

NORTH UMPQUA HYDROELECTRIC PROJECT

FERC No. P-1927

Protection, Mitigation, and Enhancement Measures



2022 Annual Report



June 2023

TABLE OF CONTENTS

1.0 INTRODUCTION	1
1.1 Background	1
1.2 Resource Coordination Committee	2
1.3 Report Organization and Review	2
2.0 RESOURCE COORDINATION COMMITTEE	3
2.1 RCC Roles and Responsibilities	3
2.2 RCC Members.....	5
2.3 RCC Meetings.....	5
3.0 PROTECTION, MITIGATION, AND ENHANCEMENT MEASURES	6
3.1 Implementation of PM&E Measures.....	6
3.1.1 Noteworthy Accomplishments.....	13
3.1.2 Plans and Reports	19
3.2 FERC License Actions	20
4.0 FIDUCIARY REPORTING	21
5.0 CONCLUSION	24

LIST OF TABLES

Table 1. 2022 Resource Coordination Committee Members	5
Table 2. PM&E Measures Implementation Schedule	7
Table 3. PM&E Measures Status	9
Table 4. Plans and Reports Status	19
Table 5. FERC License Actions Status	20
Table 6. SA 8.3 North Umpqua River Habitat Restoration/Creation Project	21
Table 7. SA 19.1 Tributary Enhancement Program Fund.....	21
Table 8. SA 19.2 Long Term Monitoring/Predator Control Fund	23
Table 9. SA 19.3 Mitigation Fund.....	23

LIST OF FIGURES

Figure 1. Attendees of the RCC Public Tour watch spring Chinook salmon spawning on habitat restored pursuant to SA Section 8.3 and maintained by the Gravel Augmentation Program (SA Section 7.2) and the Federal Mitigation Fund (SA Section 19.3), October 2022.	2
Figure 2. Fish Creek canal buried in snow, January 2022. Due to the high minimum flows required in the bypass reach, diversion of water is often limited to periods of sustained rain and snowmelt.	4
Figure 3. Operators preparing to hoist a tailrace barrier picket for cleaning, May 2022.	6
Figure 4. A ‘mini-jack’-sized hatchery Chinook salmon, of the type which passed Soda Springs Dam in unusually high numbers during summer 2022.....	12
Figure 5. A hatchery-origin rainbow trout caught from Clearwater No. 2 forebay after being stocked by ODFW, May 2022.	12

Figure 6. Mainstem Rock Creek passive stream habitat supplementation by directional-cutting of RMA hazard trees. 14

Figure 7. Secondary and tertiary channel providing juvenile high-water refugia and overwintering habitat. 14

Figure 8. McComas Creek mechanically-placed log jam with pushed-over RMA ballast trees. . 15

Figure 9. Mechanically-placed, full trees and logs adding 4 log jams within primary, secondary and tertiary channels of East Fork Rock Creek. 15

Figure 10. Boulders arranged to alleviate the 22” drop from Mace Creek culvert. Medium flow over the boulder tops provides small 5-6” steps for easy passage at all flows. 16

Figure 11. Over 1,000 RMA seedlings and potted trees staged for planting on Lower Rock Creek. 17

Figure 12. Cleaning the fish ladder window at Soda Springs Dam to support the Long-term Monitoring Program, August 2022. 18

Figure 13. Cleaning and inspecting the Soda Springs Fish Screen while dewatered during a planned maintenance outage, February 2022. 19

Figure 14. PacifiCorp crew salvaging fish from the Lemolo No. 2 canal during dewatering for planned maintenance, June 2022. The net and electroshocking wand in the foreground are being held by Aquatic Scientist (and photographer) Rich Grost, who is bringing up the rear to shock any fish that get past the primary netters out in front. 20

Figure 15. A log being sluiced through the log chute at Soda Springs Dam as part of the Large Woody Debris Passage Program, February 2022. 22

Figure 16. Biologists from Meridian Environmental using underwater cameras to inspect streambed substrate during surveys for spawning habitat and fish in the Slide Creek Impoundment, May 2022. 22

Figure 17. Jason Brandt, ODFW, with a brown trout removed from Soda Spring Reservoir as part of the Predator Control Program, April 2022. 24

Figure 18. Roseburg News-Review reporter Will Geschke interviews PacifiCorp’s Steve Albertelli, Sam Carter, and Jeffery Brown about the details of the Protection, Mitigation, and Enhancement Measures during the RCC Public Tour, October 2022. 25

Figure 19. Paddleboarding on the North Umpqua River downstream of the North Umpqua Hydroelectric Project, August 2022. 26

On the cover: Boating and tubing on Lemolo Reservoir, with Mt. Thielsen in the background, August 2022. (Photo by Rich Grost).

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 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 2022 through December 2022) 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 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; now known as National Oceanic and Atmospheric Administration (NOAA) Fisheries), 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: <https://www.pacificorp.com/energy/hydro/north-umpqua-river.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 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 2022 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.



Figure 1. Attendees of the RCC Public Tour watch spring Chinook salmon spawning on habitat restored pursuant to SA Section 8.3 and maintained by the Gravel Augmentation Program (SA Section 7.2) and the Federal Mitigation Fund (SA Section 19.3), October 2022.

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. Through collaboration and sharing of information, the RCC works to achieve desired results of implementation requirements. Specifically excluded from RCC responsibility and authority is the administration of SA Section 19.1 Tributary Enhancement Program and SA Section 19.3 Mitigation Fund, administered by ODFW and USDA-FS, 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 No. 1);
- 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:

- interpreting 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 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: <https://www.pacificorp.com/energy/hydro/north-umpqua-river.html>.



Figure 2. Fish Creek canal buried in snow, January 2022. Due to the high minimum flows required in the bypass reach, diversion of water is often limited to periods of sustained rain and snowmelt.

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. 2022 Resource Coordination Committee Members

RCC Member	Organization
Pam Sichtung	USDA Forest Service, Umpqua National Forest, Roseburg, Oregon
Frank Weaver	USDI Fish and Wildlife Service, Roseburg, Oregon
Michael Korn	USDI Bureau of Land Management - Roseburg District, Roseburg, Oregon
Kathleen Wells	NOAA Fisheries West Coast Region, Portland, Oregon
Jason Brandt	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:

<https://www.pacificorp.com/energy/hydro/north-umpqua-river.html>

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:

<https://www.pacificorp.com/energy/hydro/north-umpqua-river.html>.

- The RCC approved the following expenditures, funding proposals, and other requests:
 - Proposal to 1) increase the 2022 SA 19.2 budget by \$7,000 to allow for special maintenance of the Passive Integrated Transponder (PIT) antennae and research the potential for a new antennae in the Fish Return Flume; and 2) allow a brief, temporary reduction of flow in the Soda Springs bypassed reach from the required 300 cubic feet per second (cfs) to approximately 100 cfs to allow for safe wading out to the middle of the river during the brief period of gravel removal from the antennae, just as it was lowered during the habitat work in August 2020.
 - USDA-FS request to divert up to one cfs of water from Fish Creek to the Fish Creek Forebay via the Fish Creek waterway for potential wildland firefighting efforts during the 2022 fire season.

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 2022. A summary and status report of all License and Settlement Agreement related documents submitted to FERC is also presented.

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 2022, 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.

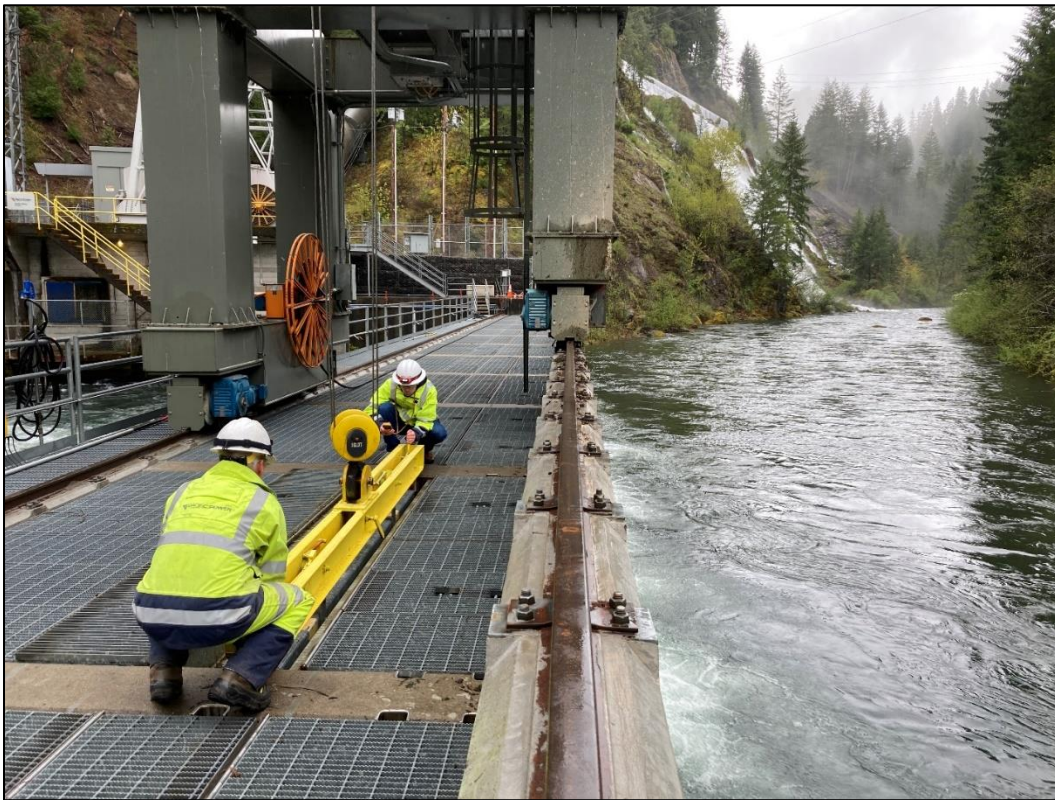


Figure 3. Operators preparing to hoist a tailrace barrier picket for cleaning, May 2022.

Table 2. PM&E Measures Implementation Schedule

		Key											
		Due Date											
		Complete											
		YEAR											
SA Section	PM&E	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 +
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	•	•	•	•	•	•	•	•	•	•	•	
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	•	•	•	•	•	•	•	•	•	•	•	
15.5	Bridges - Inspections/Maintenance	•	•	•	•	•	•	•	•	•	•	•	
15.5.1	Bridge Maintenance Cost Sharing	•	•	•	•	•	•	•	•	•	•	•	
15.6	Culvert Maintenance - PPL Use Roads	•	•	•	•	•	•	•	•	•	•	•	
16.0 AESTHETICS													
16.1	Aesthetics Management Plan Implementation	•	•	•	•	•	•	•	•	•	•	•	

Key	
	Due Date
•	Complete

SA Section	PM&E	YEAR											
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 +
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. 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	The fish passage facilities were operated as designed and intended. The agencies reviewed the annual O&M report and it was filed with FERC the following January. Fish passage continued to be monitored and reported 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 were provided and managed within required ramp rate allowances to the greatest extent possible.
5.5	Instream Flow Monitoring	2002-2038	Monitoring and reporting continued as required in the Flow Monitoring Plan, with the USGS contracted to manage the stream gages and related data. Annual water year reports were produced and provided based on the provision of publication-grade data from the USGS to PacifiCorp.
6.2.1	Slide Creek Ramping Monitoring Plan Implementation	2013-2020	An interim final monitoring report was produced by the technical working group (TWG) and filed with the FERC in 2021. The report indicated that salmon and steelhead do use the Slide Creek Full-flow Reach of the North Umpqua River for spawning, hence any resumption of daily load shaping operations will follow the flow regulation of changing load no more than 510 cfs per hour (equivalent to one-unit flow at Toketee powerhouse) as specified within the Settlement Agreement. If PacifiCorp resumes daily load-shaping releases PacifiCorp will consult with the TWG to monitor the effects of ramping on fish use within the Full-flow Reach.
6.4	Wild and Scenic Ramping Restrictions	2001-2038	Ramping restrictions and reporting requirements were followed 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 (and SA Amendment No. 1)	Gravel Augmentation Program	2002-2038	Monitoring of augmentation sites continued per the Gravel Augmentation Plan, with reports provided at 5-year intervals. The report covering the five-year period from 2017 through 2022 was submitted to the RCC in May 2022.
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, with reports provided at 5-year intervals. The report covering the five-year period from 2017 through 2022 was submitted to the RCC in 2022.
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 the following January.
9.1	Funding for Production of Rainbow Trout for Stocking	2004-2038	PacifiCorp provided \$22,829.75 to ODFW in 2022 for the production of rainbow trout.
9.3	Lemolo Reservoir Management Plan and Limits on Drawdown Rate and Elevations	2001-2038	Reservoir management, consultation, and reporting occurred according to the Lemolo Reservoir Management Plan. Water levels and drawdown rates were managed and monitored according to the Flow Monitoring Plan.
9.5	Salvage of Fish During Maintenance Shutdowns	2001-2038	Advance notice of planned maintenance shutdowns was made to the appropriate agencies, and salvage and liberation of fish was permitted and implemented as required.

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 lands in 2022. 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 in consultation with the USDA-FS and BLM.
13.1	Power Pole Modification	2001-2038	Four deteriorating transmission structures were replaced with avian-safe construction on transmission lines within the FERC boundary in 2022.
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 2022.
14.2	Canal Shutoff and Drainage Systems (CSDS) Operation and Maintenance	2007-2038	The 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 November 2022.
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 BLM. The total cost of road maintenance on roads jointly maintained by the USDA-FS and PacifiCorp in 2022 was \$172,655, of which PacifiCorp's share was \$54,521.
15.5, 15.5.1	Bridge Inspections, Maintenance Cost Sharing	Annual & Biennial Inspections 2005-2038	Cost-sharing continued for bridges on jointly-maintained hydro roads. Fracture-critical bridges are inspected annually as part of the annual inspection program.
16.1, 16.3, 16.4	Visual Resources (Aesthetics) Management Plan	2005-2038	The Aesthetics Management Plan continued to undergo implementation. The 5-year RAP was provided to the USDA-FS and BLM.
17.1	Recreation Resources Management Plan Implementation	2004-2038	The Recreation Resource 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 \$108,325 to the USDA-FS in 2022 for campground operations and maintenance.
17.7	Law Enforcement	2004-2038	These funds are no longer collected by the USDA-FS for pass-through to Douglas County Sheriff's Office (DCSO). PacifiCorp executed a 5-year funding agreement with DCSO in December 2021, and annual payment was made to DCSO in 2022 consistent with that agreement.
17.8	Capital Improvements	2002-2015; future years' funding will be monitoring-dependent	No funding was provided to the USDA-FS in 2022 for capital improvements to recreation facilities.
17.9	Public Information	2004-2038	PacifiCorp provided \$10,319 to the USDA-FS in 2022 for public information projects.

SA Section	PM&E Measure	Due Date	Current Status
17.10	Recreation Monitoring Recreation Monitoring (Periodic Surveys)	2004-2038 2007, 2012, 2017, 2022, 2027, and 2032	PacifiCorp provided \$10,319 to the USDA-FS in 2022 for routine recreation monitoring. Note: At the request of the USDA-FS, PacifiCorp provided the periodic recreation monitoring payment for 2022 in advance to the USDA-FS in calendar year 2021.
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, BLM, and SHPO.
18.6	Cultural Resources Monitoring	2001-2038	PacifiCorp coordinated ground-disturbing activities with the USDA-FS, BLM, and 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 \$152,198.36 into the designated fund in 2022. The RCC continued to manage expenses from this fund. Long-term monitoring and predator control study work proceeded according to the Long-Term Monitoring and Predator Control Study Plan, refined as necessary by the TWG as approved by the RCC.
19.3	Mitigation Fund	2004-2038	PacifiCorp deposited \$380,495.89 into the USDA-FS-administered mitigation fund account in 2022. 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	2005-2038	PacifiCorp provided \$246,561.34 in 2022 to ODFW for the funding of ODFW personnel to monitor the SA 19.1 program and oversee on-site PM&Es.
21.4.1	RCC	2001-2038	The RCC continued to facilitate the implementation of PM&Es. It held remote quarterly meetings in 2022, along with an in-person annual public tour on October 5, 2022. The TWGs continued to address detailed consultation issues and provide recommendations to the RCC.



Figure 4. A ‘mini-jack’-sized hatchery Chinook salmon, of the type which passed Soda Springs Dam in unusually high numbers during summer 2022.



Figure 5. A hatchery-origin rainbow trout caught from Clearwater No. 2 forebay after being stocked by ODFW, May 2022.

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.

Tributary Enhancement Program (SA Section 19.1)

Implementation of habitat enhancements and other program work by ODFW's hydropower staff continued in 2022 and included:

- *Rock Creek Mainstem and Tributaries Enhancement* – ODFW hydropower staff continued basin-wide enhancements with extra summer hazard tree removal and placement, additional passive stream habitat supplementation from fire damaged trees in the Riparian Management Area (RMA) (Figure 6), and utilization of large logs cut from the burnt trees salvaged on ODFW's Rock Creek Hatchery compound. Altogether, 109 total log jams and/or boulder structures consisting of 1,110 pieces of large woody debris (LWD) and 65 large boulders were placed within 11.25 miles of mainstem Rock Creek and tributaries on both privately owned, industrial and non-industrial land. Additionally, normal instream structures were built, or additions were made to existing jams or partial jams. In mainstem Rock Creek, 525 40' to 60'-long logs, 85 full trees with root-wads, and 40 large boulders were utilized to construct 46 log jams on the stream edges to encourage sinuosity, prevent erosion, and provide lee areas for juvenile refugia. Full trees with root-wads were either mechanically pushed over and/or placed into the stream from the bank or from instream. Two side channels, totaling approximately 0.25 miles, were also reconnected to mainstem Rock Creek (Figure 7).

Passive supplementation restoration was also conducted in a number of mainstem Rock Creek tributaries, including the two main tributaries to lower Rock Creek, McComas, and Kelly creeks. In McComas Creek, 5 new log jams were created by pushing in 20 full trees with root-wads and mechanically placing 40 logs (Figure 8), and in Kelly Creek 12 new log jams were developed utilizing 30 full trees with root-wads and 70 logs mechanically placed instream. The log jams were placed to alleviate channel incision and aggrade substrate, which will hopefully help increase the frequency of lateral inundation to the disconnected flood plain. Fifty trees with root-wads attached were pushed over in Shoup Creek, a mid-mainstem channel tributary, creating 10 log jams. A total of 25 full trees with root-wads attached were placed in Stoney Creek, an upper mainstem channel tributary, creating 4 log jams as well. Coho salmon were observed for the first time in this stretch of Stoney Creek just below our restoration structures.



Figure 6. Mainstem Rock Creek passive stream habitat supplementation by directional-cutting of RMA hazard trees.

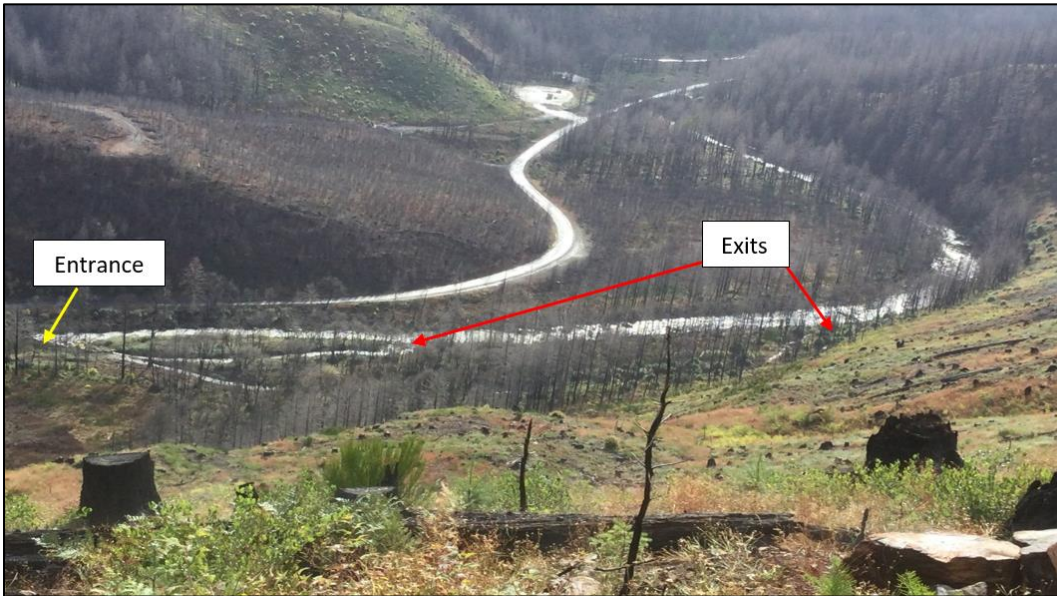


Figure 7. Secondary and tertiary channel providing juvenile high-water refugia and overwintering habitat.



Figure 8. McComas Creek mechanically-placed log jam with pushed-over RMA ballast trees.

- *East Fork Rock Creek* – ODFW hydropower staff conducted passive hazard tree supplementation in conjunction with mechanical placement in East Fork Rock Creek. Nine new log jams were created, and 3 existing log jams (Figure 9) that formed over the last several years were supplemented using 100 logs between 40’ and 60’-long and over 40 full trees with root-wads attached. The trees, with full root-wads attached, were pushed instream by mechanical means and placed either on existing structures or in new areas to slow and capture the large debris flows expected from continued winter freshets. New RMA plantings are scheduled for next year in this stream.

Five log jams created to help reduce stream flow velocities were placed in Mace Creek, a lower tributary to East Fork Rock Creek, utilizing 25 full trees with root-wads attached. Additionally, 25 medium sized boulders were placed in an alternating step fashion in Mace Creek to mimic steps in a fish ladder and help facilitate the passage of fish through a box culvert at all flows (Figure 10).



Figure 9. Mechanically-placed, full trees and logs adding 4 log jams within primary, secondary and tertiary channels of East Fork Rock Creek.



Figure 10. Boulders arranged to alleviate the 22” drop from Mace Creek culvert. Medium flow over the boulder tops provides small 5-6” steps for easy passage at all flows.

- *Harrington Creek Restoration Monitoring Report* – ODFW hydropower staff mechanically pushed over approximately 100 full trees with root-wads attached into the upper portion of Harrington Creek creating 15 log jams. This upper section was previously inaccessible due to an old slide that took out the main spur road bridge on BLM owned land. A temporary bridge was placed over Harrington Creek for salvage logging and our cooperating landowners, Forest Investment Associates and Roseburg Resources, agreed to keep the bridge in place for a short period so ODFW hydropower staff could access that section. The water quality station in lower Harrington Creek finally failed, undoubtedly because of impacts from the Archie Creek Fire. We have been told that Archie Creek Fire insurance replacement funds should arrive soon. New RMA plantings are scheduled for next year in this stream.
- *Adult Salmonid Snorkel Surveys in Rock Creek Mainstem* – Snorkel surveys for holding adult spring Chinook salmon (CHS) and summer steelhead (STS) were undertaken above and below the Rock Creek Diversion Dam between August 28, 2022 and September 1, 2022. In total, 82 mainstem Rock Creek units were snorkeled with a total of 153 CHS and 318 STS observed. A total of 77 units were snorkeled above the diversion dam with 109 CHS and 278 CHS observed, compared to 64 units snorkeled with 174 CHS and 3 STS observed in 2021. Below the diversion dam, 5 units were snorkeled with 44 CHS and 40 STS documented. No snorkeling occurred below the diversion dam in 2021 due to time constraints. As in years past, hatchery fish outnumbered wild fish in the 2022 counts with 92% of observed CHS and 87% of observed STS being of hatchery origin. A school of approximately 30-40 coastal cutthroat trout has been observed in Rock Creek during snorkeling events over the past couple of years. It'll be interesting to see if the numbers of cutthroat observed in Rock Creek increase with continued habitat improvements.
- *Monitoring* – ODFW Hydropower Program's basin-wide monitoring continues to document the changes in instream structure movement and effectiveness after big winter freshets, especially following the Archie Creek Fire. The addition of over 1,100 pieces of LWD and boulders placed or pushed into streams throughout the basin has enhanced habitat complexity and increased overall carrying capacity. Moreover, the continued passive and traditional mechanical restoration and enhancements are helping to mitigate potential negative impacts

from the Archie Creek Fire to the basin's biota and water quality. Habitat improvements and floodplain reconnections are slowly recharging the aquifers, which will hopefully lead to the slow releases of cooled water back into stream channels during summer months. The cold water refugia provides much needed summer holding and rearing habitat for adult and juvenile fish, while also diffusing peak flows over longer durations of time.

Similar to observations in Harrington Creek, all of ODFW's other water quality stations in the Rock Creek basin are no longer working and ODFW is waiting for FEMA funds to replace those stations as well. Past drone flight water temperature data are being analyzed in GIS to identify cold water refugia and compare pre- and post-fire conditions around restoration areas.

- ODFW parlayed grants of \$25,000 from the Umpqua Fish Enhancement Derby into an additional \$10,000 grant from Bass Pro Shops and Cabela's Outdoor World. On non-industrial privately-owned land in lower Rock Creek, Douglas Timber Operators utilized the grants to fund landscape crews' pre-planting suppression of non-native RMA shrubs. Where exotic weeds and shrubs didn't exist, landscape crews planted thousands of RMA trees with help from the ODFW hydropower crew (Figure 11). New tree seedlings of various riparian species will be planted in RMAs along both sides of Rock Creek to compliment the temperature-lowering instream enhancements and for future LWD input.



Figure 11. Over 1,000 RMA seedlings and potted trees staged for planting on Lower Rock Creek.

- *Restoration Resources* – Restoration efforts in the Rock Creek watershed wouldn't be possible at the scale ODFW is undertaking if it weren't for non-industrial and industrial landowners who granted access and contributed resources. Additionally, ODFW will work with landowners to continue to assess whether certain RMA trees affected by the fire can be utilized instream. Forest Investment Associates, Roseburg Resources, Sierra Pacific Industries (formerly Seneca Jones), and Lone Rock continue to partner with the ODFW Hydropower Program to ensure hazard trees can provide benefits to fish and wildlife in as much stream area as possible in the Rock Creek watershed. Lastly, a big thanks to Santos Reforestation Inc. for their hard work suppressing all the scotch broom, blackberries and other exotic RMA species and their attention to detail when planting new seedlings.

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

Long-term monitoring of fish movement and populations affected by Soda Springs fish passage is currently in the “interim period” and continues with a limited scope per the Study Plan. Efforts this year concentrated on routine monitoring of fish use of the fish passage facilities, with a secondary focus on predator control and redd surveys. A detailed report is provided to the RCC annually. Upstream passage of adult salmonids was monitored continuously via the video system at the Soda Springs fish ladder, where the upstream passage of anadromous fish averages about 1,500 adult salmon and steelhead annually. In summer 2022 the first observations were made of Pacific lamprey passing through the fish ladder. Downstream passage of juvenile fish through the fish screen was monitored one to three nights per week at the Soda Springs Fish Evaluation Building, where the number of juvenile fish sampled has ranged up to 50,000 fish annually. Redd surveys helped describe the distribution of fish and the relative use of the available spawning habitats. Predator control efforts focused on predator removal and maintenance of the riverbed array Passive Integrated Transponder tag antennae. PacifiCorp and ODFW plan to continue all of these activities in the next year.



Figure 12. Cleaning the fish ladder window at Soda Springs Dam to support the Long-term Monitoring Program, August 2022.

3.1.2 Plans and Reports

The following plans and reports were completed and/or revised during 2022:

Table 4. 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
Soda Springs Fish Passage Operation and Maintenance Annual Report	SA 4.1.1	January
Annual Avian Protection Report	SA 13.4	January
Annual Threatened and Endangered Species and Bald Eagle Monitoring Report	License Articles 411 & 412	February
Resource Coordination Committee Annual Report	SA 21.4.2	June
Long-term Monitoring and Predator Control Study Annual Report	SA 19.2	May
Erosion Control Plan Annual Report	SA 14.5	September
Historic Properties Annual Report	License Article 414	December
Flow Monitoring Plan Annual Report – Water Year 2020	SA 5.5, 6.6	June
Flow Monitoring Plan Annual Report – Water Year 2021	SA 5.5, 6.6	December
Soda Springs Water Quality Annual Report – by Water Year	401 WQ Certification	February
Gravel Augmentation Program Monitoring Report 2017-2021	SA 7.2	May



Figure 13. Cleaning and inspecting the Soda Springs Fish Screen while dewatered during a planned maintenance outage, February 2022.

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

Date Filed	License Article(s)	Settlement Agreement Section(s)	Description
1/27/22	401	4.1	2021 Soda Springs Fish Passage Facility Operations and Maintenance Annual Report
2/2/22	411 & 412	USDA-FS 4(e) Condition 16	2021 Threatened and Endangered Species and Bald Eagle Monitoring Report
6/24/22	401	21.4.2	2021 Resource Coordination Committee Annual Report
12/13/22	414	18.1 & 18.2	2022 Historic Properties Annual Report/Action Plan



Figure 14. PacifiCorp crew salvaging fish from the Lemolo No. 2 canal during dewatering for planned maintenance, June 2022. The net and electroshocking wand in the foreground are being held by Aquatic Scientist (and photographer) Rich Grost, who is bringing up the rear to shock any fish that get past the primary netters out in front.

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 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 SA 7.2.3 (amended) Gravel Augmentation Program account, previously reported herein, was fully expended in 2020 and will no longer be reported.

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 8.3 North Umpqua River Habitat Restoration/Creation Project

Date	Item	Expenditures	Funding	Balance
2022	Opening Balance			\$5,335.19
2022	Annual Escalation (per SA 22.4.4)		\$244.86	\$5,580.05
2022	Expenditures			
	PacifiCorp			
	• Staff labor	(\$193.00)		
	Total Expenditures	(\$193.00)		\$5,387.05
2022	Ending Balance			\$5,387.05

Table 7. SA 19.1 Tributary Enhancement Program Fund

Date	Item	Expenditures	Funding	Balance
2022	Opening Balance			\$683,933.28
2022	Expenditures			
	Kevin Saylor			
	• Burnt tree salvage at Rock Creek Hatchery for fish logs • Rock Creek hazard tree removal	(\$93,887.00)		
	Bosco Logging			
	• Rock Creek tree and log placement	(\$10,000)		
	ODFW			
	• Labor on Rock Creek Basin restoration activities	(\$35,509)		
	Mark Jones Trucking			
	• Self-loader/trucking services	(\$10,050.00)		
	Total Expenditures	(\$149,446.00)		\$534,487.28
2022	Investment Earnings		\$8,364.35	\$542,851.63
2022	Ending Balance			\$542,851.63



Figure 15. A log being sluiced through the log chute at Soda Springs Dam as part of the Large Woody Debris Passage Program, February 2022.



Figure 16. Biologists from Meridian Environmental using underwater cameras to inspect streambed substrate during surveys for spawning habitat and fish in the Slide Creek Impoundment, May 2022.

Table 8. SA 19.2 Long Term Monitoring/Predator Control Fund

Date	Item	Expenditures	Funding	Balance
2022	Opening Balance			\$62,059.47
2022	Annual Funding (\$100K escalated)		\$152,198.36	\$214,257.83
2022	Expenditures			
	ODFW			
	Experimental Biological Aides (EBAs)	(\$123,000)		
	PacifiCorp			
	Staff Labor and Expenses	(\$5,436.56)		
	Stillwater Sciences			
	Soda Springs Predator Control Study	(\$11,818.30)		
	Total Expenditures	(\$140,254.86)		\$74,002.97
2022	Investment Earnings		\$1,979.06	\$75,982.03
2022	Ending Balance			\$75,982.03

Table 9. SA 19.3 Mitigation Fund

Date	Item	Expenditures	Funding	Balance
2022	Opening Balance			\$2,345,850.42
2022	Annual Funding (\$250,000 escalated)		\$380,495.89	\$2,726,346.31
2022	Expenditures			
	Mitigation Projects			
	Rock Creek Effectiveness Monitoring			
	Steamboat Creek Water Quality Monitoring			
	Water Quality Monitoring			
	Harmful Algae Bloom Surveillance			
	Fish Watch			
	Canton Creek False Brome Removal			
	Mowich Park Wetland Enhancement			
	North Umpqua Basin Winter Range Closure and Timeliness			
	Repair and Maintenance of USFS Winter Range Closure Structures			
	Susan & Honey Stream Restoration Project			
	Copeland Road Storage Phase 2			
	Thielsen Fire Recovery Drone Seeding			
	Upper Steamboat Creek Snorkel Surveys			
	Total Expenditures	(\$809,894.25)		\$1,916,452.06
2022	Interest Earned		\$117.92	\$1,916,569.98
2022	Ending Balance			\$1,916,569.98

5.0 CONCLUSION

2022 was another successful year of PM&E implementation and RCC coordination. The Parties collaborated to facilitate ongoing operation and maintenance of the Project and implementation of PM&E measures. PacifiCorp expresses their sincere thanks to the Parties for their cooperation on behalf of PacifiCorp's customers and the natural resources of the North Umpqua Basin.

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. The on-going, successful operation and maintenance of the Soda Springs fish passage facilities continues to be a focus of the implementation program. Hundreds of steelhead and salmon were observed using the fish ladder during the year. Of particular note, the first observation of Pacific lamprey (*Entosphenus tridentatus*) utilizing the fish ladder and moving upstream of Soda Springs dam occurred in 2022.

Other major accomplishments during the reporting period included implementation of the long-term monitoring and predator control study plan 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.



Figure 17. Jason Brandt, ODFW, with a brown trout removed from Soda Spring Reservoir as part of the Predator Control Program, April 2022.

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.



Figure 18. Roseburg News-Review reporter Will Geschke interviews PacifiCorp’s Steve Albertelli, Sam Carter, and Jeffery Brown about the details of the Protection, Mitigation, and Enhancement Measures during the RCC Public Tour, October 2022.

In 2022, the Parties utilized the RCC framework to continue consultation on PacifiCorp’s proposal to amend the FERC Project license to develop pumped storage capabilities at the Fish Creek and Clearwater No. 2 developments of the Project. PacifiCorp will continue to consult with the Parties on pumped storage development on the Project. The energy storage provided by pumped storage hydropower is a priority for PacifiCorp and its customers as the region transitions to an electrical grid increasingly powered by the variable fuel supply of renewable resources.

In 2023, 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.



Figure 19. Paddleboarding on the North Umpqua River downstream of the North Umpqua Hydroelectric Project, August 2022.