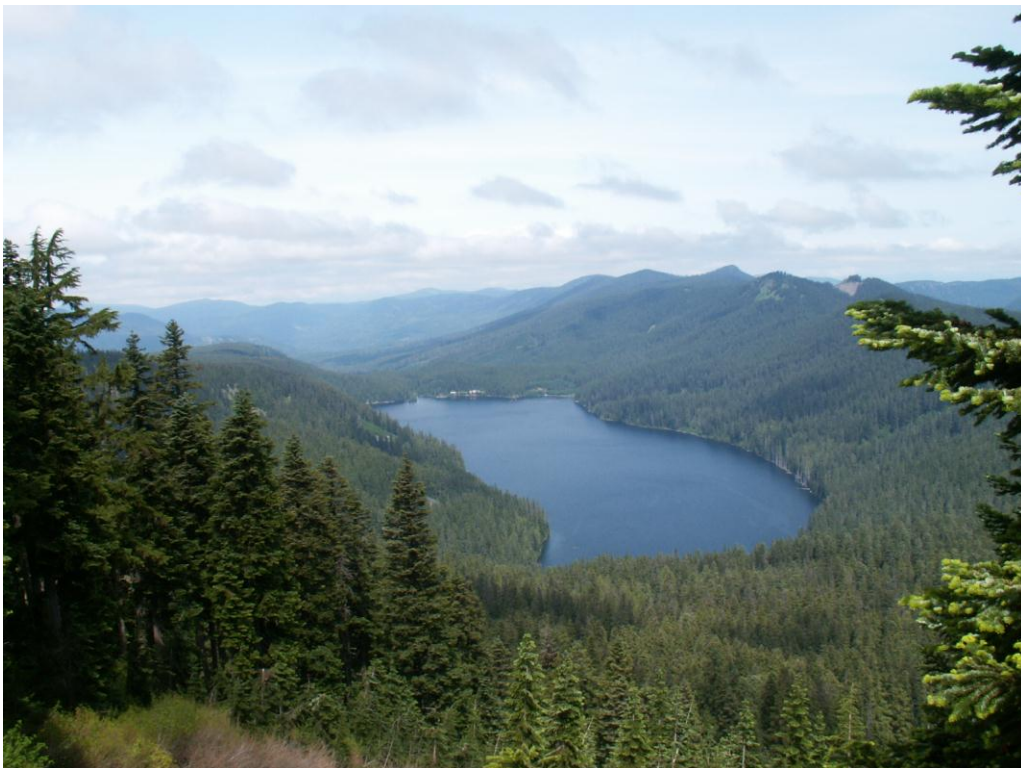


Portland Water Bureau and United States Forest Service

Bull Run Watershed Management Unit Annual Report

April 2015



Bull Run Watershed Semi-Annual Meeting



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A. OVERVIEW

This report fulfills the annual work plan reporting commitment described in the 2007 Bull Run Watershed Management Unit Agreement (“Agreement”) between the Portland Water Bureau (referred to as the “City” and “PWB” throughout report) and the US Forest Service (referred to as “USFS” and “Forest Service” throughout report). As part of the Agreement, the PWB and the USFS agree to utilize a working group format and annual work plan to update each other on pertinent projects and monitoring occurring within the Bull Run Watershed Management Unit (BRWMU). Specific topics covered in the Agreement and included in this report include: security and access management; emergency response planning; transportation system; water quality/quantity monitoring; terrestrial and aquatic natural resources; conservation education; administrative trails; and simplifying land ownership and occupancy arrangements. Other topics of interest to both agencies within the BRWMU can be added or removed depending on annual applicability.

B. SECURITY and ACCESS MANAGEMENT

Bull Run Security Access Policies and Procedures

PWB continues to implement the Bull Run Security Access Policies and Procedures Standard Operating Procedure, which include procedures for entering the Bull Run as an employee or contractor. Key components of the plan include a requirement for PWB employees and contractors to notify Security Dispatch when entering and exiting the watershed, and a vehicle permit designed to more clearly mark vehicles in the watershed, used by both PWB and the Forest Service. The PWB Security’s electronic lock and key went live in 2012, and continues to be used by PWB employees, contractors, and partner agencies. A full-time PWB Watershed Ranger continues to conduct vehicle and foot patrols for trespass. A second full-time Watershed Ranger position was filled in February 2015 to provide enhanced Security coverage in the Bull Run Watershed Management Unit. Training is in progress and assignment of the second ranger is anticipated in April 2015.

In 2014, PWB Rangers assessed, replaced, and posted new multi-agency (USFS, Bureau of Land Management (“BLM”), and PWB) standardized “No Trespassing” signage in various ungated and potentially vulnerable sections of the BRWMU boundary as well as along authorized public trails. PWB staff also completed a sign that will be placed at the Oneonta Trail kiosk off of the Larch Mountain Road (FS

Road 15). The sign is intended to alert hikers of the BRWMU boundary and BRWMU trespass policies. The sign is scheduled to be installed in early summer 2015.

Various community outreach activities were also implemented by PWB in 2014 to enlist assistance from Bull Run neighbors in protection of the Bull Run. Several PWB staff attended the Bull Run Community Planning Organization meeting in April 2014 to present a short program on the need for water quality protection in the Bull Run Watershed. Community residents were asked to help by reporting any signs of escaped livestock, trespassers, or fire near the boundaries of the watershed. An informational brochure was also mailed to over 200 community residents living within a quarter-mile of the Bull Run Closure Area. The outreach brochure highlights the issues of loose livestock, trespass, and fire, and provides contact information for reporting any incidents or observations.

Bull Run Closure Area

BLM enacted a Closure Order in 2011 to close its lands within the Bull Run Watershed Management Unit (BRWMU) to public access. PWB and BLM completed a draft agreement in 2013 to grant PWB enforcement authority on BLM-owned lands within the Bull Run Watershed Closure Area. The agreement enhances the ability of both agencies to enforce the Closure Area boundary. In 2014, Portland City Council adopted new code language along with an updated map of the Closure Area to formally add BLM lands within the BRWMU to the Closure Area.

C. EMERGENCY PLANNING and RESPONSE

The Forest Service and PWB exchange updated emergency contact information for key personnel in the fall and spring of each year.

Life Flight Helicopter Landing Zones

PWB and the Forest Service worked with the program aviation manager for the local Life Flight program to identify a total of five Life Flight landing zones in the watershed, all of which are located on roadways, previously cleared storage areas or rock quarries. Removal of eight alder trees within the road prism was required at one of the landing zones. Test flights were scheduled for 2014 but were postponed due to unavailability of helicopters during a busy fire season; PWB is again coordinating with the Life Flight program to conduct test landings at the five sites in 2015.

D. TRANSPORTATION SYSTEM

2014 Projects: Road 10 and Road 1008

Two road projects were completed in 2014 to address maintenance and repair needs along the primary and secondary access routes to PWB's Headworks facilities. Construction of a 1.2 mile segment of Road 10 (segment "10A"; MP 0.6-1.8), from approximately the intersection with Soapstone Road to the intersection with Larson's Intertie began during the summer of 2014. The road segment was reconstructed and repaved to improve pavement condition, create better ditch lines, improve drainage, and address slumping, slides and jersey barriers. Final paving of the road segment is anticipated for late spring / early summer 2015. In addition, the entire length of Road 1008 (approximately 3.5 miles) was repaved during the summer of 2014.

2015 Projects: Road 10 and Road 1010

Project design for two additional road projects is currently underway. A 1.6 mile segment of Road 10 (segment "10C"; MP 3.0-4.6), from approximately the intersection with Road 14 to the intersection with Dam #2 access road will be reconstructed and repaved. In addition, a 0.5 mile project that includes a segment of Road 1010 (segment "1010F") and Road 1010125 (from the intersection of Road 1010/Road 10 to Porter's Pit), will be reconstructed and repaved. Both projects are intended to improve pavement condition, create better ditch lines, improve drainage, and address slumping and slides. They will ensure continuous, reliable, and safe access to all facilities, as well as maintenance of other city-owned infrastructure within the watershed. Both projects are scheduled for construction during the summer / early fall of 2015.

E. FIRE PLANNING, PREVENTION, DETECTION, and SUPPRESSION

Hickman Butte Fire Lookout

PWB and the Forest Service have an interagency agreement to staff the fire lookout at Hickman Butte. The agreement covers the five-year period from 2012 to 2017 and includes authorization for a small maintenance fund to cover the cost of minor maintenance work on the tower. A draft maintenance plan for the tower was developed by the Forest Service in 2014-2015 and will be refined throughout the next year.

F. WATER MONITORING (Quality and Quantity)

The Water Bureau continues its cooperative agreement with the U.S. Geological Survey (USGS) to monitor stream flow, reservoir levels, and/or water quality at 11 stations within the Bull Run watershed as well as 2 additional stations, one on the Little Sandy and the other on the Sandy River below its confluence with the Bull Run River. PWB also continues to conduct water quality monitoring at the four key stations as well as Reservoirs 1 and 2 to meet regulatory and operational objectives (see key station upgrade section below).

PWB continues to contract with the Natural Resources Conservation Service (NRCS) to monitor snow depth, snow water equivalent, and meteorological conditions at three sites in the watershed.

PWB also continues to monitor for *Cryptosporidium* at the raw water intake to meet the conditions of the Bull Run Treatment Variance. The treatment variance was granted by the Oregon Health Authority (OHA) to the City of Portland on March 14, 2012 and is valid for a period of 10 years. Maintenance of the variance enables the City to comply with the treatment requirements of the federal Environmental Protection Agency's Long Term 2 Enhanced Surface Water Treatment Rule ("LT2"). Conditions of the variance include watershed protection, intake, tributary and wildlife scat monitoring, inspections, and reporting activities. Results of watershed inspections and environmental sampling for each water year (Oct 1 – Sept 30) are submitted to OHA in an annual [Bull Run Treatment Variance Watershed Report](#).

The Forest Service continues to implement stream temperature monitoring in the Little Sandy watershed. Water temperature is monitored year round at four locations in the Little Sandy River, the Upper, Middle and Lower Goodfellow Lakes, and in the outlet of the upper and lower Goodfellow Lakes.

Key Station Upgrades

Four of the 11 USGS stations in the watershed are referred to as "key stations" – North Fork (station 15), Main Stem (station 18), South Fork (station 35) and Fir Creek (station 44). These stations have been replaced to address maintenance, data quality, and safety concerns associated with aging instrumentation and decaying infrastructure that has occurred over the 35-47 years the stations have been in operation. Stations 15, 35, and 44 were replaced in 2013 and station 18 was replaced

in 2014. PWB continues to evaluate long-term power options for operating key station monitoring equipment.

G. NATURAL RESOURCES - TERRESTRIAL

Invasive Species - Plants

The PWB finalized the Invasive Plant Standard Operating Protocol (SOP) in August of 2013. The SOP is consistent with USFS requirements for invasive plant management within the BRWMU. As part of this SOP, PWB installed a wheel wash station on Road 10, just inside the main gate in 2013; it is currently operational. The wheel wash is designed to clean City vehicles entering the management unit to minimize the risk of the spread of invasive non-native plant species.

In developing the Invasive Plant SOP, the PWB identified high priority invasive plant species based on how the species could become established in the BRWMU and affect water-supply operations. PWB continues to monitor and control high priority invasive plant species inside the watershed along the primary roadways, trails, reservoirs, and near infrastructure as well as sites of recent road projects. A database of high priority invasive species occurrences inside the BRWMU is maintained by the PWB.

PWB continues to remove reed canary grass, which inhibits egg incubation for western toads and red-legged frogs, along the north bank of the upper end of Reservoir 1. Removal includes cutting and raking. The site is accessed by boat from the reservoir and by trail. The work is performed annually and constitutes Measure R-3 of the City's Bull Run Water Supply Habitat Conservation Plan.

PWB also coordinates with the Oregon Department of Agriculture on the control of A-listed Noxious Weeds and the release of biocontrols for scotch broom.

Aerial Survey for Forest Health /Insects & Disease

The Forest Service flies aerial surveys in Oregon and Washington each year to survey for forest disturbances. The aerial surveys cover all forested lands and are flown on a 4-mile grid. The surveys in Oregon are conducted in cooperation with the Oregon Department of Forestry. The results of the survey flights from 2014 and previous years are posted on the Forest Health Protection web site at:

<http://www.fs.usda.gov/detail/r6/forest-grasslandhealth/insects-diseases/?cid=stelprdb5286951>. Portions of the Bull Run watershed area are mapped on the following quadrangle maps: Vancouver, Hood River, Oregon City, and Mt. Hood.

Bull Run Wildlife Monitoring

The Water Bureau is conducting ongoing wildlife monitoring and studies within the Bull Run watershed to improve its knowledge of wildlife as a potential source of *Cryptosporidium*. In 2012, the bureau began ongoing scat sampling and wildlife-related inspections as a condition of the Bull Run Treatment Variance. Studies for 2014 included: (1) testing small mammals for *Cryptosporidium* and (2) utilizing cameras to acquire information on wildlife activity near the reservoirs. Results of these studies are submitted to OHA in an annual [Bull Run Treatment Variance Watershed Report](#).

Planned work for 2015 includes: (1) camera monitoring for wildlife activity; (2) monitoring bird activity near the diversion pool; and (3) using live traps for collecting small mammal scat.

H. NATURAL RESOURCES - AQUATIC

Invasive Species - Aquatic

PWB staff continue to implement preventative measures outlined in the City's Aquatic Invasive and Nuisance Species Standard Operating Protocol for both contractors and in-house maintenance and operations work, including boat and equipment decontamination for safe use in the reservoirs and Bull Run River.

Bull Run Lake

PWB operates and maintains drinking-water supply facilities at Bull Run Lake under a 20-year easement with the Mt. Hood National Forest. Water withdrawals at Bull Run Lake have not occurred since 2000. The Water Bureau continues to implement mitigation and monitoring measures as required by the easement and the Bull Run Lake Mitigation and Monitoring Implementation Plan.

Various monitoring activities have been conducted at Bull Run Lake from 1998 through 2013; it is anticipated that monitoring will continue through the duration of the easement term that expires in 2017. The goal of the monitoring is to assess potential effects of lake water withdrawals on the fish population and provide information for mitigation. In 2014, activities included: bald eagle, osprey, and loon surveys, fish spawning surveys, and fish population estimates (hydroacoustic surveys). Activities scheduled for 2015 include: bald eagle, osprey, and loon surveys, fish spawning surveys, fish population estimates (hydroacoustic surveys), and amphibian surveys.

Spawning surveys are typically conducted in the tributaries of Bull Run Lake each spring and summer documenting adult abundance, spawning timing and redd counts of coastal cutthroat trout. The annual spawning surveys, from 1998-2014, have been completed either by Forest Service personnel from the Zigzag Ranger District or, more recently (2004, 2009-2014) by contractors hired by PWB. PWB plans to use a contractor to conduct spawning surveys each spring and early summer from 2015-2017.

The annual spawning surveys have not shown a statistically significant relationship between lake water surface elevation and cutthroat trout spawning success. In addition, the hydroacoustic surveys conducted by PWB document fish population size. To date, these surveys show no significant change in the lake's cutthroat trout population over time.

The Forest Service and the Water Bureau continue to evaluate the monitoring and mitigation plan. The plan was last revised in September 2012, and was signed by the Forest Service in 2013. The revised plan expires with the term of the easement in 2017.

Salmon & Steelhead Monitoring in Little Sandy River

PWB continues to conduct two activities in the Little Sandy River: 1) maintenance of a smolt trap just upstream of the former Little Sandy Dam site, and 2) fish habitat surveys and snorkel surveys from the mouth of the river to the former dam site. The smolt trap is operated from roughly late March through mid-June. Results of the fish trapping effort are summarized in the 2014 Compliance Report for the [Bull Run Water Supply Habitat Conservation Plan](#) (available in May 2014).

Oregon Department of Fish and Wildlife (ODFW) continues to conduct spawning surveys for spring Chinook, coho, and winter steelhead above and below the former Little Sandy Dam site. All three species have been documented above the former dam site and appear to be re-colonizing their former habitat.

Mt Hood National Forest Zigzag Ranger District Fisheries Department also conducted snorkel surveys within the BRWMU in 2014 to assess fish presence and distribution in the Little Sandy and Bow Creek (tributary to the Little Sandy) drainages. Cutthroat trout (*Oncorhynchus clarki*) and rainbow trout (*Oncorhynchus mykiss*) were observed in the Little Sandy, while only cutthroat trout were observed in Bow Creek. A report summarizing the survey methods and results is currently being drafted by the Forest Service.

I. CONSERVATION EDUCATION

The Portland Water Bureau offers educational field trips and tours of the Bull Run watershed for students and the general public. All tours are planned and guided by a professional Water Resources Educator.

Participants on adult tours learn about the history of the watershed, its natural resources, water supply infrastructure and operations, and the cooperative partnership between PWB and the Mt. Hood National Forest. These tours generally occur June through September.

Tours for school groups are generally scheduled in May, June, September, and October. During PWB's tours for school groups, students are divided into small groups at Bull Run Dam No. 1 to tour the dam, to measure the turbidity of a reservoir water sample, and to learn about the role of forest protection in providing high-quality raw water.

PWB led a total of 68 tours in the Bull Run during calendar year 2014. The total number of tours was 75 in the 2013 calendar year and 64 in the 2012 calendar year.

J. ADMINISTRATIVE USE TRAILS

Several trails in the BRWMU provide access to stream gauges operated by the U.S. Geological Survey (USGS) and water-quality monitoring stations maintained by PWB.

PWB plans to do routine maintenance on several of these trails in during the 2015 field season.

K. LAND OWNERSHIP and LAND OCCUPANCY ARRANGEMENTS

Land Exchange

The Land Exchange process between the Forest Service and the City of Portland continues. The primary purpose of the exchange is to create a better alignment of land ownerships with the respective missions of the City and the Forest Service. The land exchange involves approximately 10% of the watershed land area.

The Forest Service and Portland Water Bureau personnel continued to work on refining information for the land appraisal. NEPA work has been delayed until the basis for the appraisal has been refined, allowing for more efficient analysis of impacts. Forest Service and Portland Water Bureau personnel are continuing to discuss mechanisms for protecting both parties' use, maintenance, and ownership rights for roads on exchanged lands.

Little Bear Creek House

The Little Bear Creek House was built in 1927 to support the construction of Dam 1 and was in poor condition due to deferred maintenance. The Water Bureau worked with the Forest Service to obtain State Historic Preservation Office (SHPO) approval, which was received in the fall of 2013. Basic repairs and routine maintenance projects were completed in 2014. No additional work is planned at this time.

L. OTHER ACTIVITIES

Dam 2 Tower Improvement Project

Construction on the Dam 2 Tower improvement project, which modified the north tower so that water from the reservoir can be accessed at three different depths to access raw water of varied temperatures, began in the spring of 2012. Construction activities were completed in 2014. The project is a component of Measure T-2 of the Bull Run Water Supply Habitat Conservation Plan (HCP). Previously, the towers had intakes at the bottom of the reservoir only.

This project also included piping improvements in the Headworks area to allow colder water from the South Tower to bypass the existing treatment facility and be released into the Bull Run River below Dam 2.

The tower modification and piping improvements allow the Water Bureau to regulate the withdrawal level and retain a supply of cold water from the lowest levels of the reservoir for release in late summer and fall to maintain cooler temperatures in the lower Bull Run River for fish habitat. The project became fully operational in 2014.

Restoration activities for the 1.3 acre construction site were also completed in 2014. Restoration activities included decompacting the soil, hydro-seeding the site with native plant seed, and replanting the site with native trees and shrubs. Monitoring and removal of select invasive species at the site is on-going.

Reservoir 1 Log Boom Replacement

This project replaced the existing wooden log boom on Reservoir 1 with a new metal log boom. Installation of the new log boom was completed in the summer of 2014. The new boom consists of a UV resistant resin and closed-cell foam exterior with a steel channel forming the boom-to-boom connection.

Bull Run Lake Outlet Pipe Repair

This project repaired the outlet piping from Bull Run Lake. The outlet piping from the lake had a broken flange preventing the pipe from working properly. Although water withdrawals at Bull Run Lake have not occurred since 2000, the pipe is part of the system that allows the PWB to draw water from Bull Run Lake when needed. Repair to the outlet piping was completed in October 2014.

Bull Run Watershed Landslide Hazard Mapping

Oregon Department of Geology and Mineral Industries (DOGAMI) is updating landslide hazard mapping for the Bull Run watershed. The new mapping uses light detection and ranging (lidar) data and provides more accurate maps than what was possible with older methods. An Intergovernmental Agreement (IGA) was signed between the PWB and DOGAMI in 2013 and the project is expected to be complete in 2015.