

NORTH UMPQUA HYDROELECTRIC PROJECT

FERC No. P-1927

Protection, Mitigation, and Enhancement Measures



"Giving a wild Chinook salmon fry a helping hand."

2016 Annual Report



May 2017

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1.0 INTRODUCTION

Located on the west side of the Cascades 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 2016 through December 2016) 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, 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), referred to collectively 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 articles for a new license 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: <http://www.pacificorp.com/es/hydro/hl/nur.html#>.

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 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 2016 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 Section 19. However, responsible Parties may consult with the RCC concerning measures conducted pursuant to this 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:

- interpretation of 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
- effectively communicating its progress through the development of a Web site at: <http://www.pacificorp.com/es/hydro/hl/nur.html#>.

2.2 RCC Members

The Parties have each appointed a member and an alternate to the RCC. The members are shown in Table 2-1. The RCC members work with a designated caucus within their respective organizations.

TABLE 2-1. 2016 Resource Coordination Committee Members

RCC Member	Organization
Pam Sichting	USDA Forest Service, Umpqua National Forest, Roseburg, Oregon
Jim Thrailkill	USDI Fish and Wildlife Service, Roseburg, Oregon
Amy Stevenson	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
Mary Grainey	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 Web site at:

http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Hydro/Hydro_Licensing/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 Web site at: <http://www.pacificorp.com/es/hydro/hl/nur.html#>.

- The RCC approved the following three technical working group (TWG) funding proposals:
 - Commitment of \$13,250 from the SA 19.2 fund for Stillwater Sciences to prepare a predator control study implementation plan and estimate juvenile anadromous fish carrying capacity.
 - Commitment of an estimated \$20,000 from the SA 19.2 fund for ODFW smolt trap upgrades.
 - Commitment of \$148,500 from the SA 19.2 fund for Stillwater Sciences to provide services for the Predator Control Study and Anadromous Juvenile Production and Survival Estimate. This work will be performed in 2017 with a final report to be completed by the summer of 2018.
- In addition, it was noted that two or three ODFW Experimental Biology Aides will continue working on the 19.2 program as was previously approved by the RCC. The 2017 estimated cost is between \$120,000 and \$150,000.
- The annual public tour was held on October 7, 2016.

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 the FERC license implemented during calendar year 2016. A summary of all documents submitted to FERC and their current status 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 PM&E Measures is presented in Table 3-1. The current status of the PM&E Measures is presented in Table 3-2.

During 2016, Settlement Agreement and license actions focused on planning, monitoring, constructing projects, and engineering designs. All Parties have worked cooperatively toward meeting Settlement Agreement schedule commitments.

**TABLE 3-1
Protection, Mitigation, and Enhancement Measures
Implementation Schedule**

Key	
	Due Date
x	In Progress
●	Complete

SA Section	PM&E	YEAR														
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024+
6.0 RAMPING																
6.2.1	Slide Creek Ramping Monitoring Plan 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 RESTORATION OF FLUVIAL PROCESSES																
7.2	Gravel Augmentation Program	●	●	●	●	●	●	●								
7.3	Passage of Woody Debris	●	●	●	●	●	●	●								
7.4	Passage of Sediment (if high flows present)	●	●	●	●	●	●	●								
8.0 MAINSTEM HABITAT ENHANCEMENT																
8.3.5	Soda Springs Funding and Accounting	●	●	●	●	●	●	●								
9.0 RESERVOIR AND FOREBAY MANAGEMENT																
9.1	Stocking of Rainbow Trout Funding	●	●	●	●	●	●	●								
9.3	Management of Lemolo Lake Reservoir	●	●	●	●	●	●	●								
9.5	Fish Salvage during Shutdowns	●	●	●	●	●	●	●								
10.0 AQUATIC RESOURCES																
10.6	Reconnecting Aquatic Connectivity Sites	x	x	x	x	x	x	●								
11.0 TERRESTRIAL RESOURCES																
11.5	Wetland Enhancements			x	x	x	x	●								
12.0 VEGETATION MANAGEMENT																
12.1	Vegetation Management Plan Development and Implementation	●	●	●	●	●	●	●								
12.2	Noxious Weed Control	●	●	●	●	●	●	●								
13.0 AVIAN PROTECTION																
13.4	Records & Database Management System	●	●	●	●	●	●	●								
14.0 EROSION & SEDIMENT CONTROL																
14.5	Erosion Monitoring	●	●	●	●	●	●	●								
15.0 TRANSPORTATION																
15.1	Transportation Management Plan Implementation	●	●	●	●	●	●	●								
15.2	PPL Roads to USDA-FS Standards	●	●	●	●	●	●	●								
15.3	Cost Sharing for Joint Roads and Maintenance	●	●	●	●	●	●	●								

**TABLE 3-1
Protection, Mitigation, and Enhancement Measures
Implementation Schedule**

Key	
	Due Date
x	In Progress
●	Complete

SA Section	PM&E	YEAR														
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024+
15.5	Bridges - Inspections/Maintenance	●	●	●	●	●	●	●								
15.5.1	Bridge Maintenance Cost Sharing	●	●	●	●	●	●	●								
15.6	Culvert Maintenance on PPL Use Roads	●	●	●	●	●	●	●								
16.0 AESTHETICS																
16.1	Aesthetics Management Plan Implementation	●	●	●	●	●	●	●								
17.0 RECREATION																
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 CULTURAL																
18.1	Historic Properties Management Plan Implementation	●	●	●	●	●	●	●								
18.3/18.6	Site Discovery/Monitoring	●	●	●	●	●	●	●								
18.4	Protection, Restoration, and Recovery	●	●	●	●	●	●	●								
19.0 MITIGATION																
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 3-2. PM&E Measures Status

SA Section	PM&E Measure	Due Date	Current Status
4.1	Fish Passage at Soda Springs Dam Design/Construct/ Evaluate/Operations and Maintenance	2012 – Complete construction 2017 – Complete evaluation	Facility construction was completed in November 2012. A major repair and upgrade occurred in 2013-2014. Other upgrades and maintenance have been occurring periodically since then. The hydraulic and biological performance evaluations were completed and reported to FERC in November 2016. The results concluded that the facility was operating as designed and safely passing fish.
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 (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.
6.5-6.6	Bypass Reach Ramping Restrictions	2001-2038	Ramping restrictions and reporting requirements were followed per the Flow Monitoring Plan.
7.2	Gravel Augmentation Program (as per SA Amendment No. 1)	2002-2038	Monitoring of augmentation sites continued per the Plan.
7.3	Passage of Woody Debris at Soda Springs and Slide Creek Dams	2002-2038	Passage of woody debris continued according to the Plan.

SA Section	PM&E Measure	Due Date	Current Status
8.2.1-8.2.2	Slide Creek Bypass Reach Habitat Project Implementation/ Monitoring	2002-2038	Monitoring continued according to the Plan.
8.3.2-8.3.3	North Umpqua River Habitat Restoration/ Creation Implementation/ Monitoring	2004-2038	Annual monitoring occurred according to the Plan.
9.1	Funding for Production of Rainbow Trout for Stocking	2004-2038	PacifiCorp provided \$20,090.02 to the ODFW in 2016.
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 maintenance shutdowns was made to the appropriate agencies, and the salvage and liberation of fish continued as required.
10.6	Aquatic Connectivity	2016 – Priority 2 sites	The final ten sites were constructed in 2016. With the completion of these sites, all 64 identified aquatic connectivity sites have been constructed pursuant to the approved site plans.
11.5	Wetland Development	2006-2016	The Lake Creek wetland enhancement project, the eighth and final wetland enhancement site, was constructed in October and November 2016. Focused planting efforts will be conducted by the USDA-FS in spring 2017. Four of the wetland enhancement sites continue to be monitored and maintained for self-sustaining, native wetland plant communities.

SA Section	PM&E Measure	Due Date	Current Status
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 and BLM lands in 2016. Noxious weed training occurred per the Plan and implementation of the horticultural invasive species program continued as necessary to satisfy VMP requirements. A noxious weed inventory report was completed in 2015 and distributed to agencies in early 2016. 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 and installed on transmission lines within the FERC boundary in 2016 to achieve NERC under-clearance compliance requirements.
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 program activities occurring within the Project area was submitted to the USDA-FS in February.
14.2	Canal Shutoff and Drainage Systems (CSDS)	2007-2010	The Fish Creek CSDS was built in 2007 but due to remote site constraints could not function reliably until communication and power supply upgrades were built in subsequent years. The final performance testing was conducted in May 2016. The test demonstrated successful operation of the system to the RCC. The three CSDS continue to be operated and maintained consistent with SA requirements.
14.4	Erosion Site Remediation	2016	All high and medium sites have now been remediated. Newly identified sites will be remediated as needed.
14.5	Erosion Control Monitoring	2001-2038	Erosion sites were monitored and an annual report was produced and distributed to the agencies in October.

SA Section	PM&E Measure	Due Date	Current Status
15.1–15.4	Transportation Management Plan Implementation	2004-2038 2007-2038 – Cost Sharing	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 2016 was \$182,724, of which PacifiCorp's share was \$72,641.
15.5, 15.5.1	Bridge Inspections, Maintenance; and Cost Sharing	Biennial – Inspections 2016 – Non-critical, Deferred Bridge Maintenance 2005-2038 – Cost Sharing	Deferred bridge maintenance tasks were completed by 2016. Cost-sharing continued or commenced for bridges on jointly-maintained hydro roads following completion of non-critical, deferred maintenance. Fracture critical bridges were inspected in 2016 as part of the annual inspection program. Biennial bridge inspection will be completed in 2017 for 34 bridges. The Deer Creek U-15 bridge deck replacement began in 2015 and was completed by May 2016.
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 \$143,309 to the USDA-FS in 2016.
17.7	Law Enforcement	2004-2038	PacifiCorp provided \$10,715 to the USDA-FS in 2016.
17.8	Capital Improvements	2002-2015 – future years will be monitoring-dependent	No funding was provided to the USDA-FS for 2016.

SA Section	PM&E Measure	Due Date	Current Status
17.9	Public Information	2004-2038	PacifiCorp provided \$8,679 to the USDA-FS in 2016.
17.10	Recreation Monitoring Recreation Monitoring (Periodic Surveys)	2004-2038 2007, 2012, 2017, 2022, 2027, and 2032	PacifiCorp provided \$8,679 to the USDA-FS in 2016.
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 \$133,933.44 into the designated fund in 2016. 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 TWG group.

SA Section	PM&E Measure	Due Date	Current Status
19.3	Mitigation Fund	2004-2038	<p>PacifiCorp deposited \$334,833.60 into the USDA-FS account in 2016.</p> <p>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.</p>
19.4	Oversight Costs	2005-2020	<p>PacifiCorp provided \$216,972.17 in 2016 to the ODFW for the funding of two full-time ODFW personnel to help oversee and monitor work associated with the ODFW MOU.</p>
21.4.1	RCC	2001-2038	<p>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.</p>

3.1.1 Major Accomplishments

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

Aquatic Connectivity Sites (SA Sections 10.6 and 10.7)

Ten aquatic connectivity sites located on the Lemolo 2 Canal were constructed in 2016. These sites are successfully passing flows and providing uninterrupted aquatic habitat connectivity between habitats upstream and downstream of Project waterways. With the completion of these ten sites, all sixty-four identified aquatic connectivity sites have been constructed as per the approved site plans.



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 will begin focused planting efforts in May 2017. 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.



Lake Creek wetland construction



Viewing incubating egg masses



*Cascades frog
(*Rana
cascadae*)*



Tributary Enhancement Program (SA Section 19.1)

Implementation of habitat enhancements and other program work by ODFW staff continued, including:

- *Harrington Creek Post Restoration* – ODFW hydropower mitigation biologists conducted night snorkeling surveys on 69 pools to observe the overwinter coho survival rate a year after the summer 2015 restoration season saw the addition of 23 total side channels. The highest juvenile coho count in any year prior to total restoration was 120. This year, 520 overwintering juvenile coho were enumerated in Harrington. Additional night snorkel surveys will take place for the next two years. A new water quality station will be installed in 2017 to gather stream flow and water temperature data. In 2018, the perched and undersized culvert on a main tributary to Harrington will be replaced in order to provide fish passage and conveyance of fine gravels. The proposal for a temporary bridge in upper Harrington is still in the works which would enable the restoration of another 0.75 mile section.
- *Rock Creek Mainstem and Tributaries* – Restoration was completed at 23 sites in a one-mile section of Rock Creek owned by Roseburg Resources. An additional 0.75 mile section of stream length was added with the reconnection and enhancement of eight side channels for overwintering juveniles. New root wad/boulder combination experimental designs were incorporated in the restoration and oriented at five different angles and locations within channel to act as deflectors but also to collect small woody debris and mimic large log jams.



Site #2 – Root wad/boulder-angled structure slows, raises, and deflects portions of flow into side channel.

Site #4 – Mid-channel root wad/boulder structure designed to slow, raise, and deflect water to both sides while collecting wood and depositing spawning gravel.





Site #9 – Root wad/boulder structure oriented perpendicular to both mainstem and reconnected side Channel to slow water and gather woody debris to mimic log jam.

- *Spawning Surveys Rock Creek, E. Fork Rock Creek, and Harrington Creek* – Adult spring Chinook, coho, winter steelhead, summer steelhead and adult Pacific lamprey spawning surveys continued in most previously-enhanced reaches, as well as in new reaches that are designated for implementation next year in mainstem Rock Creek. For 2016, spring Chinook (25 redds vs. 11 in 2015), coho (25 redds vs. 17 in 2015) and winter steelhead (54 redds vs. 18 in 2015) have been actively using the recently-restored reaches by digging redds within the newly accumulated gravel. Adult lamprey redds increased from 6 in 2015 to 9 in 2016.

East Fork Rock Creek surveys enumerated a peak of 36 coho redds.

Harrington Creek had a peak coho count of 16 fish (8 in 2015) and 26 redds (13 in 2015) While the Umpqua Basin's adult coho escapement numbers continue to decline, Harrington Creek and Rock Creek have increased, showing the effectiveness of our continued restoration on a whole scale watershed based approach.

- *Wapiti Creek Manual Riparian Conversion/Enhancement* – Pre-project spawning surveys showed Wapiti Creek had a peak of 11 Coho redds. Unfortunately, the landowners (Forest Investment Associates) consultants have put a damper on any access to achieve the proper restoration. ODFW is still exploring hand falling as part of the overabundance of hardwoods and replanting conifers, although with the newly proposed basal area rules to include hardwoods, the consultants are deferring for now.

- *Adult Salmonid Snorkel Survey Rock Creek Mainstem* – Snorkel surveys for adult summer salmonids continued in September. The entire North Umpqua River spring Chinook (CHS) run count was low based on Winchester dam counts. For 2016, the downward escapement trend continued for the North Umpqua River from 9,597 in 2015 to 8,700 in 2016. However, Rock Creek increased slightly by 26 CHS to 641, with hatchery fish dominating at 94%. Although the summer steelhead escapement increased by 179, they were also mostly hatchery fish at 81.5%. After the Hydro, District and Hatchery staff met with management concerning last year’s decision to only trap and remove a small percentage of hatchery fish, management has changed course and decided to remove a more substantial part of this year’s adult return.
- *Monitoring* – ODFW continues to partner with local watershed councils (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 has partnered with BLM’s hydrologist to install water quality stations in East Fork Rock Creek and North Fork of East Fork Rock Creek. The Upper Rock Creek station at the confluence with Northeast Fork of Rock Creek will be installed in the spring of 2017. The Harrington Creek station will be installed after that one, along with stations at the confluence of Rock Creek and East Fork Rock. The last station will be placed in the lower section of Rock Creek near the 2017 restoration sites. The data from these water quality stations will help us quantify our restoration efforts in providing the decrease in summer water temperatures, dissipation of winter peak flows, and the ability to recharge lateral refugia areas to retain the water throughout the summer dry months.

ODFW hydro staff continues to work with BLM’s professional drone team to document ten miles of restoration. The overflights for mainstem Rock Creek (mile marker 4.0 to 8.0), East Fork Rock Creek (mile marker 0.5 to 4.0), and Harrington Creek (mile marker 0.0 to 1.5) have been rescheduled for the fall of 2017 when leaves are off and temperature refugia areas can be detected with the FLiR camera and contouring substrate and particle size with the green LiDAR camera. The goal is to provide video (hopefully 3-D) and a still picture book similar to what Stillwater Sciences produced from data collected in East Fork Rock Creek. Copies would be distributed to PacifiCorp, cooperative landowners in the basin, and hopefully the TWG members.

ODFW hydro staff also continues to seek new avenues for acquiring inexpensive material for restoration projects including meeting with State and County officials to receive boulders from highway landslides; meeting with BLM seed orchard managers to receive free trees with root wads when plots need to be cleared; and meeting and coordinating with BLM right-of-way specialists to receive large blow down trees with root wads. Lastly, ODFW staff has been working with Oregon Department of Transportation and USDA-FS folks to receive the same notices for highway and right-of-way blow downs for continued restoration in Rock Creek and Canton/Pass Creek watersheds.

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-moderate level of effort per the Study Plan. The predator control study was ramped up via planning and preparation for a high level of field effort during 2017 to document post-passage predator abundance and predation within the Soda Springs Reservoir.



Predator-sized brown trout captured during pilot study of predation on juvenile anadromous fish.



Pink tag in the back of a marked brown trout.



Brown trout that was tagged twice during pilot study after passing upstream through the fish ladder after the first tagging event.



Tagged brown trout passing upstream through the Soda Springs fish ladder window.

3.1.2 Plans and Reports

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

Table 3-3. Plans and Reports Status

Plan/Report	SA Section, License Article, or FERC Order	Month Completed
Soda Springs Spawning Habitat Annual Report	SA 8.3	January
Lemolo Reservoir Management Annual Report	SA 9.0	January
Annual Avian Protection Report	SA 13.4	February
Soda Springs Fish Passage Operation and Maintenance Annual Report	SA 4.1.1 (FERC requirement)	January
Annual Threatened and Endangered Species and Bald Eagle Monitoring Report	License Articles 411 & 412	March
Flow Monitoring Annual Report (WY2014)	SA 5,6	August
Long-term Monitoring and Predator Control Study Annual Report	SA 19.2	March
Resource Coordination Committee Annual Report	SA 21.4.2	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 3-4 summarizes the FERC License requirements that were fulfilled during this reporting period.

Table 3-4. FERC License Actions Status

Date Filed	License Article	Settlement Agreement Section	Description	Status/ Comments
1/13/16	401	4.1	2015 Soda Springs Fish Passage Facility Operations and Maintenance Annual Report	Acknowledged 1/13/16
3/21/16	411 & 412	USDA-FS 4(3) Cond. 16	2015 Threatened and Endangered Species and Bald Eagle Monitoring Report	Acknowledged 3/21/16
6/3/16	401	21.4.2	2015 Resource Coordination Committee Annual Report	Acknowledged 6/3/16
11/3/16	401	4.1.1(d)	Final Soda Springs fish Passage Facilities Hydraulic and Biological Evaluation Report	Acknowledged 11/3/16
12/16/16	414	18.1 & 18.2	2016 Historic Properties Annual Report/Action Plan	Acknowledged 12/16/16

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.

Fiduciary Reporting

Table 4-1. SA 7.2 Gravel Augmentation Program

Date	Item	Expenditures	Funding	Balance
2016	Opening Balance			\$39,216.24
2016	Annual Escalation (per SA 22.4.4)		\$354.24	\$39,570.48
2016	Expenditures			
2016	Total Expenditures	\$0.00		\$39,570.48
2016	Ending Balance			\$39,570.48

Fiduciary Reporting

Table 4-2. SA 8.3 North Umpqua River Habitat Restoration/Creation Project

Date	Item	Expenditures	Funding	Balance
2016	Opening Balance			\$73,060.47
2016	Annual Escalation (per SA 22.4.4)		\$659.96	\$73,720.43
2016	Expenditures			
2016	Total Expenditures	(\$0.00)		\$73,720.43
2016	Ending Balance			\$73,720.43

Fiduciary Reporting

Table 4-3. SA 19.1 Tributary Enhancement Program Fund

Date	Item	Expenditures	Funding	Balance
2016	Opening Balance			\$1,532,165.55
2016	Expenditures			
	Bosco Logging			
	Culvert upgrade	(\$2,382.16)		
	Clint Hatfield Trucking			
	Boulder hauling	(\$19,264.75)		
	Ryan Parkhurst Trucking			
	Boulder hauling	(\$19,032.50)		
	Kevin Saylor			
	Boulder hauling; boulder, log, and root wad staging; grapple upgrade; seeding/mulching	(\$73,390.00)		
	Phil Strader			
	Instream restoration (466 five to eight foot boulders; equipment transport, boulder sorting and loading)	(\$41,850.00)		
	United Rentals			
	Backhoe/loader rental	(\$6,886.06)		
2016	Total Expenditures	(\$162,805.47)		\$1,369,360.08
2016	Investment Earnings		\$375.43	\$1,369,735.51
2016	Ending Balance			\$1,369,735.51

Fiduciary Reporting

Table 4-4. SA 19.2 Long Term Monitoring/Predator Control Fund

Date	Item	Expenditures	Funding	Balance
2016	Opening Balance			\$351,075.10
2016	Annual Funding (\$100K escalated)		\$133,933.44	\$485,008.54
2016	Expenditures			
	EG Solutions			
	Smolt Trap Repair	(\$6,726.00)		
	Stillwater Sciences			
	<i>Development of Predator Control Program – Monitoring and Adaptive Management Plan; Preparation of the 2017 Implementation Plan; and estimation of spawning habitat carrying capacity for reaches upstream of Soda Springs Reservoir</i>	(\$10,704.36)		
2016	Total Expenditures	(\$17,430.36)		\$467,578.18
2016	Investment Earnings		\$130.95	\$467,709.13
2016	Ending Balance			\$467,709.13

Fiduciary Reporting

Table 4-5. SA 19.3 Mitigation Fund

Date	Item	Expenditures	Funding	Balance
2016	Opening Balance			\$2,786,720.28
2016	Annual Funding (\$250,000 escalated)		\$334,833.60	\$3,121,553.88
2016	Expenditures			
	Mitigation Projects			
	Fish Creek Log Wood Placement			
	North Umpqua River Gravel Augmentation			
	Pass and Canton Creek Instream Restoration Phase II			
	Lamprey Larval Habitat Studies			
	Aquatic Invasive Species Education and Inspection			
	Oregon Department of Fish and Wildlife Canal Crossing Monitoring			
	Mowich Ponds Wetland Enhancement			
	Drinking Water Providers Partnership			
	Stream Gage Monitoring			
2016	Total Expenditures	(\$520,265.75)		\$2,601,288.13
2016	Interest Earned		\$2,716.99	\$2,604,005.12
2016	Ending Balance			\$2,604,005.12

5.0 CONCLUSION

Calendar year 2016 represented a significant milestone in implementation of the Project License and Settlement Agreement: completion of the final, date-certain PM&E construction projects identified in the Project License and Settlement Agreement. The capital construction projects completed in 2016 included ten aquatic connectivity sites on the Lemolo 2 waterway and the Lake Creek Wetland Enhancement near Lemolo Reservoir. 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. Hundreds of steelhead and salmon were observed using the fish ladder during the year. Hydraulic and biological evaluations of the fish passage facilities continued in 2016 as planned and as reported in the Performance Evaluation Final Report. This report concluded that the Soda Springs fish passage facilities are functioning as designed and provide safe, timely, and efficient passage of target fish species. The large number of naturally produced Chinook fry and juvenile coho and steelhead captured during the fish screen evaluation also indicated that substantial natural production is occurring upstream of the dam. This natural production was the result of adult fish that passed the dam volitionally via the fish ladder and spawned prior to the 2016 fish screen evaluation.



*Fish
screen
evaluation*



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 2017, emphasis will be placed on the continued successful operation, evaluation, and maintenance of PM&E Measures, including 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.