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# Record of Decision

Proposed Issuance of Incidental Take Permit for the  
Bull Run Water Supply Habitat Conservation Plan

**NMFS**

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April 2009

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# 1 Acronyms and Abbreviations

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2	BLM	Bureau of Land Management
3	CEQ	Council of Environmental Quality
4	CFR	Code of Federal Regulations
5	City	City of Portland
6	DEIS	Draft Environmental Impact Statement
7	EIS	Environmental Impact Statement
8	ESA	Endangered Species Act
9	FEIS	Final Environmental Impact Statement
10	HCP	Habitat Conservation Plan
11	IA	Implementation Agreement
12	ITP	Incidental Take Permit
13	NEPA	National Environmental Policy Act
14	NMFS	National Marine Fisheries Service
15	NOA	Notice of Availability
16	NOAA	National Oceanic and Atmospheric Administration
17	NOI	Notice of Intent
18	O&M	operation and maintenance
19	ODEQ	Oregon Department of Environmental Quality
20	ODFW	Oregon Department of Fish and Wildlife
21	PGE	Portland General Electric
22	ROD	Record of Decision
23	TMDL	total maximum daily load
24	USGS	U.S. Geological Survey

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**Record of Decision**  
for the  
Proposed Issuance of an Incidental Take Permit for the  
Bull Run Water Supply Habitat Conservation Plan

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- 4 Incidental Take Permit for the Bull Run Water Supply Habitat Conservation Plan.

1 SECTION 1

2 **Introduction**

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3 This Record of Decision (ROD) documents the decision by the National Marine Fisheries  
4 Service (NMFS) to issue an Incidental Take Permit (ITP), pursuant to the Endangered  
5 Species Act (ESA) Section 10(a)(1)(B), to the City of Portland (City). NMFS issued this ROD  
6 in compliance with the agency decision-making requirements of the National  
7 Environmental Policy Act (NEPA), the Council of Environmental Quality (CEQ) NEPA  
8 regulations at 40 Code of Federal Regulations (CFR) Parts 1500-1508, and NMFS' NEPA  
9 implementing procedures found at National Oceanic and Atmospheric Administration  
10 (NOAA) Administrative Order 216-6. This decision was based upon the analysis included  
11 within the Bull Run Water Supply Habitat Conservation Plan Final Environmental Impact  
12 Statement (FEIS), issued January 23, 2009, public comments on the Draft Environmental  
13 Impact Statement (DEIS) and FEIS, the ESA Section 7(a)(2) Biological Opinion issued by  
14 NMFS on January 5, 2009, and NMFS' Statements of Section 10(a)(2)(B) Findings, all  
15 included in this document by reference.

16 Within the FEIS, NMFS analyzed the possible environmental and socioeconomic impacts  
17 from the operation and maintenance of the City's Bull Run water supply, over a 50-year  
18 period, under a range of protection measures for anadromous salmonid species. The  
19 Proposed Action is to issue an ITP for the covered activities, according to the protection  
20 measures provided in the Bull Run Water Supply Habitat Conservation Plan (HCP).

21 This ROD is designed to 1) state NMFS' decision and present the rationale for that decision;  
22 2) identify the alternatives considered in the FEIS in reaching the decision; and 3) state  
23 whether all means to avoid or minimize environmental harm from implementation of the  
24 selected alternative have been adopted (40 CFR 1505.2).

1 SECTION 2

2 **Project Description**

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3 **2.1 Purpose and Need**

4 The purpose of the Proposed Action is to enable the City to continue to operate the Bull Run  
5 water supply system on a long-term basis while complying with the ESA. The need for the  
6 Proposed Action is to provide broader protection and conservation for listed, proposed, and  
7 unlisted species than is available under Section 9 of the ESA while managing the Bull Run  
8 water supply system on a long-term basis. The City’s needs and goals are to 1) provide cost-  
9 effective minimization and mitigation measures for incidental take; 2) ensure an adequate  
10 long-term water supply at reasonable cost to ratepayers; 3) comply with state water quality  
11 standards and total maximum daily load (TMDL) designations for the Bull Run River and  
12 Sandy River Basin; and 4) to protect identified unlisted species the City believes could  
13 become listed during the 50-year period of the Bull Run HCP.

14 **2.2 Specific Project Description**

15 The City has used the Bull Run Watershed for water supply since 1895. The City’s water  
16 system provides water to residents and businesses within the city limits of Portland,  
17 Oregon, (retail supply) as well as to a number surrounding communities (wholesale  
18 supply). Approximately 800,000 Oregonians receive all or part of their water supply from  
19 the Bull Run Watershed. The Bull Run water supply system is the largest municipal water  
20 supply system in the state.

21 The Bull Run River is a major tributary of the Sandy River; the Sandy River flows into the  
22 Columbia River. This watershed plays a role in supporting the larger aquatic ecosystem of  
23 the Sandy River Basin. Three key factors helped shaped the context for the City’s decision to  
24 develop an HCP: ESA species listings, Clean Water Act compliance, and water supply  
25 reliability and affordability. Foremost were the listings of the anadromous fish and the  
26 associated ESA regulatory requirements.

27 The City submitted an application to NMFS for an ITP in accordance with Section 10(a)(1)(B)  
28 of the Federal ESA, as amended. The City is seeking this authorization so that activities  
29 associated with implementing the Bull Run Water Supply HCP comply with the ESA, while  
30 providing protection for species listed under the ESA.

31 Issuance of the ITP would be conditioned on implementation of the Bull Run Water Supply  
32 HCP, which is designed to provide conservation benefits to the species for which incidental  
33 take would be authorized. The City developed its Bull Run Water Supply HCP with  
34 technical assistance from NMFS. The duration of the proposed ITP is 50 years.

35 Following is an expanded description of the facilities, species, and activities covered by the  
36 proposed ITP and Bull Run Water Supply HCP and the associated protection measures to be  
37 implemented by the City.

## 1 2.3 Covered Facilities

2 Covered facilities that are owned, operated, or used by the City include, but are not  
3 limited to:

- 4 • Bull Run Dam 1 and Dam 2, and associated structures
- 5 • Reservoir 1 (Lake Ben Morrow) and Reservoir 2
- 6 • Reservoir 2 spillway approach canal
- 7 • Diversion dam and pool below Dam 2
- 8 • Spillway weir and pool below Dam 2
- 9 • Reservoir log booms and other reservoir structures
- 10 • Headworks facility (screens, chlorination facility, operation equipment)
- 11 • Water supply conduits (including interties and blowoffs), bridges, and trestles, except  
12 mainstem Sandy River crossings
- 13 • Water quality monitoring stations and flow gauges in the lower Bull Run River and the  
14 Little Sandy River
- 15 • Microwave communication towers located adjacent to waterways and reservoirs
- 16 • Sandy River Station maintenance facility
- 17 • City-owned or maintained roads and other paved or graveled surfaces on non-Federal  
18 lands
- 19 • City-owned or maintained easements on nonfederal lands owned by others (e.g., water  
20 supply conduit easements on private land)
- 21 • Easements owned or maintained by others on City-owned land (e.g., Bonneville Power  
22 Administration powerline easement on City land)

## 23 2.4 Covered Species

24 Covered species would be authorized for incidental take during the time they are listed as  
25 threatened or endangered. Five<sup>1</sup> species would be covered under the ITP, 1) spring and fall  
26 Lower Columbia River Chinook salmon; 2) Lower Columbia River steelhead; 3) Lower  
27 Columbia River coho salmon; 4) Columbia River chum salmon; and 5) Pacific eulachon (not  
28 presently listed). Table 1 lists the covered species and their status.

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<sup>1</sup> The Bull Run HCP states that there are six covered species, differentiating between fall and spring Chinook salmon. However, the EIS states that there are five covered species because fall and spring Chinook salmon are the same species.

TABLE 1  
Covered Species

Common Name	Scientific Name	Status*
Lower Columbia River Chinook Salmon (Spring and Fall)	<i>Oncorhynchus tshawytscha</i>	T
Lower Columbia River Steelhead	<i>Oncorhynchus mykiss</i>	T
Lower Columbia River Coho Salmon	<i>Oncorhynchus kisutch</i>	T
Columbia River Chum Salmon	<i>Oncorhynchus keta</i>	T
Pacific Eulachon	<i>Thaleichthys pacificus</i>	PT

\*Status Codes: T = Threatened PT = Proposed Threatened

## 1 2.5 Covered Activities

### 2 2.5.1 Operation, Maintenance, and Repair of the Water System

3 Incidental take coverage would include all activities associated with the continued operation  
4 and maintenance of the water supply system as follows:

- 5 • Storage of water in reservoirs and regulation of reservoir surface elevations
- 6 • Diversion of water for water supply
- 7 • Alteration of flows downstream from the water supply dams and diversion
- 8 • Release of water from reservoirs into the Bull Run River
- 9 • Adjustment of water intake depth to regulate temperature, turbidity, and color
- 10 • Seasonal closure of gates at the Dam 1 spillway to store additional water
- 11 • Removal of debris (including logs) from the reservoirs
- 12 • Operation of boats and barges on reservoirs
- 13 • Delivery and storage of fuel and lubricants for water supply system vehicles and  
14 equipment
- 15 • Delivery and storage and use of chlorine gas for water supply disinfection
- 16 • Draining of water supply conduits
- 17 • General landscape maintenance
- 18 • Operation, maintenance, and repair of all covered facilities

### 19 2.5.2 Habitat Conservation, Research, and Monitoring Measures

20 Incidental take coverage would include all activities associated with the implementation of the  
21 habitat conservation measures, and the research and monitoring measures. Any additional  
22 habitat conservation measures and monitoring measures implemented as a part of adaptive  
23 management would also be covered.

### 1    **2.5.3    Incidental Land Management Activities**

2    Incidental take coverage would include land management activities on lands within the Sandy  
3    River Basin. These activities include management of City-owned riparian lands; maintenance  
4    and repair of City roads, bridges, culverts, parking lots, easements, and rights-of-way on  
5    nonfederal lands in the Bull Run Watershed; and operation and maintenance of the Sandy River  
6    Station maintenance facility.

### 7    **2.5.4    Activities Not Covered by the Bull Run HCP**

8    Incidental take coverage would not include the following water system activities:

- 9    •    Operation and maintenance of City facilities at Bull Run Lake
- 10   •   Operation and maintenance of the Lusted Road Treatment Facility
- 11   •   Operation and maintenance of Dodge Park
- 12   •   Operation, maintenance, and replacement of City conduits crossing the mainstem Sandy  
13   River
- 14   •   Operation and maintenance of hydroelectric facilities at Dam 1 and Dam 2
- 15   •   Operation and maintenance of minor City facilities on national forest lands that are  
16   upstream of Dam 2 and outside the riparian area surrounding the reservoirs
- 17   •   Maintenance and repair of roads on federal land
- 18   •   All aspects of the City's water supply system outside the Sandy River Basin
- 19   •   City funding of the Oregon Department of Fish and Wildlife (ODFW) fish hatchery  
20   operations under the City's pre-existing federal hydropower license would also be  
21   excluded
- 22   •   Activities by others in the Bull Run River Watershed not specifically mentioned above.  
23   For these activities, the City would comply with applicable ESA regulations on a  
24   project-by-project basis.

## 25   **2.6    Protection Measures and Conservation Strategies**

26   Habitat conservation measures are divided into two primary categories: the lower Bull Run  
27   River and the greater Sandy River Basin. In addition, habitat conservation measures are  
28   included for the two Bull Run reservoirs, water system operations, and terrestrial wildlife,  
29   and provides for a Habitat Fund. The conservation strategy for each category is described  
30   below.

### 31   **2.6.1    Lower Bull Run River Habitat Conservation Measures**

32   Impacts to the lower Bull Run River occur in three general categories: river flow, water  
33   temperature, and aquatic/riparian habitat. The City developed conservation measures to  
34   avoid or minimize flow and temperature impacts, and to protect and improve instream and  
35   riparian habitat. The major elements of the conservation measures are listed below.

## 1 Instream Flow Measures

2 The City developed a normal water year regime (Measure F-1) and a critical water year  
 3 regime (Measure F-2) to regulate the amount and timing of flow releases from Bull Run  
 4 Dam 2. Measure F-1 would be expected to occur 90 percent of the time, and Measure F-2  
 5 would be expected to occur 10 percent of the time, based on a 60-year record of flows in the  
 6 Bull Run River. Measure F-1 (Table 2) includes guaranteed minimum flow amounts and  
 7 other criteria to maintain flow levels for spawning, rearing, and migrating salmonids and  
 8 other aquatic species. Measure F-2 (Table 3) includes guaranteed minimum flows for critical  
 9 water year regimes. These flows are the same as normal water years except during periods  
 10 declared as “critical” based on spring conditions (affecting June flow requirements) and/or  
 11 fall conditions (affecting October through November flow requirements).

12 In addition to the flow releases, the City developed measures to protect against large  
 13 decreases in the river level that could trap small salmonids (Measure F-3) and maintain  
 14 natural instream flows in the Little Sandy River (Measure F-4). Because the Little Sandy is a  
 15 tributary to the Bull Run River, Little Sandy flows would contribute to increasing lower Bull  
 16 Run River flows. Measures F-1 through F-4 would be implemented in HCP years 1  
 17 through 50.

TABLE 2

Flow commitments under the Proposed Action for the Lower Bull Run River during normal water years, measured at USGS Gauge 14140000, RM 4.7

<b>Time Period</b>	<b>Guaranteed Minimum Flow (cfs)*</b>	<b>Required Percent of Inflow (%)</b>	<b>Maximum Required Flow (cfs)</b>
January 1 – May 31	120	Not applicable	Not applicable
June 1 – June 15	120	Not applicable	Not applicable
June 16 – June 30	Gradually decrease flows over 15 days from minimum of 120 cfs to a minimum of 35 cfs.		
July 1-September 30	Optimize use of cold water in the reservoirs. Vary flow from 20 cfs to 40 cfs to manage downstream water temperature based on weather conditions. Average summer flow expected to be 35 cfs.		
October 1 – October 15	70	50	400
October 16 – October 31	70	50	400
November 1 – November 15	150	40	400
November 16 – November 30	150	40	400
December 1 – December 31	120	Not applicable	Not applicable

\*cubic feet per second

TABLE 3

Flow commitments under the Proposed Action for the Lower Bull Run River during critical water years, measured at USGS Gauge 14140000, RM 4.7

Time Period	Guaranteed Minimum Flow (cfs)*	Required Percent of Inflow (%)	Maximum Required Flow (cfs)
January 1 – May 31	120	Not applicable	Not applicable
June 1 – June 15	30	Not applicable	Not applicable
June 16 – June 30	30	Not applicable	Not applicable
July 1-September 30	Optimize use of cold water in the reservoirs. Vary flow from 20 cfs to 40 cfs to manage downstream water temperature based on weather conditions. Average summer flow expected to be 35 cfs.		
October 1 – October 15	20	Continue to vary flow from 20-40 cfs to manage downstream water temperature	
October 16 – October 31	30	50	250
November 1 – November 15	30	40	400
November 16 – November 30	70	40	350
December 1 – December 31	120	Not applicable	Not applicable

\*cubic feet per second

## 1 Water Temperature Measures

2 The City would manage temperature to maintain a 7-day moving average of the maximum  
 3 daily water temperature of the lower Bull Run River below 69.8°F (21°C) for salmon/trout  
 4 rearing. Numeric criteria will apply when the estimated natural condition temperatures of  
 5 the Bull Run River are at or below the numeric criteria – 60.8°F (16°C) for salmonid rearing  
 6 and 55.4°F (13°C) for salmonid spawning. When the estimated natural condition  
 7 temperatures of the Bull Run River are above the numeric criteria, the natural condition  
 8 temperature criteria apply – the 7-day moving average of the daily maximum temperature  
 9 of the Little Sandy River. There are exceptions to the natural condition temperature criteria  
 10 that allow temperatures to rise between 1.8 and 2.7°F (1 to 1.5°C) above the temperature of  
 11 the Little Sandy River.

12 The City proposes modifications to the Dam 2 intake towers for selective withdrawal to  
 13 control temperatures in the lower river and in the water distribution system. The  
 14 completion of design and construction of the tower modifications would occur within the  
 15 first 5 years of the Bull Run HCP (Measure T-2). Until the modifications are in place,  
 16 Measure T-1 would be implemented to manage temperature. Under Measure T-1, flow  
 17 releases from the Headworks would be managed to maintain the 7-day moving average  
 18 water temperature of the daily maximums at equal to or less than 69.8°F (21.0 °C). After the  
 19 modifications are in place, flows would be managed in accordance with Measure T-2 to  
 20 comply fully with the TMDL<sup>2</sup> requirements.

<sup>2</sup> Federal water quality standards for the lower Bull Run River designate the river as core cold-water habitat. The lower Bull Run River currently does not meet cold water temperature standards and it is included on the State of Oregon's list of impaired waters (ODEQ 2005). ODEQ developed a TMDL and Water Quality Management Plan for the Sandy River Basin, including the lower Bull Run River. The TMDL established numeric temperature and natural condition temperature criteria for the lower Bull Run River.

## 1 Instream and Riparian Habitat Measures

2 The City developed conservation measures for gravel augmentation, fish passage, and  
3 riparian forest protection in or along the lower Bull Run River.

- 4 • The Bull Run reservoirs trap bedload and sediment, thereby reducing gravel input to the  
5 lower river. Implementation of Measure H-1 of the HCP would replenish spawning  
6 gravel to mimic natural supply and accumulation. Measure H-1 would be implemented  
7 in HCP years 1 through 50.
- 8 • Walker Creek is the only tributary to the lower Bull Run River where a City culvert has  
9 blocked fish passage. Implementation of Measure P-1 would provide volitional fish  
10 passage into Walker Creek within the first 5 years of the HCP. Measure P-1 would be  
11 implemented in HCP years 1 through 5.
- 12 • City-owned lands along the lower Bull Run River remain capable of providing riparian  
13 habitat at a level comparable to unmanaged later-seral forest. In accordance with  
14 Measure H-2, the City would continue managing these lands to maintain and improve  
15 their condition for the duration of the Bull Run HCP. Measure H-2 would be  
16 implemented in HCP years 1 through 50.

### 17 2.6.2 Bull Run Reservoir Habitat Conservation Measures

18 Three habitat conservation measures would improve habitat conditions in Bull Run  
19 Reservoir 2. Measure R-1 includes specific operating criteria to avoid or minimize mortality  
20 of cutthroat and rainbow trout. Measure R-2 includes removing cutthroat trout from the  
21 Dam 2 spillway approach canal to prevent mortality caused by temperature. Measure R-3  
22 includes removing reed canarygrass from three areas along the north bank of the upper end  
23 of Bull Run Reservoir 1 to improve habitat for amphibians. This area occurs on Mt. Hood  
24 National Forest Lands. Measures R-1 through R-3 would be implemented in HCP years  
25 1 to 50.

### 26 2.6.3 Water System Operations and Maintenance Conservation Measures

27 Implementation of two conservation measures would address potential impacts associated  
28 with operation and maintenance (O&M) of the water supply system: Bull Run Infrastructure  
29 Operations and Maintenance (O&M-1) and Bull Run Spill Prevention (O&M-2). Under  
30 conservation measure O&M-1, paint and debris would be prevented from falling in the river  
31 during bridge and conduit maintenance at all active stream crossings (other than the  
32 mainstem Sandy River); erosion would be avoided or minimized during repair and  
33 maintenance of all water supply infrastructure; and water drained from conduits would be  
34 dechlorinated before it is discharged to a waterway. In addition, under Measure O&M-1, the  
35 City would remove trees in riparian areas if they threaten City facilities or pose a significant  
36 health risk to human safety (the City would plant replacement trees if trees of greater than  
37 12 inches diameter at breast height are removed). Under conservation measure O&M-2, the  
38 City would implement a series of measures to avoid or minimize spill effects at the  
39 Headworks facility below Bull Run Dam 2 and at the Sandy River Station, a 5.5-acre  
40 maintenance facility located next to the mainstem Sandy River. The City would implement  
41 Measures O&M-1 and O&M-2 in HCP years 1 to 50.

## 1    **2.6.4   Sandy River Basin Habitat Conservation Measures**

2    The City proposes 31 offsite conservation measures to improve fish habitat in the greater  
3    Sandy River Basin. The measures include placement of large wood and boulders to create  
4    habitat; purchase of approximately 425 acres of riparian easements in the Lower Sandy  
5    River Watershed, the Middle Sandy River Watershed, the Upper Sandy River Watershed,  
6    the Salmon River Watershed, and the Zigzag River Watershed; fish passage for 5.5 miles of  
7    Alder Creek and 12 miles of Cedar Creek; and channel restoration in the Salmon River  
8    Watershed.

## 9    **2.6.5   Terrestrial Wildlife Habitat Conservation Measures**

10   In addition to conservation measures targeting the covered species, the City proposes  
11   three additional conservation measures to minimize impacts to spotted owls, bald eagles,  
12   and fishers.

## 13   **2.6.6   Habitat Fund**

14   The City would use a portion of the Bull Run Water Supply HCP funding to contribute to  
15   projects implemented in coordination with the Sandy River Basin Partners (Partners),  
16   thereby contributing to larger-scale restoration in the Sandy River Basin. The Habitat Fund  
17   (H-30) would total \$9 million. A \$5 million portion of the Habitat Fund would be available  
18   in four increments prior to year 20 of the permit term and would be dedicated to  
19   partnership projects. Of the \$5 million, \$1.7 million would be specifically dedicated toward  
20   habitat enhancement projects on the Salmon River to be implemented jointly by the  
21   Partners, and with additional funds from the Partners and/or from grants. If partnership  
22   funds cannot be obtained to implement these projects, the funds would be used for other  
23   projects in the Sandy River Basin. The remaining \$4 million would be dedicated to adaptive  
24   management. If the \$4 million were not needed for adaptive management, it would be used  
25   for partnership projects. Projects would be selected in consultation with the HCP  
26   Implementation Committee and would be guided by the Sandy River Basin Restoration  
27   Strategy. The City and NMFS would make the final project selection decisions.

## 28   **2.6.7   Monitoring, Research, and Adaptive Management Programs**

29   Compliance would be monitored and documented for all the conservation measures. In  
30   addition, effectiveness monitoring would be undertaken for those measures that present  
31   some degree of uncertainty about their biological effectiveness, such as gravel placement  
32   and instream habitat enhancement. In the Bull Run River, placement of spawning gravel,  
33   degree of Chinook spawning gravel scour, concentrations of total dissolved gases, and  
34   abundance of spawning Chinook adults would be studied. In the Sandy River Basin, the  
35   City would collaborate with the ODFW, Mt. Hood National Forest, Bureau of Land  
36   Management (BLM), and Oregon Department of Environmental Quality (ODEQ) to  
37   measure the number of juvenile salmonid outmigrants. The Bull Run Water Supply HCP  
38   includes provisions to select, fund, and implement additional conservation measures if the  
39   prescribed conservation measures do not achieve the results necessary to maintain  
40   compliance with ESA Section 10 requirements.

## 1 2.6.8 Changed Circumstances

2 Chapter 10 of the Bull Run Water Supply HCP contains provisions for changed  
3 circumstances – conditions that substantially change during the permit term that might  
4 warrant changes in the conservation strategy. It is expected that, with implementation of the  
5 response measures, incidental take coverage would continue to be provided for the covered  
6 activities.

7 NMFS might list additional species as threatened or endangered under the ESA, delist  
8 species that are currently listed, or declare a listed species extinct. If one of these changed  
9 circumstances occurs, the City would take various response actions leading to the addition  
10 of species and conservation measures to the HCP, or deletion of species and conservation  
11 measures from the HCP. The City and NMFS would enter into good faith discussions to  
12 develop the appropriate response actions.

1 SECTION 3

2 **Alternatives**

---

3 NMFS analyzed three alternatives in the EIS, including one no action alternative and two  
4 action alternatives. The alternatives included the following: 1) Alternative 1 (No Action  
5 Alternative); 2) Alternative 2 (Proposed Action – Issuance of Incidental Take Permit and  
6 Implementation of the Bull Run Water Supply HCP); and 3) Alternative 3 (Fish Passage).  
7 Following is a brief description of the three alternatives that were analyzed in detail.

8 **3.1 Alternative 1: No Action Alternative**

9 Under the No Action Alternative, NMFS would not issue authorization for the incidental  
10 take of ESA-listed species to the City for the Bull Run Water Supply HCP. However, the  
11 City would comply with the TMDL. The City would operate the Bull Run water supply  
12 system as described in the following subsections.

13 **3.1.1 Flow**

14 Flow management under the No Action Alternative is intended to facilitate implementation  
15 of the temperature standards. The flow requirements are summarized in Table 4.

TABLE 4  
Flow commitments under the No Action Alternative for the Lower Bull Run River during all water year types  
(measured at USGS Gauge 14140000, RM 4.7)

<b>Time Period</b>	<b>Guaranteed Minimum Flow (cfs)*</b>	<b>Required Percent of Inflow (%)</b>	<b>Maximum Required Flow (cfs)</b>
January 1 – May 31	None	Not applicable	Not applicable
June 1 – June 15	None	Not applicable	Not applicable
June 16 – June 30	Optimize use of cold water in the reservoirs. Vary flow from 20 cfs to 40 cfs to manage downstream water temperature based on weather conditions. Average summer flow expected to be 35 cfs.		
July 1-September 30	Optimize use of cold water in the reservoirs. Vary flow from 20 cfs to 40 cfs to manage downstream water temperature based on weather conditions. Average summer flow expected to be 35 cfs.		
October 1 – October 15	Varies 30 to 70 cfs, depending if it is a normal or critical flow year		
October 16 – October 31	Varies 30 to 70 cfs, depending if it is a normal or critical flow year		
November 1 – November 15	None	Not applicable	Not applicable
November 16 – November 30	None	Not applicable	Not applicable
December 1 – December 31	None	Not applicable	Not applicable

\*cubic feet per second

### 1 3.1.2 Temperature

2 Full compliance with the TMDL would not be possible without modification to the existing  
3 infrastructure. Under the No Action Alternative, the Dam 2 intake towers would be  
4 modified for selective withdrawal of cold water and the Dam 2 stilling pool and its rock  
5 weir would be modified. Both of these changes would allow more effective use of cold  
6 water stored in the reservoirs and would enable the City to meet TMDL requirements.  
7 Temperature management after the modifications are in place would be the same as  
8 described in Measure T-2 (post-infrastructure temperature management) under the  
9 Proposed Action.

## 10 3.2 Alternative 2: Issuance of Incidental Take Permit and 11 Implementation of an HCP (Proposed Action)

12 Under Alternative 2 (Proposed Action), NMFS would issue an ITP to the City, based on  
13 implementation of the Bull Run Water Supply HCP. The City is seeking an ITP from NMFS  
14 for the term of 50 years. The Proposed Action is described in detail in Section 2, Project  
15 Description, of this ROD.

## 16 3.3 Alternative 3: Fish Passage Alternative

17 Under Alternative 3, the City would provide upstream and downstream fish passage  
18 facilities at Bull Run Dam 1 and Bull Run Dam 2. This alternative also includes the lower  
19 Bull Run River conservation measures for temperature and flow; the terrestrial wildlife  
20 conservation measures; and the Bull Run habitat measures to address potential impacts  
21 associated with operation and maintenance of the water supply system.

22 The City would install the first upstream fish passage facility, the Rock Weir Fish Collection  
23 and Transportation Facility, at the rock weir located below the spillway stilling basin of  
24 Dam 2. It would include a fishway and trap located at the existing 15-foot-high rock weir  
25 structure. Fish would enter the fishway, ascend to the trap, be crowded into a hopper, and  
26 then be placed into a truck for transportation past Dam 2. The water supply necessary to  
27 operate the facility would flow by gravity from the stilling basin.

28 The City would install the second upstream fish passage facility, Bull Run Dam 1 Fish  
29 Collection and Transportation Facility, on the right bank of the river immediately  
30 downstream of the powerhouse tailrace. The facility would operate similar to the proposed  
31 Rock Weir Facility described above. An estimated 10 pools would be required to enable  
32 migrating adults to ascend high enough to be trapped above the flood stage. A gravity  
33 water supply is not available to run this facility, so all of the necessary water would be  
34 pumped from the tailrace. A tailrace barrier may be required to prevent fish from being  
35 falsely attracted to the powerhouse tailrace or outlet works on the left bank.

36 The City would install downstream fish passage facilities in Bull Run Reservoir 1. The  
37 facility would include a floating surface collector with guide nets mounted on a floating  
38 barge in the reservoir, using low-head pumps to create attraction flows. The fish would then  
39 be routed into a pipe to a fish transfer facility moored to the face of the dam. A crane on the  
40 deck of the dam would be used to load fish into trucks, and collected fish would be placed

1 back into the river downstream of Bull Run Dam 2. The City also would install a  
2 downstream fish passage facility at Dam 2. This facility would be similar to the Dam 1  
3 facility described above.

## 4 **3.4 Alternatives Not Considered in Detail**

5 The process of developing a reasonable range of alternatives generated a broad range of  
6 ideas for meeting the purpose and need for this project. During the scoping process for the  
7 EIS, three other alternatives were considered but eliminated from further analysis as  
8 independent alternatives because they did not meet the purpose and need identified for the  
9 project. These alternatives are briefly described in the following subsections, including the  
10 reasons they were eliminated from further consideration.

### 11 **3.4.1 Bull Run Groundwater**

12 This concept included developing a groundwater supply below the Headworks facility at  
13 Dam 2, and discharging the pumped groundwater into the Bull Run River in the summer  
14 months to lower water temperatures. The Portland Utility Review Board proposed this  
15 concept in their July 11, 2006 scoping comments. The Portland Utility Review Board's  
16 concept was studied in detail in the Bull Run Groundwater-based Alternative Technical  
17 Memorandum. Based on the evaluation, the groundwater concept was not carried forward  
18 in the EIS. Groundwater temperatures are not sufficiently cold to achieve the required river  
19 temperatures. Groundwater at approximately 55.4 to 57.2°F (13 to 14°C) would create river  
20 temperatures above the required conditions at the measurement point (Larson's Bridge)  
21 under most conditions (approximately 75 percent of the time). Therefore, this alternative  
22 was not carried forward because it did not meet the purpose and need of the project.  
23 Specifically, this alternative would not comply with state water quality standards and  
24 TMDL designations for the Bull Run River and Sandy River Basin.

### 25 **3.4.2 Dam Removal**

26 Access to habitat above the dams could be provided by removal of Bull Run Dams 1 and 2.  
27 This alternative would require demolition of the two dams, as well as programs to manage  
28 sediment and construction debris. Extensive habitat restoration to recreate the prior riparian  
29 and instream habitat values in the reservoir areas would also be included. This concept was  
30 not carried forward for detailed evaluation because of the limited benefit for fish and the  
31 requirement to develop alternative water sources to provide public water supply. This  
32 would be contrary to the purpose and need of ensuring an adequate long-term water  
33 supply.

### 34 **3.4.3 Fish Ladders**

35 Access to habitat above the two Bull Run dams could potentially be achieved through the  
36 installation of fish ladders, which would provide volitional passage for upstream migrating  
37 adult fish. However, it is anticipated that fish ladders would be much less effective than the  
38 trap-and-haul concept proposed in Alternative 3, Fish Passage Alternative. This assessment  
39 is attributed to the height of the existing dams, the large fluctuations in the reservoir forebay  
40 water surface elevations, and water quality concerns.

1 The heights of Bull Run Dams No. 1 and No. 2 (180 and 145 feet, respectively), are well  
2 above the maximum effective height for fish ladders of approximately 80 to 100 feet. The  
3 fishway for Bull Run Dam No. 2 would be approximately 4,000 feet in length, and the  
4 fishway for Bull Run Dam No. 2 would be approximately 2,000 feet in length, assuming a 1-  
5 foot vertical drop per pool. High and long fish ladders can have limited success as fish often  
6 become delayed and/or fall back in fishways of this magnitude, resulting in reduced fish  
7 passage.

8 Water quality concerns, such as temperature and dissolved oxygen, would also limit the  
9 effectiveness of the fish ladder alternative. Special provisions would be needed to ensure  
10 adequate temperature and dissolved oxygen profiles, including intakes that utilize existing  
11 temperature towers, new deep water intakes, and packed aeration columns. In addition to  
12 their high costs, these facilities may also deplete the cold water supply in the reservoirs,  
13 impacting downstream water quality and making it difficult to meet downstream  
14 temperature requirements.

15 In addition, the applicant has indicated to NMFS that the high cost of fish ladders is  
16 prohibitive (the provision of volitional fish ladders and gulpers at Bull Run No. 1 and Bull  
17 Run No. 2 would cost approximately \$150 million). This high cost is due to both the length  
18 and height of the required ladders, as well as the additional facilities required to make them  
19 operate successfully. This cost does not include monitoring and evaluation facilities.

20 The NOAA Fisheries 2004 Anadromous Salmonid Passage Facility Guidelines and Criteria  
21 states that *"In general, NOAA Fisheries requires volitional passage, as opposed to trap and haul, for*  
22 *all passage facilities. This is primarily due to the risks associated with the handling and transport of*  
23 *migrant salmonids, in combination with the long term uncertainty of funding, maintenance and*  
24 *operation of the trap and haul program. However, there are instances in which trap and haul may be*  
25 *the only viable option for upstream and/or downstream fish passage at a particular site."* As such,  
26 the volitional fish ladder alternative was not carried forward because it does not meet the  
27 purpose and need for the project. Specifically, this alternative would not provide cost-  
28 effective minimization and mitigation measures for the incidental take of species listed by  
29 NMFS. Upon review of the impacts addressed in this EIS and the ESA determination, NMFS  
30 concludes that the Sandy River Basin Habitat Conservation Measures will provide more  
31 success, in terms of fish production, than fish ladders.

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1 SECTION 4

2 **Public Involvement**

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3 NMFS published a Notice of Intent (NOI) in the *Federal Register* on March 27, 2006 (Vol. 71,  
4 No. 58) to solicit participation of responsible and coordinating federal, state, and local  
5 agencies and of the public in determining the scope of this EIS. Publication of the NOI  
6 initiated the process of public scoping for this EIS. NMFS held two public scoping meetings  
7 in June 2006, in the City of Portland, to solicit input on the potential topics to be addressed  
8 in this EIS, the range of project alternatives, and possible mitigation measures. Prior to these  
9 two scoping meetings, the City distributed a news release to local news agencies describing  
10 when and where each scoping meeting would be held. Notice was also posted on the City  
11 web site and the NMFS website. In addition, NMFS mailed an interested-parties letter to  
12 individuals or agencies that were identified as possible stakeholders, including local tribal  
13 leaders and environmental groups. The scoping process revealed several key items of  
14 concern to the interested parties who provided comments. The scoping process is  
15 documented in the NMFS Scoping Report for this project, which is included as part of the  
16 administrative record.

17 NMFS published the Notice of Availability (NOA) for the Draft Environmental Impact  
18 Statement (DEIS) in the *Federal Register* on March 21, 2008, (Vol. 73, No. 56) and again on  
19 April 11, 2008, (Vol. 73, No. 71). The City issued a news release on April 21, 2008. Public  
20 meetings were held on April 28 and 29, 2008, to allow for public comments on the DEIS. The  
21 DEIS public comment period closed May 26, 2008. During the comment period, 14 comment  
22 letters were received from federal and local agencies, environmental organizations, and the  
23 general public. Primary issues raised in the comments related to the Bull Run Water Supply  
24 HCP. NMFS responded to comments on the DEIS and the Bull Run HCP in Appendix E of  
25 the FEIS.

26 The FEIS and Final Bull Run Water Supply HCP were subsequently produced, and they  
27 were made available for a 30-day public review period announced in the *Federal Register* on  
28 January 23, 2009 (Vol. 74, No. 14). During the review period, one comment letter was  
29 received and is included as Appendix A of this ROD. A review of the comment letter  
30 revealed that the issues had already been described in the DEIS or had been raised in public  
31 comments on the DEIS and Draft Bull Run Water Supply HCP. As such, they were  
32 addressed in the preparation of the FEIS and Final HCP.

1 SECTION 5

2 **Decision, Rationale, and Conditions**

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3 **5.1 Decision and Rationale**

4 NMFS' decision is to issue an ITP to the City and to sign an Implementation Agreement based  
5 on implementation of the City's Bull Run Water Supply HCP (Alternative 2). Issuance of the  
6 ITP to the City authorizes the incidental take of the covered species listed in Subsection 2.4,  
7 Covered Species. One species (Pacific eulachon) not currently listed under the ESA will be  
8 included in the ITP and permit coverage will become effective in the event that the species  
9 becomes listed as threatened or endangered under the ESA during the 50-year permit,  
10 pursuant to NMFS' No Surprises Rule (50 CFR Parts 17 and 22).

11 NMFS is authorized to issue permits authorizing incidental take of federally-listed species  
12 under Section 10 of the ESA. The applicant for such a permit must submit a conservation  
13 plan in accordance with Section 10(a)(2)(A) of the ESA. NMFS issues the permit if it finds  
14 the permit application and conservation plan satisfy requirements of Section 10(a)(2)(B) of  
15 the ESA. NMFS has concluded in its Section 10(a)(2)(B) Statement of Findings and its Section  
16 7(a)(2) Biological Opinion, all of which are incorporated here by reference, that the City's  
17 Bull Run Water Supply HCP meets the criteria for permit issuance in accordance with  
18 Section 10(a)(2)(B) of the ESA. In making this decision, NMFS has also considered its trust  
19 responsibilities to Native American Tribes and has concluded that issuance of the permit is  
20 consistent with its trust responsibilities.

21 **5.2 Environmentally Preferred Alternative**

22 The environmentally preferred alternative (40 CFR 1505.2[b]) is that which promotes the  
23 national environmental policy as expressed in Section 101 of NEPA. This is often  
24 characterized as the alternative that causes the least damage to the physical and biological  
25 environment and is the alternative that best protects, preserves, and enhances historic,  
26 cultural, and natural resources. The proposed HCP and other alternatives have been  
27 described and evaluated in the FEIS. Based upon the review of the alternatives and their  
28 environmental consequences described in the FEIS as required under NEPA, and  
29 satisfaction of requirements under the ESA, NMFS has decided to issue an ITP for the City's  
30 Bull Run water supply and to adopt Alternative 2, Proposed Action, as the environmentally  
31 preferred alternative. In this case, the Proposed Action is considered the environmentally  
32 preferred alternative because implementation of the Bull Run HCP will provide greater  
33 environmental protection and the greatest degree of improvement in habitat conditions in  
34 relation to what is expected to occur over time under the No-action Alternative or the Fish  
35 Passage Alternative (Alternative 3).

1 SECTION 6

2 **Signatures**

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Barry A. Thom, Acting Regional Administrator  
Northwest Region  
National Marine Fisheries Service

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**Appendix A**  
**Public Comment Pertaining to the HCP and EIS**

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**Public Comment – Scott Fernandez**

**February 21, 2009**

**Cost saving and public health alternative solutions to increased drinking water consumption of the toxically contaminated and polluted Columbia South Shore Well Field (CSSW), based on implementation of the Habitat Conservation Plan.**

The biological premise of the Portland Water Bureau (PWB) Habitat Conservation Plan (HCP) is noble. It is supported by the community as it helps to encourage recovery of endangered species in the Sandy River Basin.

Columbia South Shore Well Field (CSSW) drinking water is toxically contaminated with chemicals and other pollutants such as: radioactive materials, pharmaceuticals, organic solvents, sewage contaminants, antibiotics, caffeine, etc. We are told this toxically contaminated drinking water is *safe* because it meets EPA drinking water regulation standards. Portland Water Bureau sampling and subsequent lab analysis represents only a snapshot of a handful of contaminants, providing a false sense of water quality safety. Thousands of toxic chemicals and many combinations of pollutants can go unrecognized and unacknowledged.

The solution to the Habitat Conservation Plan's negative impact on public health and ratepayer cost is simple and would save ~\$40 million, most in the next few years. Approximately 3 billion gallons of water from Bull Run Dam 2 are discharged for fish each summer into Bull Run River. The solution: cool, clean, fresh, artesian drinking water wells located in the area outside of Bull Run Dam 2. Artesian water could be piped into the diversion dam area at Dam 2, preceding the transmission conduits, to be used for drinking water consumption in lieu of the toxically contaminated and polluted CSSW water added at Powell Butte. This Bull Run artesian water would also augment increased flow for the fish in the Bull Run River. The wells are already drilled in the Dam 2 area and artesian temperature would not be an issue because it is ~13C, well below the PWB target temperature goal of 21C and DEQ goal of 16C. (1)(2) The Bull Run Dam 2 artesian wells promote sustainability needing no electrical energy. Electricity / energy intensive well pumps are currently used at CSSW. This saves precious resources and money ~ \$500,000-\$950,000/ year in electrical energy costs alone (PWB data) giving the artesian wells a zero-carbon footprint unlike the CSSW.

Slowly drawing down Bull Run drinking water reservoirs, "banking" cooler water for fish, saving \$40 million for ratepayers, and providing drinking water that is not toxically contaminated is the common sense and responsible solution. It is a win-win-win for fish, the ratepayer, and public health. The direct 'variable level intake' the Portland Water Bureau proposes in the Habitat Conservation Plan has never been used before in an unfiltered drinking water utility. Its multi-level direct intake of Bull Run drinking water would introduce algae and other organic debris generating additional unwanted disinfectant by-products from increased disinfection. Chlorine readily combines with microorganisms, plant materials, and other organic material "using up" chlorine. These materials increase "chlorine demand", off odors, and off tastes. (3)(4) The current intake pulls in drinking water below the level of this debris, resulting in lower disinfectant by-products. The new PWB proposal will also kill ~11% of Bull Run Dam 2 fish because of screen removal at intake, sucking in fish, adding even more unwanted organic debris. (5)

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\$40 million is a lot to pay for CSSW drinking water that is radioactive and toxically contaminated with industrial pollutants. We have viable alternatives. The Bull Run environmentally sustainable artesian wells can supply cool, pure, water to meet our drinking water and fish needs.

Factors that negatively influence fish recovery in Bull Run River:

- Observed intense water discharge spikes in the Bull Run River water flow during fall / winter, scouring out river bed gravel as demonstrated by HCP need for yearly addition of river bed gravel.(6)(7). (See Figures 1 and 2).
- Oregon Department Environmental Quality temperature goal of Bull Run River at 16C v. Portland Water Bureau goal of ~21C (1)(2)
- Figure 4 right side graph depicts best-case scenario for Bull Run reservoir temperature influence because of the unusually deep snow pack. This supplied Bull Run River the coolest water temperature influence throughout summer. Snow pack was still visible in the Bull Run watershed in mid September with full reservoirs. Consistent coldest Bull Run reservoir water at lowest water intake still could not supply Bull Run River water that would not exceed ODEQ temperature standards. Artesian well water would add cooling effect.
- Embryonic and developmental sensitivities exist. Disturbing and jostling at fish egg incubation and alevin stages can be lethal: both stages are confined to gravel for several months. (8)(9)(10)(11) Against intense Bull Run water discharge forces there is little expectation they would be able to forage for food, and find a suitable nursery/rearing habitat. Additionally there would be little expectation their aquatic food would also be available/ able to withstand such river water current challenges of up to 13 billion gallons/day.(12)
- Bull Run River water chemistry has dramatically changed with the decommissioning of Marmot Dam. The unique chemistry of Sandy River water that was discharged through Roslyn Lake into Bull Run River has been removed, adding confusion to the imprinted fish. The fish will now stay in the Sandy River system following the “smell” of their imprinted spawning habitat.

Sincerely,  
Scott Fernandez M.Sc. Biology  
Portland



### USGS 14140000 BULL RUN RIVER NEAR BULL RUN (RIVER ONLY), OR

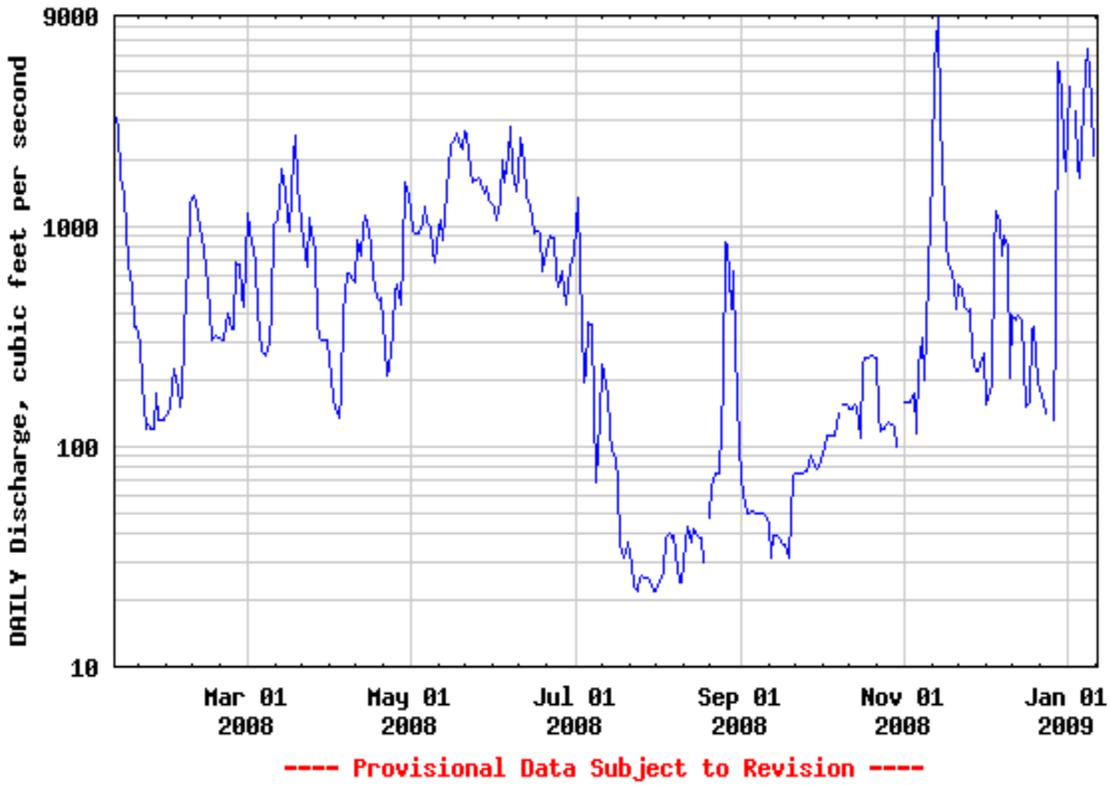


Figure 1 - Spike in water discharge in November 2008, scouring gravel, at a critical time in salmon egg incubation and alevin development.



### USGS 14140000 BULL RUN RIVER NEAR BULL RUN (RIVER ONLY), OR

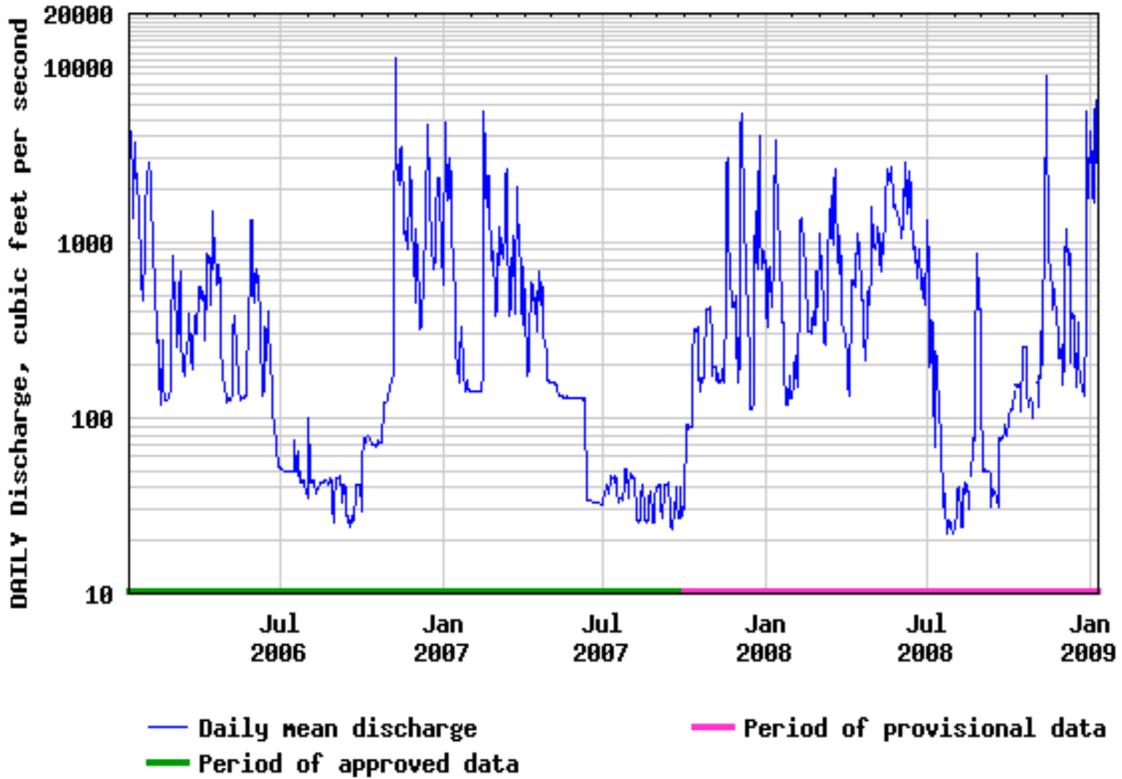


Figure 2 - Historical spikes in water discharge in November 2006 -2008, scouring gravel that endangers salmon egg incubation and alevin development.



### USGS 14140020 BULL RUN R AT LARSON'S BRIDGE, NEAR BULL RUN, OR

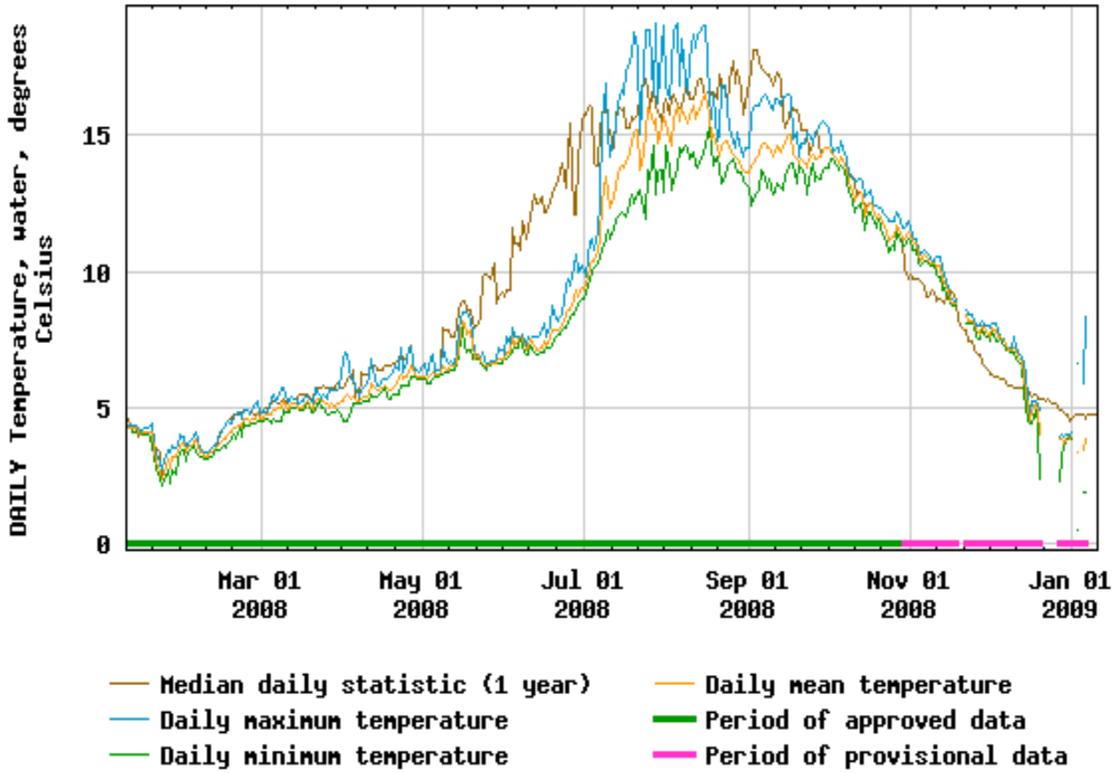


Figure 3 - Water temperature 2008, 13C from artesian wells would provide cooling effect.



### USGS 14140020 BULL RUN R AT LARSON'S BRIDGE, NEAR BULL RUN, OR

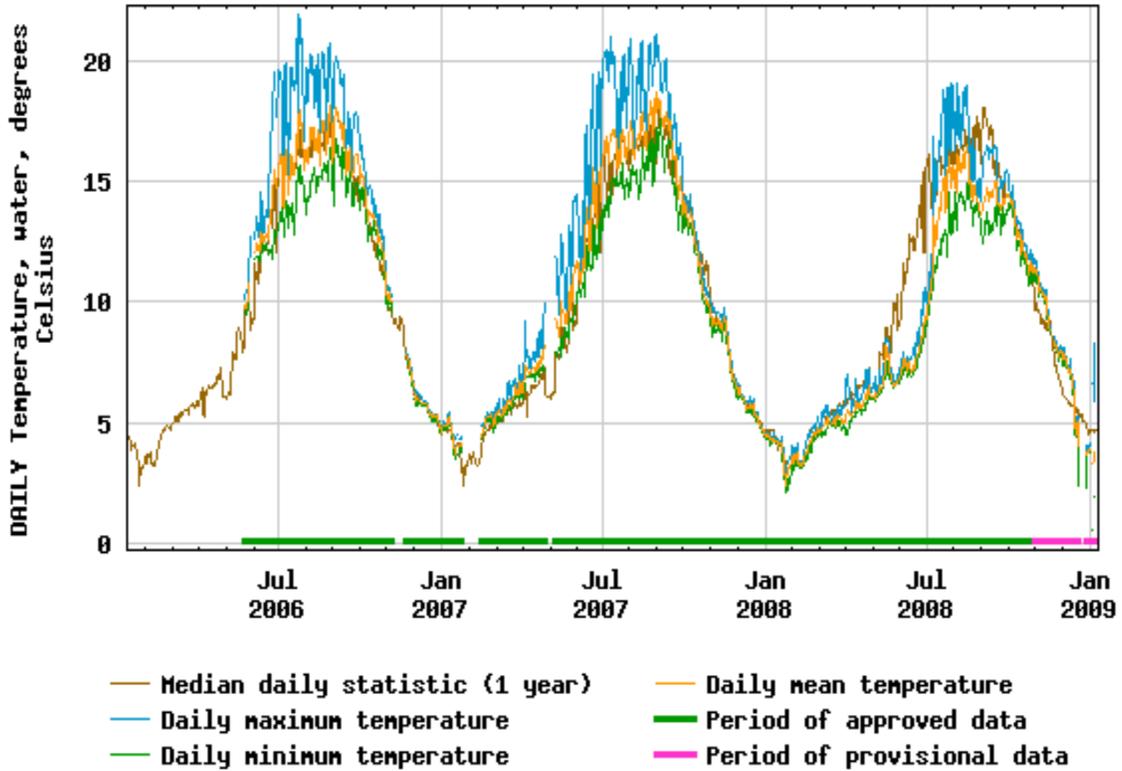


Figure 4 - 2006-2009 water temperatures, artesian well's 13C temperature provides cooling effect.

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