

Final Completion Summary

The City of La Grande operates Beaver Creek reservoir, a potable water storage facility constructed in 1915 for domestic use. The municipal watershed covers approximately 23 square miles and is in a protected area within the Wallowa-Whitman National Forest. Several diversion structures supply a pipeline to the City of La Grande for municipal water. At the time of construction, fish passage was not considered. The completed project created seven barriers, five of which inhibit aquatic access to the upstream habitat. Project components are allocated into three separate locations: upstream, the main diversion, and dam passage. The project will include a variety of treatments to provide fish passage at the main diversion, multiple intake structures, and the dam structure as well. A series of 63 precast concrete vortex weirs and two precast concrete turning pools were installed downstream from the entrance pool. The project has restored access to approximately 12 miles of watershed, an area that has potential for quality habitat and historically was a spawning and rearing area for spring Chinook salmon and steelhead. An additional benefit of the project is the anticipation of enhanced late-season flows.

Background

During the 1915 construction of the dam for the La Grande Reservoir, fish passage was not a consideration. Installation of the dam and associated diversion structures created five barriers that inhibit access for aquatic species, namely Mid-Columbia steelhead and spring Chinook salmon, to approximately 12 miles of protected watershed. These facilities are located on USFS property; however, the City of La Grande owns and operates the facilities. The City of La Grande relied on the watershed as its primary source of water until 2002 when the last of a series of wells was brought online to meet the community's water demand. Due to the dropping water levels in the confined aquifer beneath La Grande, additional wells are not expected to be a viable water source in the future. Therefore, the existing water rights of the watershed remain instrumental in meeting demands as the community grows. Beaver Creek is a tributary of the Grande Ronde River, which historically had large populations of native fish including Chinook salmon, Snake River steelhead, and bull trout. Habitat degradation, including fish barriers, has been identified as one of the main contributing factors to the decline in native fish populations. The Beaver Creek Dam Fish Passage Project would remove five fish barriers and open up approximately 12 miles of native habitat, in addition to securing a reliable backup source of drinking water for the City of La Grande.

Work Done

Work completed at the site can be placed in two categories: the diversion structures and the dam. At the upper diversions, a portion of the concrete structures has been removed to provide a low flow channel with a natural bottom. The installation of rock cross vanes and streambed simulation material downstream of the structure allowed the channel to be re-graded to meet

fish passage criteria. Large rock grade control structures were installed to maintain the re-graded streambed elevations. Two of the downstream intake structures were also included in the project scope. The channel surrounding the structures were re-graded to match the elevation of the structures by placing streambed simulation material. In these areas, the streambed simulation material selected is larger in size than the average material of the natural channel to promote less degradation in the future.

At the dam, portions of the existing spillway were removed to construct a concrete entrance pool (dimensions of 10 feet wide by 22 feet long and 3 feet deep). Downstream of the entrance pool, a series of 67 precast concrete vortex weirs, with 8-inch drops, were placed for approximately 430 feet. Each of the weirs were cast at a remote location, shipped to the site by truck, and placed on a constructed pad consisting of compacted crushed rock. On either side of the completed weir fish ladder, there will be an overflow area that is constructed with streambed simulation material. These overflow areas will provide fish passage during high flow events when the water is over the vortex weirs.

Changes from Proposed

Overall scope of the project remained unchanged; however, some minor work tasks were altered. Examples of these alterations include the addition of the two downstream intake structures and the installation of four (4) additional vortex weir structures than were anticipated in the grant application. Funding for the project was also changed from the original proposal when the City was awarded a \$600,000 grant from Oregon Water Resources. This grant resulted in the City being required to bring less dollars to the table to complete the project.

Public Awareness or Education

The project was featured in the local newspaper "The Observer" on July 10, 2017. The article has been uploaded with this report. Additionally, the City held a ribbon cutting ceremony on June 19, 2018. All of the funding sources, along with project partners and regulatory agencies were invited to the site to tour the project and view a project display board that will become a permanent part of the site.

Lessons Learned

A strong project team, that utilized above average communication made this project progress

very smoothly. Having a sound design, proper planning, and extensive documentation led to the successful completion of the project on an acceptable timeline and budget.

Aquatic Habitat

Project has improved fish passage through the lower intake structures, as well as restored connectivity to approximately 12 miles of habitat.

Special Conditions

Special Conditions for vicinity and project component map for this project were uploaded utilizing the online portal. The City is currently working on having cameras installed at the site to provide remote flow monitoring and working with Fish and Wildlife to determine if the constructed structure is providing adequate flow for the passage at the correct time of year.

<i>Funding Sources</i>				
Source	Identifier	Cash	Inkind Type	Inkind
Bonneville Power Administration (BPA)	75989	\$150,000.00		\$0.00
City of La Grande		\$555,704.00		\$0.00
City of La Grande		\$0.00	Labor	\$30,034.00
Oregon Water Resources Dept	GA-0305-17	\$600,000.00		\$0.00
OWEB	214-5007-10422	\$150,000.00		\$0.00

<i>Totals</i>					
OWEB Amount	Non OWEB Cash	Inkind Total	Non OWEB Amount	OWEB Match	Total Project Cost
\$150,000.00	\$1,305,704.00	\$30,034.00	\$1,335,738.00	890.0%	\$1,485,738.00

<i>Uploaded Files</i>		
Image Type	File Name	Description
Special Condition Requirement	Site Plan.pdf	Site Plan
Special Condition Requirement	Location and Vicinity Map.pdf	Location and Vicinity Map
Media Coverage	Observer Article.pdf	Newspaper Article
Photo (other)	Upper Diversion Pics.pdf	Upper Diversion Before/After Pictures

Photo (other)	Spillway Pics.pdf	Spillway (Fishladder) Before/After Pictures
Photo (other)	Overflow Pics.pdf	Dam Overflow Before/After Pictures
Photo (other)	Main Diversion Pics.pdf	Main Diversion Before/After Pictures
Photo (other)	Cove Creek Intake Pics.pdf	Cove Creek Intake Before/After Pictures