

Portland Water Bureau and United States Forest Service

# Bull Run Watershed Management Unit Annual Report

April 2014



**Bull Run Watershed Semi-Annual Meeting**





## CONTENTS

CONTENTS .....	3
A. OVERVIEW .....	5
B. SECURITY and ACCESS MANAGEMENT .....	5
Bull Run Security Access Policies and Procedures .....	5
Bull Run Closure Area .....	6
C. EMERGENCY PLANNING and RESPONSE.....	6
Life Flight Helicopter Landing Zones.....	6
D. TRANSPORTATION SYSTEM.....	7
Road 10 and Road 1008 .....	7
E. FIRE PLANNING, PREVENTION, DETECTION, and SUPPRESSION .....	7
Hickman Butte Fire Lookout.....	7
F. WATER MONITORING (Quality and Quantity) .....	7
Key Station Upgrades.....	8
G. NATURAL RESOURCES – TERRESTRIAL.....	8
Invasive Species - Plants.....	8
Aerial Survey for Forest Health /Insects & Disease .....	9
Bull Run Wildlife Monitoring .....	9
H. NATURAL RESOURCES - AQUATIC.....	9
Invasive Species - Aquatic .....	9
Bull Run Lake.....	10
Salmon & Steelhead Monitoring in Little Sandy River .....	11
I. CONSERVATION EDUCATION.....	11
J. ADMINISTRATIVE USE TRAILS.....	12
K. LAND OWNERSHIP and LAND OCCUPANCY ARRANGEMENTS.....	12
Land Exchange .....	12
Bull Run Lake Cabins .....	12
Little Bear Creek House.....	13
L. OTHER ACTIVITIES .....	13

Dam 2 Tower Improvement Project.....	13
Reservoir 1 Log Boom Replacement.....	13
Bull Run Lake Outlet Pipe Repair .....	14

## **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 on November 27, 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.

In 2013, 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 (Oneonta Creek, Pacific Crest, and Sandy Ridge Trails).

PWB staff also worked to standardize and rename several BRWMU perimeter gates during 2013. Signs designating the new names were posted on the perimeter gates in the fall of 2013. The standardized naming and signage aids with on-site identification

by various agency members and contractors who utilize the gates and will also assist members of the public who may be reporting incidents at those locations. Gate name changes include (old name: new name):

Old Gate Name	Revised Gate Name
Upper Camp A Gate (also "Road 20 @ Larch Mountain Rd")	Upper Larch Mountain Gate
Lower Camp A Gate (also "Road 1509 @ Larch Mountain Rd")	Lower Larch Mountain Gate
Rd 2503 W Gate #1	Rd 2503 at Marmot Rd Gate

**Bull Run Closure Area**

PWB and BLM completed a draft agreement in 2013 to grant PWB enforcement authority on BLM-owned lands within the Bull Run Closure Area; this agreement is expected to be finalized in 2014. BLM enacted a Closure Order in 2011 to close its lands within the Bull Run Watershed Management Unit (BRWMU) to public access. The agreement enhances the ability of both agencies to enforce the boundaries of 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 2013 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 2014.

## **D. TRANSPORTATION SYSTEM**

### **Road 10 and Road 1008**

Completion of project designs for two road projects are expected in spring of 2014. The road projects address maintenance and repair needs along the primary and secondary access routes to PWB's Headworks facilities. A portion of Road 10, from approximately the intersection with Soapstone Road to the intersection with Larson's Intertie (MP 0.6-1.2), will be reconstructed and repaved to improve pavement condition, create better ditch lines, improve drainage, and address slumping, slides and jersey barriers. The entire length of Road 1008 (approximately 3.5 miles) will be repaved. Construction for both projects is anticipated for the late summer/early fall of 2014.

## **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.

## **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 Goodfellows Lakes, and in the outlet of the upper and lower Goodfellows 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 are being 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 is expected to be replaced in 2014.

## **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 2013 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. The bureau conducted three studies in 2013 including a beaver colony census, a Canada goose and other waterfowl survey, and a remote camera study of the Bull Run Diversion Pool.

Planned studies for the 2014 field season have not yet been finalized.

## **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. For the Dam 2 Towers Project, nine boats and barges were inspected prior to putting them in Reservoir 2.

### **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 2013, spawning surveys, a hydroacoustic survey, an aquatic macroinvertebrate survey, bird surveys, and limnological surveys were conducted. Bird and spawning surveys will be conducted again in 2014.

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 1998-2013, have been completed either by Forest Service personnel from the Zigzag Ranger District or, more recently (2004, 2009-2013) by contractors hired by PWB. PWB plans to use a contractor to conduct spawning surveys each spring and early summer from 2014-2017.

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 2013 Compliance Report for the Bull Run Water Supply Habitat Conservation Plan.

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.

## **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 75 tours in the Bull Run during calendar year 2013. The total number of tours was 64 in the 2012 calendar and 76 in the 2011 calendar year. (*Note: Tours are now being reported for the calendar year rather than the October-April period to make reporting easier. Due to this change, tour numbers for the previous two calendar years are included to provide consistency with past reporting.*)

## **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 2014 field season.

## **K. LAND OWNERSHIP and LAND OCCUPANCY ARRANGEMENTS**

### **Land Exchange**

The Land Exchange between the Forest Service and the City of Portland continues. The primary purpose of the exchange is to eliminate intermingled ownerships and isolated parcels within the Management Unit, which would allow for more efficient operations by the Forest Service and the City. Lands acquired by the Forest Service would be high quality habitat lands that would be managed for natural resource protection, as well as for continuing to meet the objective of providing pure, clean potable water for the City. Lands acquired by the City would include most of its water production facilities, including reservoirs, and would improve management efficiency for providing water for the Portland metropolitan area.

Within the past year, Forest Service specialist reports for wildlife and cultural resources were completed. The Forest Service is also conducting a transportation analysis of roads within the watershed and field work for hydrology and botany assessments will occur during the 2014 field season. Forest Service and Portland Water Bureau personnel are continuing to discuss mechanisms for protecting both parties' ownership rights for roads on exchanged lands.

### **Bull Run Lake Cabins**

During the summer of 2013 some safety measures were implemented on the two lower Bull Run Lake cabins. A portion of the north side of the center cabin was completely unsupported. Some cribbing was placed under the unsupported logs to prevent further settling and long-term damage. The unstable plywood flooring in the north cabin was removed. All original flooring underneath the deteriorated surface layer was left in place. No further work is planned at this time.

### **Little Bear Creek House**

The Little Bear Creek House was built in 1927 to support the construction of Dam 1 and is in poor condition due to deferred maintenance. A plan for basic repairs and routine maintenance was approved in the Water Bureau's FY 2013-14 budget. The Water Bureau worked with the Forest Service to obtain State Historic Preservation Office (SHPO) approval, which was received in the fall of 2013. The repair work is underway and scheduled to be completed in 2014.

## **L. OTHER ACTIVITIES**

### **Dam 2 Tower Improvement Project**

Construction on the Dam 2 Tower improvement project, which modifies 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. The project is a component of Measure T-2 of the Bull Run Water Supply Habitat Conservation Plan (HCP). Currently, both of the towers have intakes at the bottom of the reservoir only.

This project also includes 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 will allow the Water Bureau to regulate the withdrawal level and retain a sufficient 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. Construction activities and restoration of the work area next to Reservoir No. 2 will continue through March 2014. Testing is in progress. The project is expected to be completed and fully operational in 2014.

### **Reservoir 1 Log Boom Replacement**

This proposed project will replace the existing wooden log boom on Reservoir 1 with a new metal log boom and new anchor point on the south side of the reservoir. The existing boom is rotting and in need of replacement. The new boom will consist of a UV resistant resin and closed-cell foam exterior with a steel channel forming the boom-to-boom connection. Installation of the new log boom and anchor will occur in 2014.

### **Bull Run Lake Outlet Pipe Repair**

This proposed project will repair the outlet piping from Bull Run Lake. The outlet piping from the lake has 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 is planned for the summer of 2014 and procurement work is underway.