation	2006-2038	The Historic Properties Management Plan and Historic Structures Plan continue to undergo implementation. The 5-year RAP was updated in consultation with the USDA-FS, the BLM, and the SHPO.
18.6	Cultural Resources Monitoring	2001-2038	PacifiCorp coordinated ground-disturbing activities with the USDA-FS, the BLM, and the SHPO to assure ongoing monitoring and protection of historic properties.
19.1	Tributary Enhancement Program	2004-2038	Per the ODFW Memorandum of Understanding, work continued on fish habitat enhancements and fish passage improvements.
19.2	Long-Term Monitoring and Predator Control	2004-2038	PacifiCorp deposited \$135,904.18 into the designated fund in 2017. The RCC continued to manage expenses from this fund. Long-term monitoring and predator control study work proceeded according to the study plan, refined as necessary by the Technical Working Group (TWG).

SA Section	PM&E Measure	Due Date	Current Status
19.3	Mitigation Fund	2004-2038	PacifiCorp deposited \$1,698,802.22 into the USDA- FS-administered mitigation fund account in 2017. A USDA-FS Mitigation Fund Board of Directors (BOD) annually evaluates proposals and selects mitigation projects to be implemented with this funding. Project rankings are completed by the USDA-FS hydropower project review group, and final recommendations are made by the BOD. The Forest Supervisor of the Umpqua National Forest makes the final decision on project selections.
19.4	Oversight Costs	2005-2020	PacifiCorp provided \$220,164.77 in 2017 to ODFW for the funding of two full-time ODFW personnel to help oversee and monitor work associated with the ODFW MOU.
21.4.1	RCC	2001-2038	The RCC continued to facilitate the implementation of PM&Es. It held an annual planning session, a public tour, and quarterly meetings. TWGs convened, if and when necessary, to address detailed consultation issues.

3.1.1 Noteworthy Accomplishments

During the reporting period, PacifiCorp continued implementing PM&E Measures in compliance with the Settlement Agreement. Noteworthy accomplishments are described below by Settlement Agreement section.

Enhancement of Wetland Species Diversity (SA Section 11.5)

The Lake Creek wetland enhancement site (the eighth and final SA-required wetland enhancement) was constructed in October 2016. The USDA-FS implemented focused planting efforts in May 2017 (see below for representative photos of the planting sites). PacifiCorp will continue to monitor and maintain wetland plantings at enhancement sites in conjunction with USDA-FS for five years following construction to ensure self-sustaining native wetland plant communities.



Figure 3. Plantings along the wetted margin of Lake Creek wetland enhancement Cell 2.



Figure 4. Transplanted sedges and rushes in Lake Creek wetland enhancement Cell 3.

Tributary Enhancement Program (SA Section 19.1)

Implementation of habitat enhancements and other program work by ODFW staff continued in 2017 and included:

• Harrington Creek Post-restoration – Juvenile coho salmon (Oncorhynchus kisutch) population numbers are on the rise, with summer parr approaching 2,000 individuals (1,961 individuals for 2017 compared to 1,597 individuals in 2016). While the overwintering success remained steady at 33 percent, winter juvenile population

increases are being seen. This is due to restoration and enhancement efforts increasing the available and usable habitat in Harrington Creek and not by increases in summer population or adult returns, which have remained steady.

ODFW hydropower mitigation biologists conducted night snorkeling surveys on 88 pools, enumerating 644 coho for a 33 percent overwintering survival rate. The highest overwintering juvenile coho count in any year prior to total restoration was 120 coho. In 2017, there were 124 more coho than there were in 2016. Additional night snorkel surveys will take place for one more year.

A new water quality station was installed in October 2017 to gather stream flow and water temperature data.

The designs to replace a perched and undersized culvert on a main tributary to Harrington Creek are at the 90 percent level, and installation is scheduled for July 2018.

The proposal for a temporary bridge in upper Harrington Creek to access restoration of another 0.75 mile section has been placed on hold for the foreseeable future.

Rock Creek Mainstem and Tributaries – On lower mainstem Rock Creek, a 0.25-mile side channel was reconnected and enhanced at 11 sites with a midstream, mainstem root wad/boulder ballast deflector. On middle mainstem Rock Creek, another 0.25-mile side channel was enhanced at 8 sites on Roseburg Resources property with root wad trees and log ballasts placed along the channel to slow water velocity and promote scour pools for juveniles.



Figure 5. Lower-mid-Rock Creek Site 2 boulder-ballasted, root-wad tree, deflector structure reconnecting floodplain secondary channel by raising water level and deflecting a portion of flow into side channel.



Figure 6. Middle-mainstem Rock Creek Site 14 includes boulder, log, and root wad trees to help create pools and enhance 0.25 mile, reconnected side channel.



Figure 7. Middle-mainstem Rock Creek Site 20.

Phase II Enhancement of a 2.5-mile section of East Fork Rock Creek and North Fork of East Fork Rock Creek added over 200 combinations of root wad trees, boulders, and logs at 30 sites owned by Seneca Jones, Forest Investment Associates (FIA), and Roseburg Resources. By replicating the successful Harrington Creek designs, the reconnection and enhancement of 6 secondary channels within the Phase II project area added 0.35 miles of secondary stream length for overwintering juveniles. Lower Lil' Conley Creek received root wads and logs at 4 sites to retain adult spawning gravels and promote

juvenile scour pools. Shoup Creek culvert received a boulder/root wad step for better fish passage alleviating the 12-inch step at the outflow. Downstream of the culvert, Shoup Creek was enhanced at 8 sites with 50 plus large wood/root wad tree/boulder combinations and reconnected to its historical channel, thereby restoring 0.3 miles of lost stream length.



Figure 8. East Fork Rock Creek Phase II Restoration Site 3. The work in this reach reconnects six secondary channels by adding large wood, root-wad trees, and boulder combinations to disburse velocity and create summer and winter juvenile habitat.



Figure 9. East Fork Rock Creek Phase II Restoration Site 20.



Figure 10. Shoup Creek culvert site.

• Spawning Surveys in Rock Creek, East Fork Rock Creek, and Harrington Creek – Adult spring Chinook, coho, winter steelhead (*Oncorhynchus mykiss*), summer steelhead and adult Pacific lamprey (*Entosphenus tridentatus*) spawning surveys continued in most of the previously-enhanced and long-term index reaches. In Rock Creek mainstem, survey totals in 2017 for spring Chinook (29 redds compared to 25 redds in 2016 and 11 redds in 2015), coho (33 redds compared to 25 redds in 2016 and 17 redds in 2015), and winter steelhead (61 redds compared to 54 redds in 2016 and 18 redds in 2015) revealed that these species have been actively using the recently-restored reaches by digging redds within the newly accumulated gravel. Although adult lamprey redds were surveyed in 2015 and 2016, full reach surveys were shortened in 2017 due to other restoration activities. However, Cow Creek Tribal staff electrofished the entire Rock Creek mainstem for juvenile ammocetes and found lamprey distribution extended above the 8.5-mile marker and were farther upstream than previously recorded. Consequently, an expanded effort to survey adult lamprey redds higher in the basin has been proposed to correlate with the electrofishing data.

East Fork Rock Creek surveys enumerated a peak of 28 coho redds in 2017 compared to 36 redds in 2016.

Harrington Creek had a peak coho count of 15 fish (compared to 16 fish in 2016 and 8 fish in 2015) and 24 redds (compared to 26 redds in 2016 and 13 redds in 2015). While the Umpqua Basin's adult coho escapement numbers continue to decline, Harrington Creek and Rock Creek have stayed even or increased, which illustrates the effectiveness of ODFW restoration efforts within a watershed-based approach.

• *Wapiti Creek Manual Riparian Conversion/Enhancement* – Although landowner consultants have reduced the ability to mechanically enhance this tributary, a recent timber harvest enabled a plethora of windfall trees to uproot and fall into the creek, providing the effect of the work planned by ODFW. Impending harvests will likely have

the same impact with more large woody debris (LWD) improving aquatic and terrestrial habitat.

- Adult Salmonid Snorkel Survey in Rock Creek Mainstem Snorkel surveys for adult summer salmonids continued in September 2017. Rock Creek counts decreased from 641 spring Chinook in 2016 to 338 spring Chinook in 2017, which followed the downward trend in the North Umpqua with hatchery fish dominating at 95 percent of the total count. Summer steelhead escapement decreased dramatically from 238 fish to 81 fish, with hatchery fish accounting for 78 percent of the total.
- *Monitoring* ODFW continues to partner with local watershed councils (e.g., South Umpqua Rural Community Partnership and Partnership for Umpqua Rivers) to supplement mitigation dollars to provide continued enhancement of tributaries in the basin well into the future.

ODFW's hydropower program partnered with BLM's hydrologist to install water quality stations in seven locations throughout the basin, including East Fork Rock Creek, North Fork of East Fork Rock Creek, lower East Fork Rock Creek just above the confluence with Rock Creek, upper Rock Creek, middle Rock Creek just above its confluence with East Fork, lower Rock Creek, and Harrington Creek. Some issues with battery life are being addressed, and the hardware of the eighth station is being used in the upper Rock Creek station while it is being replaced by the manufacturer. When replacement parts are received, installation of the eighth gaging station will occur in summer 2018. The data from these water quality stations will help quantify ODFW restoration efforts to mitigate stream segments exceeding standards for water temperature and listed by ODEQ.



Figure 11. One of eight typical water quality stations with Onset Hobo MX 2001 data logger measuring flow and temperature.

ODFW hydro staff continues to wait on BLM's professional drone team to document completed restoration in Rock Creek and its tributaries. Staff has since partnered with its own newly identified ODFW professional drone pilot for an effectiveness test flight to occur early in 2018. The path of this flight will be over three representative stream segments with varying widths and canopy closures to decide if a drone purchase would facilitate better documentation of the physical changes following implementation in the basin. FLiR cameras, which can detect increases in cold water refugia areas as a result of the restoration structures, would also be considered for monitoring. The computer software that comes with the drone will enable the flight to repeatedly and precisely replicate and document these changes and has been approved by all cooperating landowners in the basin. The goal still remains to fulfill the agreement made with the landowners for their cooperation in restoration and monitoring and to provide both video and a mosaic picture book, similar to the book Stillwater Sciences produced from data collected in East Fork Rock Creek. Copies would be distributed to PacifiCorp, the cooperative landowners in the basin, and hopefully the TWG members.

In keeping with ODFW hydro staff's continued efforts to reduce costs by receiving highway and road right-of-way landslide material (both boulders and trees) from road maintenance officials, permission was received from State and County officials to procure approximately 200 free boulders from a Highway 138 East landslide. The boulders were loaded and hauled to Rock Creek for use in this summer's restoration sites. Additional landslides in Little River were scouted, but no material was reclaimed as most of the boulders were Serpentinite and may have contained natural asbestos, which would have been hazardous to load and haul. In addition, permission was received from FIA officials to map out and schedule an on-site meeting for gathering of remnant boulders scattered across their property. Lastly, root-wad trees have become so valuable and extremely effective in stream restoration that ODFW hydro staff is seeking procurement from local ranch owners to dig up trees with full roots in lieu of cut logs, as they provide a more natural tool to mimic nature in benefiting all juvenile and adult fish species life history needs.

Long-Term Monitoring and Predator Control Study Program (SA Section 19.2)

Long-term monitoring is currently in the "interim period" and continues at a low-to-moderate level of effort per the Study Plan. During 2017, routine use of the Soda Springs Fish Evaluation Building began for monitoring smolt outmigration. The predator control study included major field efforts to measure the predator population, diet, and growth rate and juvenile fish survival and production to document post-passage predator abundance and predation within the Soda Springs Reservoir.



Figure 12. Smolt trap in use in Soda Springs bypassed reach.



Figure 13. Electro-fishing sampling efforts at night in Soda Springs Reservoir.



Figure 14. Trout fry captured in Soda Springs Fish Passage Evaluation Building.



Figure 15. An adult brown trout and steelhead smolt co-exist in a recovery bin.

3.1.2 Plans and Reports

The following plans and reports were completed and/or revised:

TABLE 4. Plans and Reports Status

	SA Section, License Article, or	Month
Plan/Report	FERC Order	Completed
Soda Springs Spawning Habitat Annual Report	SA 8.3	January
Lemolo Reservoir Management Annual Report	SA 9.0	January
Gravel Augmentation Program 5-yr Monitoring Report (2011-2016)	SA 7.2	January
Soda Springs Fish Passage Operation and Maintenance Annual Report	SA 4.1.1 (FERC requirement)	January
Annual Avian Protection Report	SA 13.4	January
Slide Creek Bypass Reach Spawning Habitat 5-yr Monitoring Report (2012-2017)	SA 8.2	February
Annual Threatened and Endangered Species and Bald Eagle Monitoring Report	License Articles 411 & 412	February
Resource Coordination Committee Annual Report	SA 21.4.2	May
Long-term Monitoring and Predator Control Study Annual Report	SA 19.2	June
Erosion Control Plan Annual Report	SA 14.5	October
Historic Properties Annual Report	License Article 414	December

3.2 FERC License Actions

The FERC license contains actions that are required in addition to those actions in the Settlement Agreement. Table 5 summarizes the FERC License requirements that were fulfilled during this reporting period.

TABLE 5. FERC License Actions	Status
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Date Filed	License Article(s)	Settlement Agreement Section(s)	Description	Status/ Comments
1/23/17	401	4.1	2016 Soda Springs Fish Passage Facility Operations and Maintenance Annual Report	Acknowledged 1/23/17
2/21/17	411 & 412	USDA-FS 4(e) Condition 16	2016 Threatened and Endangered Species and Bald Eagle Monitoring Report	Acknowledged 2/21/17
5/22/17	401	21.4.2	2016 Resource Coordination Committee Annual Report	Acknowledged 5/22/17
12/18/17	414	18.1 & 18.2	2017 Historic Properties Annual Report/Action Plan	Acknowledged 12/18/17

4.0 FIDUCIARY REPORTING

Consistent with Settlement Agreement fiduciary reporting requirements, this section provides account information for the following actions and fulfills the requirement to annually report the amounts deposited into and disbursed from each of the following accounts:

- SA Section 7.2.3 (amended) Gravel Augmentation Program;
- SA Section 8.3.5 (amended) North Umpqua River Habitat Restoration/Creation Project;
- SA Section 19.1.1.3 Tributary Enhancement Program; and
- SA Section 19.3.1 Mitigation Fund.

The Settlement Agreement does not require annual reporting for SA Section 19.2 Long-Term Monitoring and Predator Control Fund. Since this was likely an oversight, the account information for this fund is also provided in this section.

TABLE 6. SA 7.2 Gravel Augmentation Program

Date	Item	Expenditures	Funding	Balance
2017	Opening Balance			\$39,570.48
2017	Annual Escalation (per SA 22.4.4)		\$500.67	\$40,071.15
2017	Expenditures			
	PacifiCorp			
	Staff Labor	(\$1,634.99)		
	Total Expenditures	(\$1,634.99)		\$38,436.16
2017	Ending Balance			\$38,436.16

TABLE 7. SA 8.3 North Umpqua River Habitat Restoration/Creation Project

Date	Item	Expenditures	Funding	Balance
2017	Opening Balance			\$73,720.43
2017	Annual Escalation (per SA 22.4.4)		\$932.76	\$74,653.19
2017	Expenditures			
	PacifiCorp			
	Staff Labor	(\$7,814.79)		
	Weekly Bros			
	Soda Springs spawning habitat	(\$40,000.00)		
	Total Expenditures	(\$47,814.79)		\$26,838.40
2017	Ending Balance			\$26,838.40

TABLE 8. SA 19.1 Tributary Enhancement Program Fund

Date	Item	Expenditures	Funding	Balance
2017	Opening Balance			\$1,369,735.51
2017	Expenditures			
	Bruce Standley Construction			
	Fish log hauling	(\$18,787.50)		
	Clint Hatfield Trucking			
	Boulder hauling	(\$11,750.00)		
	Ryan Parkhurst Trucking			
	Boulder hauling	(\$2,500.00)		
	Kevin Saylor			
	Boulder/bark hauling; boulder, log, and root wad placement; seeding/mulching; equipment rental	(\$88,804.00)		
	Phil Strader			
	Instream restoration (500 three- to six-foot- wide boulders; sorting, loading, and hauling)	(\$29,675.00)		
	United Rentals			
	Backhoe/loader rental	(\$2,336.68)		
	Total Expenditures	(\$153,853.18)		\$1,215,882.33
2017	Investment Earnings		\$6,696.33	\$1,222,578.66
2017	Ending Balance			\$1,222,578.66

TABLE 9. SA 19.2 Long Term Monitoring/Predator Control Fund

Date	Item	Expenditures	Funding	Balance
2017	Opening Balance			\$467,709.13
2017	Annual Funding (\$100K escalated)		\$135,904.18	\$603,613.31
2017	Expenditures			
	EG Solutions			
	Smolt trap repair	(\$8,989.70)		
	ODFW			
	Soda Springs rotary screen	(\$7,000.00)		
	Experimental Biological Aides (EBAs)	(\$125,913.00)		
	PacifiCorp			
	Labor and expenses	(\$25,118.04)		
	Sims Electric			
	Soda Springs fish evaluation building electrical upgrades	(\$3,140.00)		
	Stillwater Sciences			
	Fish Habitat and Population Study (Review of spawning habitat availability for reaches upstream of Soda Springs Reservoir and technical memorandum)	(\$2,620.35)*		
	Soda Springs Predator Control Study	(\$97,926.34)		
	Timberland Helicopters			
	Flights for river surveys, ODFW redd counts, and Toketee salmon survey	(\$6,014.00)		
	Weekly Bros.			
	Smolt trap anchors and bolts, and emergency smolt trap recovery	(\$21,050.00)		
	Total Expenditures	(\$297,771.43)		\$305,841.88
2017	Investment Earnings		\$2,247.22	\$308,089.10
2017	Ending Balance			\$308,089.10

* This amount for services rendered in 2016 was erroneously omitted from the 2016 Annual Report.

TABLE 10. SA 19.3 Mitigation Fund

Date	Item	Expenditures	Funding	Balance
2017	Opening Balance			\$2,604,005.12
2017	Annual Funding (\$1,250,000 escalated)		\$1,698,802.22	\$4,302,807.34
2017	Expenditures			
	Mitigation Projects			
	NUHP Gravel Augmentation			
	Aquatic Invasive Species Education			
	Basinwide Wetland Evaluation			
	Rock Creek Side Channel Design			
	False Broom Mapping			
	FY18 Fish Watch			
	Genetic Composition and Distribution of Different Steelhead Races Study			
	ODFW Wildlife Crossing Study			
	Steamboat Creek Instream Restoration			
	Land Acquisition			
	Lemolo Reservoir Water Quality			
	Modification and Design Opportunities			
	Program Management			
	Reynolds Creek AOP			
	Skeeter Creek AOP			
	Stream Gauge			
	Steelhead AOP Info 2017			
	DLRD Shrubland Restoration			
	2018 Stream Temp Monitoring			
	NU GRAIP			
	Spawning Habitat Investigation Upper Slide Creek and Lower Fish Creek			
	Total Expenditures	(\$835,217.25)		\$3,467,590.09
2017	Interest Earned		\$6,632.48	\$3,474,222.57
2017	Ending Balance			\$3,474,222.57

5.0 CONCLUSION

The full suite of date-certain PM&E Measures are in place on the Project and will continue to be operated and maintained throughout the License term for the benefit of natural resources in the Project area and beyond. Of particular note is the on-going, successful operation and maintenance of the Soda Springs fish passage facilities. PacifiCorp received the "2017 Distinguished Project Award in Fisheries Engineering and Ecohydrology" from the American Society of Civil Engineers, Engineering & Water Resource Institute and American Fisheries Society, Bioengineering Section, Fisheries Engineering Committee, at the June 2017 Fish Passage Conference in Corvallis, Oregon. The award was received by PacifiCorp for "restoration of wild anadromous fish production via a volitional passage fish ladder with a counting station, automatically-cleaned fish screen, spillway modifications, combined with habitat improvements and long-term monitoring." Hundreds of steelhead and salmon were observed using the fish ladder during the year.

Other major accomplishments during the reporting period included continued enhancement of anadromous fish habitat via placement of boulders and spawning gravel below Soda Springs and completion of annual Rolling Action Plans for ongoing programs to manage vegetation, erosion, transportation, aesthetics, recreation, and cultural resources in the North Umpqua Project area.

As in years past, a productive year of Project License and Settlement Agreement implementation was made possible through the dedication of the Parties and their respective staff in coordination with PacifiCorp's implementation team and operations and maintenance staff. The RCC ground rules and protocols for interagency teamwork and communication have provided an effective framework for watershed management consistent with the goals of the Settlement Agreement. Parties worked cooperatively toward meeting Settlement Agreement commitments during the report period and projects were completed on schedule.

In 2018, emphasis will be placed on the continued successful operation, evaluation, and maintenance of PM&E Measures, including the Soda Springs fish passage facilities, pursuant to the intent of the Settlement Agreement. As in past years, long-term monitoring and off-site mitigation will continue in the North Umpqua basin as part of the implementation program to protect, mitigate, and enhance natural resources in this highly valued watershed.