

# TUALATIN RIVER FLOW MANAGEMENT TECHNICAL COMMITTEE



## 2008 Annual Report

*prepared by  
Bernie Bonn for*

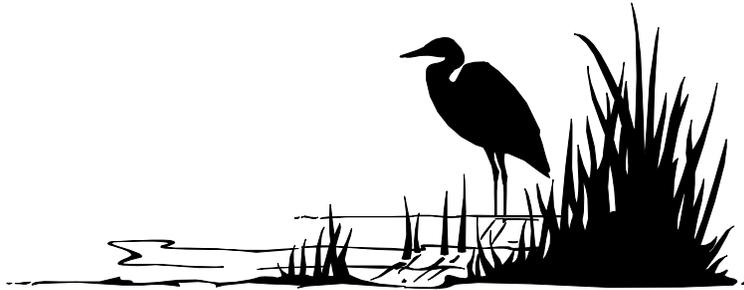


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from left: Ki-a-Kuts Bike and Pedestrian Bridge, Tigard and sign on a bridge over the Tualatin River  
both photographs taken by Bernadine Bonn, July 2008

# TUALATIN RIVER FLOW MANAGEMENT TECHNICAL COMMITTEE

## 2008 Annual Report



*Prepared by:*

Bernie Bonn

*For:*

Clean Water Services

*In cooperation with:*

Oregon Water Resources Department, District 18 Watermaster

## FLOW MANAGEMENT TECHNICAL COMMITTEE MEMBERS

Darrell Hedin, Secretary	<i>Oregon Water Resources Department</i>
Kevin Hanway	<i>City of Hillsboro Water Department</i>
Niki Iverson	<i>City of Hillsboro Water Department</i>
Jan Miller, Chair	<i>Clean Water Services</i>
Wally Otto	<i>Tualatin Valley Irrigation District</i>
Scott Porter	<i>Washington County — Emergency Management System</i>
Mark Rosenkranz	<i>Lake Oswego Corporation</i>
Chris Wayland	<i>Washington County Parks — Hagg Lake</i>
Randy Smith	<i>City of Forest Grove</i>
Jean Woll	<i>Joint Water Commission</i>

## ACRONYMS USED IN THIS REPORT

FULL NAME	ACRONYM	FULL NAME	ACRONYM
<b>Facilities</b>		<b>Units of Measurement</b>	
Spring Hill Pumping Plant	SHPP	Acre-Feet	ac-ft
Wastewater Treatment Plant	WWTP	Cubic Feet per Second	cfs
<b>Organization</b>		Micrograms per liter	µg/L
Barney Reservoir Joint Ownership Commission	BRJOC	Milligrams per Liter	mg/L
Clean Water Services (formerly Unified Sewerage Agency)	CWS	Million Gallons per Day	MGD
Joint Water Commission	JWC	Pounds	lbs
Lake Oswego Corporation	LOC	River Mile	RM
Oregon Department of Environmental Quality	ODEQ	Water Year	WY
Oregon Department of Transportation	ODOT	<b>Water Quality Parameters</b>	
Oregon Water Resources Department	OWRD	Biochemical Oxygen Demand	BOD
Tualatin Valley Irrigation District	TVID	Dissolved Oxygen	DO
Tualatin Valley Water District	TVWD	Sediment Oxygen Demand	SOD
U.S. Bureau of Reclamation	BOR		
U.S. Geological Survey	USGS		
<b>Other</b>			
Total Maximum Daily Load	TMDL		
Wasteload Allocation	WLA		

### Disclaimer

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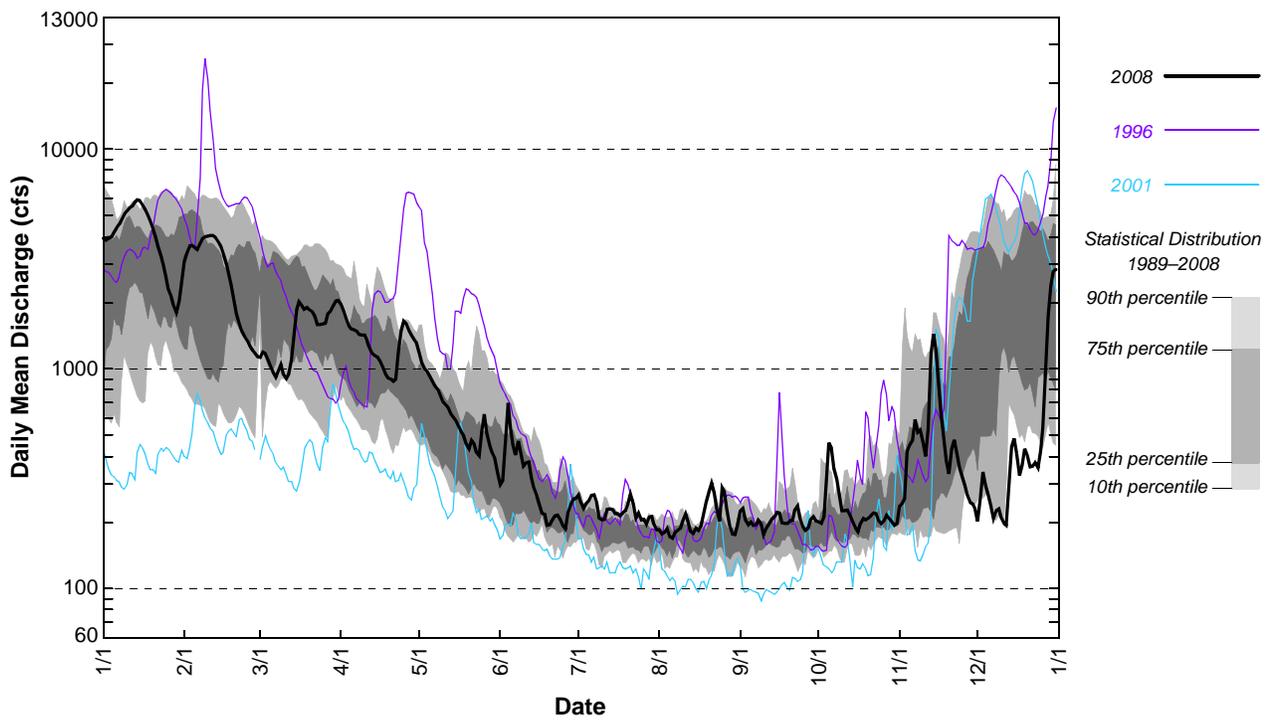
## 2008 SUMMARY

This is the twenty-first year that the Tualatin River Flow Management Technical Committee has prepared an annual report documenting the flow management of the Tualatin River. Members of the committee include Clean Water Services (CWS), Tualatin Valley Irrigation District (TVID), Joint Water Commission (JWC), Lake Oswego Corporation (LOC) and Oregon Water Resources Department (OWRD).

### Highlights for 2008 include:

- Both Barney and Scoggins Reservoirs filled.

**Tualatin River at Farmington (RM 33.3 #14206500) 1989–2008**



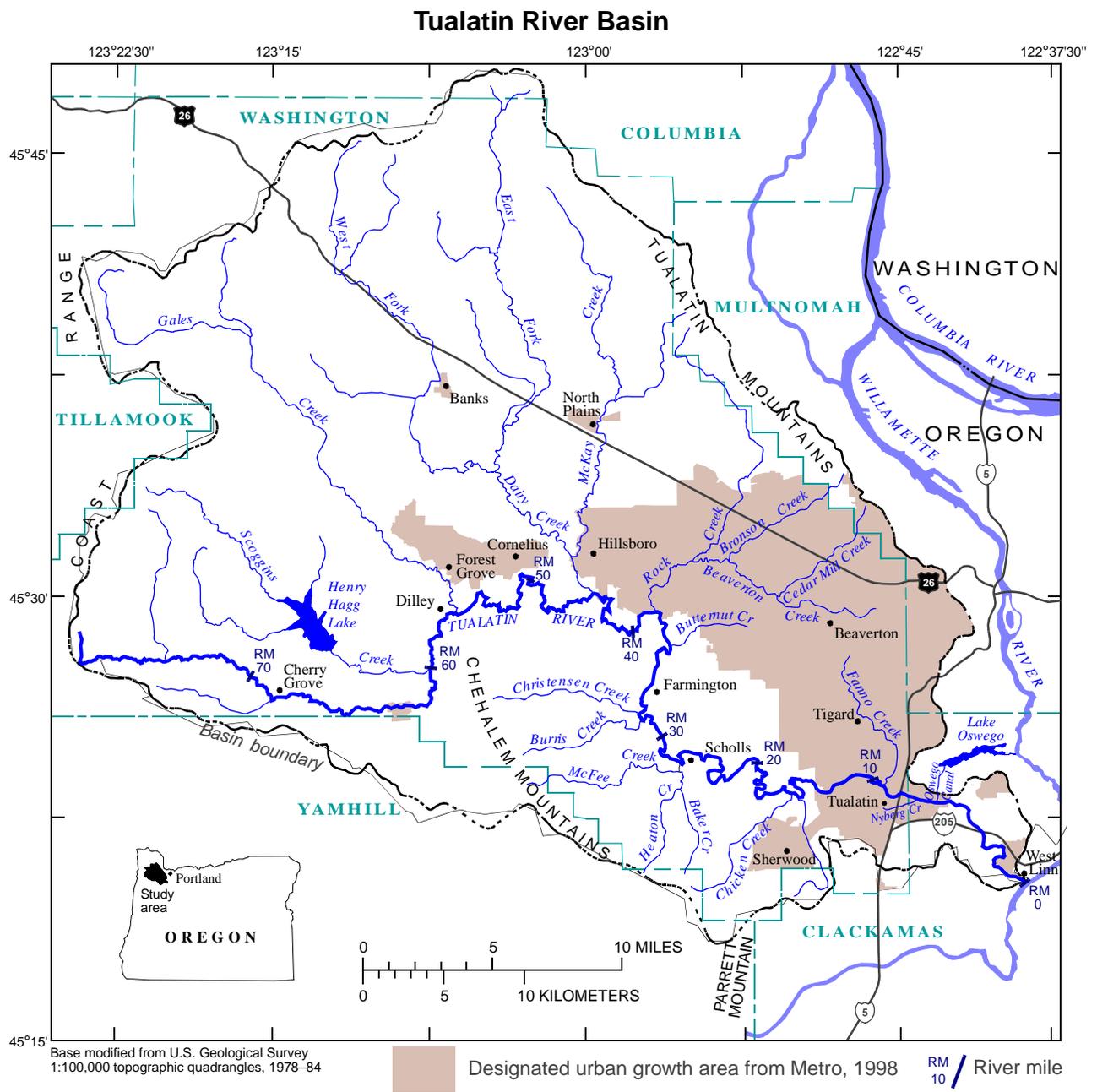
- Damage to the Wapato Lake levee from a major storm in December 2007 prevented draining the lake in early spring as usual and created water quality problems in the Tualatin River (see pg 17 and 28).
- The same December 2007 storm left considerable debris in Hagg Lake and its tributaries, which necessitated significant clean-up efforts in 2008.
- Prompted by a new understanding of earthquake hazards in the area and the potential dam raise, new seismic studies of Scoggins Dam were conducted in the summer and fall of 2008.
- A major snowstorm occurred in late December 2008, depositing more than 5 feet of snow in the upper basin.

# BACKGROUND

## Basin Description

The Tualatin River Basin comprises an area of 712 square miles situated in the northwest corner of Oregon and is a subbasin of the Willamette River. The headwaters are in the Coast Range and flow in a generally easterly direction to the confluence with the Willamette River. The basin lies almost entirely in Washington County. (See map below)

The Tualatin River is about 80 miles long and changes dramatically from its headwaters to its mouth. The mountain or headwater reach (upstream of RM 55) is narrow (about 15 ft) and steep with an average slope of about 74 ft/mi. The meander reach (RM 55–33) is wider with an average slope of about 1.3 ft/mi. The reservoir reach (RM 33–3.4) is very wide (up to 150 ft) and has an estimated slope of only 0.08 ft/mi. It includes several deep pools. Travel times through this reach are very long. The slow movement of the water causes this reach to act much like a lake. In the riffle reach (RM 3.4–0), the Tualatin River flows through a short reservoir section and then drops into a narrow gorge near the City of West Linn before it enters the Willamette River just upstream of Willamette Falls. The average slope in this reach is 10 ft/mi.



## Water sources to the Tualatin River

**Precipitation:** Seasonal rainfall accounts for most of the natural flow in the Tualatin Basin; stream flow from snowmelt is minimal. The amount of rainfall ranges from 110 inches on the eastern slopes of the Coast Range to 37 inches in the southeastern area of the drainage basin. Peak months for rainfall are November through February while the driest months are normally June through October. The peak streamflow month is usually February and the lowest streamflow month is August.

**Barney Reservoir:** Barney Reservoir is located behind Eldon Mills Dam on the Middle Fork of the North Fork of the Trask River (outside of the Tualatin Basin). A trans-basin aqueduct carries water over a low Coast Range divide to a pipeline that discharges into the Tualatin River at RM 78. Barney Reservoir has a capacity of 20,000 acre-feet and stores water for the Joint Water Commission (Cities of Beaverton, Hillsboro and Forest Grove and the Tualatin Valley Water District) and Clean Water Services. The Barney Reservoir Joint Ownership Commission owns, operates and manages Barney Reservoir. Reservoir content is monitored through calibrated reservoir elevations; water releases are monitored using a stream gage located in the outlet flume. Water is released during the summer low-flow season to supplement shortages in natural flow. The water is used for municipal supply and for instream water quality.

**Scoggins Reservoir:** In the early 1970's the U.S. Bureau of Reclamation built an earthen dam on Scoggins Creek (RM 5.1). Releases from Scoggins Reservoir (Henry Hagg Lake) flow down Scoggins Creek and enter the Tualatin River at RM 60.0. Scoggins Reservoir has an active storage capacity of 53,640 acre-feet. It is a multipurpose facility with contracted water for irrigation, municipal and industrial, and water quality uses.

### **ALLOCATION OF CONTRACTED WATER FROM SCOGGINS RESERVOIR**

Contracted To	Water Use	Contracted Volume		Available Volume
		ac-ft	as percent	ac-ft
Tualatin Valley Irrigation District	Irrigation (up to 17,000 acres)	37,000	54.5%	27,022
Joint Water Commission	Municipal and industrial	13,500	19.9%	13,500
<i>City of Beaverton</i>		4,000		
<i>City of Forest Grove</i>		4,500		
<i>City of Hillsboro</i>		5,000		
Clean Water Services	Instream water quality	16,900	24.9%	12,618
Lake Oswego Corporation	Irrigation	500	0.7%	500
<b>Total</b>		<b>67,900</b>	<b>100.0%</b>	<b>53,640</b>

Scoggins Dam is authorized by the U.S. Congress to provide flood control for communities located downstream, including Gaston, Cornelius and Forest Grove. The dam controls runoff from a 39 square mile watershed (about 5% of the Tualatin Basin). From November to April, 20,000 acre-feet are designated for flood control storage.

Scoggins Reservoir is operated and maintained by the Tualatin Valley Irrigation District under contract with the Bureau of Reclamation. Three tributaries flow into Scoggins Reservoir— Sain, Scoggins and Tanner Creeks. Flows in Sain and Scoggins Creeks are monitored by Oregon Water Resources Department gages; flow in Tanner Creek is monitored by daily readings of a staff plate by TVID personnel. Outflow is monitored by a Bureau of Reclamation stream gage in Scoggins Creek at RM 4.8. Oregon Water Resources Department maintains the rating curves for Tanner Creek and for Scoggins Creek at RM 4.8.

During the summer months, recreation is a major activity on the reservoir. Washington County maintains and operates the 2,851 acre Scoggins Valley Park/Henry Hagg Lake recreational facility. The park is open from the first Saturday in March through the last Sunday before Thanksgiving. Recreational uses include boating, fishing, picnicking, swimming, hiking, bicycling and other activities.

**Clean Water Services:** Clean Water Services provides sanitary and stormwater services to the urban areas of Washington County. Clean Water Services has four wastewater treatment plants (WWTPs) that have permits to discharge treated wastewater into the Tualatin River. The Rock Creek WWTP discharges an average of 50 cfs (33 MGD) at RM 38.1; the Durham WWTP discharges an average of 31 cfs (20 MGD) at RM 9.3. The Forest Grove and Hillsboro WWTPs (RM 55.2 and 43.8, respectively) are much smaller and do not discharge during the summer. WWTP flow rates are continuously monitored at each WWTP. Clean Water Services also releases storage water from Scoggins and Barney Reservoirs for flow augmentation during the seasonal low flow periods to improve water quality in the Tualatin River and to provide operational flexibility in meeting their effluent discharge permit limits.

#### Water diversions from the Tualatin River

**Cherry Grove Intake (RM 73.2):** The City of Hillsboro diverts water for municipal and industrial uses at the Cherry Grove Intake. This water is delivered to the Cities of Hillsboro and Gaston, the LA Water Cooperative, and rural residents of the Dilly and Cherry Grove areas. The diversion is less than 3 cfs and is monitored via metered flows.

**Spring Hill Pumping Plant (RM 56.3):** The Spring Hill Pumping Plant is the largest diversion facility on the river. It is operated jointly by the Tualatin Valley Irrigation District (TVID) and the Joint Water Commission (JWC). TVID, with a pumping capacity of approximately 90 MGD (140 cfs), delivers water to about 12,000 acres of irrigated cropland via a pressure pipeline. JWC, with a pumping capacity of approximately 60 MGD (90 cfs), delivers water to the Cities of Beaverton, Hillsboro, Forest Grove and to the Tualatin Valley Water District. Both TVID and JWC have natural flow water rights that are used when natural flow is adequate; they release contracted stored water from Scoggins and Barney Reservoirs to augment low natural flow in the summer. Pumping rates are monitored by TVID and JWC using telemetry-equipped flow meters. Additional monitoring is provided by real-time stream gages on the Tualatin River located above and below the pumping plant and on Gales Creek.

**Wapato Canal Diversion:** The Wapato Improvement District has a natural flow water right (priority date: 1928) to divert water from the Tualatin River at the Wapato Canal Diversion, near RM 62. This water is used for irrigation. Withdrawals are monitored by manual weekly flow measurements.

**Irrigation withdrawals:** Water is obtained directly from the Tualatin River for irrigation purposes by members of the TVID and by irrigators with natural flow water rights. About 5,000 acres of cropland served by TVID is irrigated with water obtained directly from the Tualatin River. Some of the discharge from the Rock Creek WWTP (RM 43.8) is contracted to TVID to be used by downstream irrigators.

**Patton Valley Pump Plant:** Tualatin Valley Irrigation District pumps water from Scoggins Creek (RM 1.71) into a low-pressure pipeline that serves customers along Patton Valley Road. Historically, this pipeline also diverted water into the upper Tualatin River (at RM 63.1 and RM 64.3) to supplement low flows in this reach, but this has not been needed in recent years due to releases from Barney Reservoir.

**Lake Oswego Canal Diversion:** The Lake Oswego Corporation (LOC) diverts a portion of the Tualatin flow into the Lake Oswego Canal at RM 6.7. A headwork structure regulates the flow into this mile long canal that feeds into Lake Oswego. The Lake Oswego Corporation has several natural flow water rights, including water rights for hydropower generation, irrigation, and lake level maintenance. At RM 3.4, a combination diversion dam/fish ladder structure is used during low flow periods to elevate the Tualatin River enough to divert the flow into the canal. During most of the year, river elevation is adequate to allow diversion of the LOC water right; in the summer, however, flash boards may be installed to increase the water level. The dam is 4 feet high and causes the water surface of the Tualatin River to be elevated for about 25 river miles upstream. LOC has not installed flashboards in recent years. Since 2000, LOC has taken no more than 10 cfs from the Tualatin River. Flow in Lake Oswego Canal is monitored during the summer by a gaging station operated by the Oregon Water Resources Department.

## Tualatin River Water Management

### Tualatin River Flow Management Technical Committee

The Tualatin River Flow Management Technical Committee provides a mechanism for the coordination and management of flow in the Tualatin River. The members of the committee are technical staff with detailed knowledge of the specific characteristics of flow in this river. The committee meets monthly from February through November. Meetings focus on the current status of the reservoirs. In addition, a variety of other water issues and any problems are discussed. Each member updates the committee on changes that could impact the flow management of the Tualatin. The communication, coordination and cooperation among the partner agencies has proven invaluable in managing the resource.

### Data collection system

Water in the Tualatin Basin is monitored by gages on streams and flow meters on diversions and wastewater treatment plant discharges. Stream gages are present along the main-stem Tualatin and all major tributaries that affect water distribution. Many of these monitors have telemetry, making the data available in real-time. Throughout the season, daily operations can be monitored by Clean Water Services (CWS), Joint Water Commission (JWC), Tualatin Valley Irrigation District (TVID), and the Lake Oswego Corporation (LOC).

A coordinated information system was developed to provide flow information to all members of the committee. Because use or release of water by any one of the entities can impact the other users, coordination of flow information is an important aspect of the committee's work. The data are collected by field staff from the cooperating entities or from the Corps of Engineers via telemetry.

The monitoring effort makes it possible to proactively manage storage, instream flows, diversions and effluent discharge so that minimum instream flow requirements and general compliance with water rights and storage agreements are met. It also makes the calculation of pollutant loads possible, when it is necessary for the Total Maximum Daily Load program (TMDL). Monitoring includes temperature as well as flow at some sites. As water quality issues have come to the forefront, the monitoring system has provided information vital to understanding the Tualatin Basin, helped guide basin management, and been an excellent example of interagency cooperation. The members of the Flow Management Committee appreciate the efforts of the Oregon Water Resources Department (District 18 Watermaster), the US Geological Survey and others who provide data.

Some of the monitoring data for the Tualatin Basin can be accessed at the following web sites:

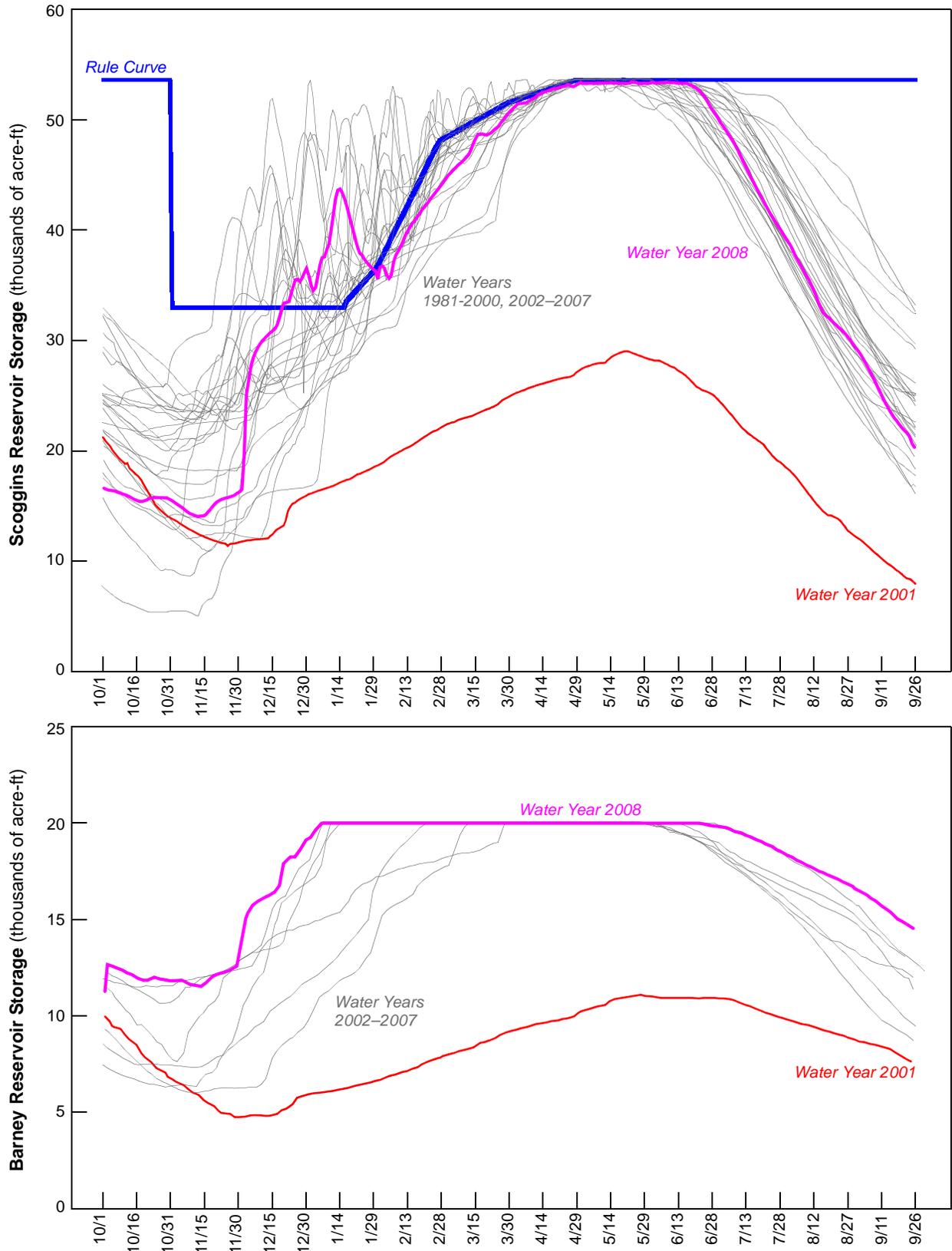
- Bureau of Reclamation data:  
<http://www.usbr.gov/pn-bin/rtindex.pl?cfg=tual>
- Jackson Bottom Wetlands Center data:  
[http://www.jacksonbottom.org/waterquality\\_graphs.htm?TR14](http://www.jacksonbottom.org/waterquality_graphs.htm?TR14)
- Oregon Water Resources Department data:  
[http://apps2.wrd.state.or.us/apps/sw/hydro\\_near\\_real\\_time/](http://apps2.wrd.state.or.us/apps/sw/hydro_near_real_time/)
- USGS data:  
[http://or.water.usgs.gov/cgi-bin/grapher/graph\\_setup.pl?basin\\_id=tualatin](http://or.water.usgs.gov/cgi-bin/grapher/graph_setup.pl?basin_id=tualatin)

### Annual Tualatin Basin Flow Management Report

This report is published annually and describes water management, accounting, storage, stream gaging, diversions, and effluent discharge for the Tualatin Basin. Annual reports dating from 1992 are available at: <http://www.co.washington.or.us/Watermaster/SurfaceWater/tualatin-river-flow-technical-committee-annual-report.cfm>

# RESERVOIR STATUS

Both Scoggins and Barney Reservoirs filled in 2008. The fill curves for 2008 and the reservoir filling histories are shown below.



## CLEAN WATER SERVICES

BY JAN MILLER, CLEAN WATER SERVICES

Water is released by Clean Water Services (CWS) from Scoggins and Barney Reservoirs to improve water quality in the Tualatin River. The Department of Environmental Quality issued an NPDES Watershed-Based Waste Discharge Permit to Clean Water Services on February 26, 2004. After a legal challenge, changes were made to the stormwater section of the permit and the entire permit was reissued on July 27, 2005. It provides Clean Water Services with flexibility in meeting its wastewater treatment plant permit requirements by recognizing the benefit of the water that Clean Water Services releases from the two reservoirs.

The reservoir releases during July and August are traded to mitigate approximately 75% of the thermal impacts of the wastewater treatment plants. Clean Water Services offsets the remainder of its thermal impact by improving riparian habitat along the tributaries either directly within its service area or through a partnership with the Tualatin Soil and Water Conservation District on rural lands. During the rest of the summer, the water is released to offset the impact of sediment oxygen demand on the dissolved oxygen levels in the river. The dissolved oxygen levels in the river downstream of the wastewater treatment plants determine the ammonia limits for the wastewater treatment plants. The higher the dissolved oxygen levels are, the more operational flexibility the wastewater treatment plants have.

Low dissolved oxygen levels can be a water quality issue in the lower Tualatin River. During the early parts of the summer, photosynthetic production of oxygen by algae effectively offsets the oxygen consumed by the decaying substances in the sediment of the river (sediment oxygen demand). In the fall, however, oxygen production by algae is reduced as the days become shorter and it becomes too small to offset the oxygen consumption by sediment oxygen demand. This can lead to low dissolved oxygen levels. Increasing the flow of water minimizes oxygen consumption by sediment oxygen demand because it shortens the contact time between the river water and the river sediments.

### 2008 Water Releases

Clean Water Services initiated its release from Scoggins Reservoir on July 1, 2008. This was the fifth year with two primary goals. One goal was to release an average of 35 cfs for July and August for temperature trading. Clean Water Services released an average of 35.9 cfs during this period. During this time period an unusual overgrowth of blue-green algae developed in the lower river. To help mitigate the impact of this algal bloom, Clean Water Services released 10–20 cfs of extra water in July. The second goal was to have enough water left to mitigate the impact of sediment oxygen demand after the algal populations declined in mid-September. Clean Water Services release of Scoggins Reservoir water averaged 58.0 cfs from September 1, 2008 through November 4, 2008 when Farmington flows reached 425 cfs and winter flow conditions started. Clean Water Services released a total 11,896 acre-feet from Scoggins Reservoir for the summer. This was 94% of its allocation.

Clean Water Services initiated a constant rate of release of 14 cfs from Barney Reservoir on September 4, 2008. It continued, unchanged, until October 31, 2008. Clean Water Services used a total of 1,611 acre-feet from Barney Reservoir. This was 97% of its allocation.

Clean Water Services released flow augmentation water for a total of 127 days in 2008. The combined average daily release (for days with releases) was 54 cfs. Daily and monthly flow targets were met. The amount of water available to and released by Clean Water Services during 2008 and monthly details of the water releases are summarized in the tables on the following page. Clean Water Services flow augmentation and treatment plant flow accounts for a significant fraction of flow in the lower Tualatin River, especially during the late summer and early fall period (see graphs on page 12).

**CLEAN WATER SERVICES WATER AVAILABILITY AND USE — 2008**

Reservoir		Maximum Available (acre-ft)	Available (acre-ft)	Total CWS Release (acre-ft)
Scoggins Reservoir	Storage	12,618	12,618	11,896
	Natural flow credit	4,282	0	—
Barney Reservoir	Storage	2,000	1,667	1,611
	Summer storage	—		
<b>Total</b>		<b>18,900</b>	<b>14,285</b>	<b>13,507</b>
<b>Percent of available</b>				<b>94.6%</b>

**CLEAN WATER SERVICES WATER RELEASE SUMMARY 2008**

	Units	May	June	July	Aug	Sept	Oct	Nov 1-4	Total
<b>Scoggins Release</b>	acre-ft	0	0	1,653	2,762	3,869	3,395	218	11,896
	days	0	0	31	31	30	31	4	127
<b>Barney Release</b>	acre-ft	0	0	0	0	750	861	0	1,611
	days	0	0	0	0	27	31	0	58
<b>Total Release</b>	acre-ft	0	0	1,653	2,762	4,619	4,256	218	13,507
<b>Daily Average Release</b> (for days with releases)	cfs	0	0	27	45	78	69	28	54

**Measured Flows and Flow Goals for Tualatin River at Farmington (RM 33.3)**

Measured minimum	cfs	336	188	187	171	177	182	240	—
Measured mean	cfs	641	313	228	210	206	238	292	—
Measured maximum	cfs	1,200	703	270	304	239	465	425	—
Daily minimum flow goal	cfs	120	120	120	120	120	120	120	—
Monthly mean flow goal	cfs	120	120	120	150	180	180	180	—

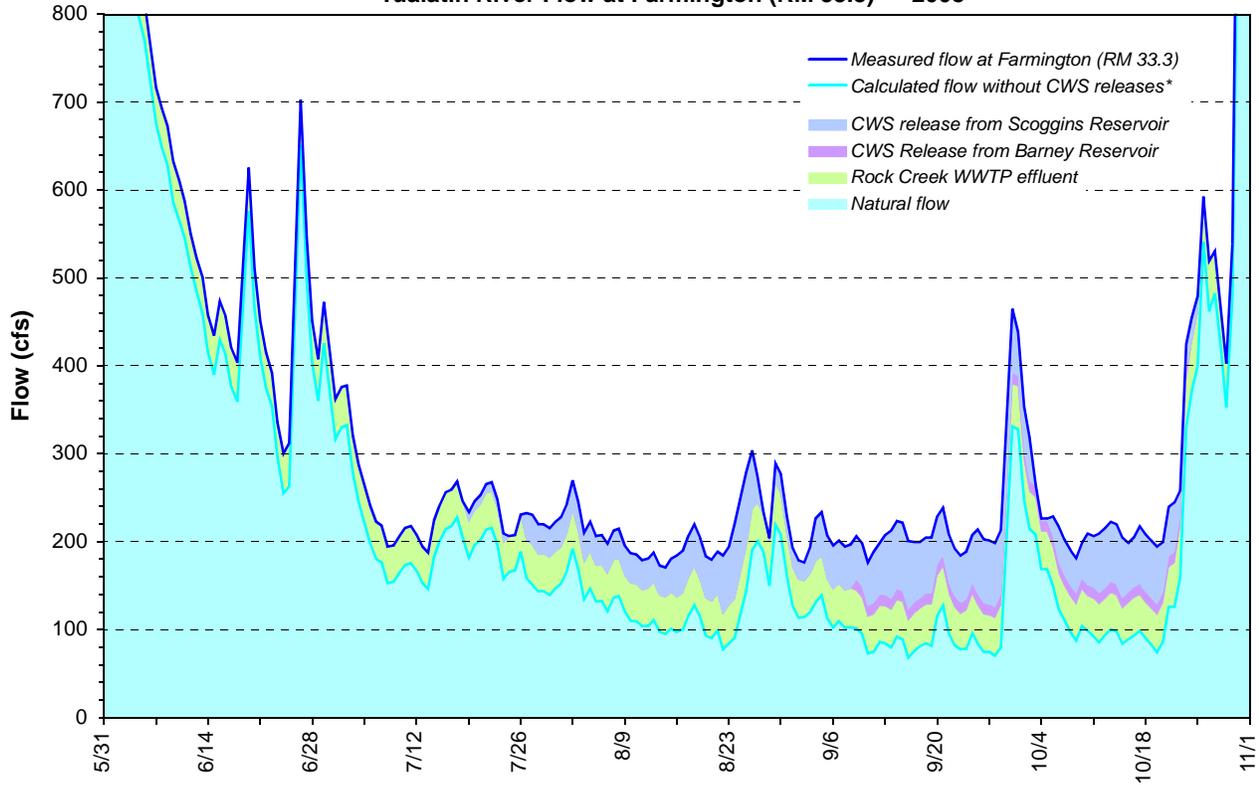
Natural flow credit

If the natural flow in the Tualatin River measured at West Linn is less than the flow target for the months of May, June, October and November, then Clean Water Services receives a natural flow credit of up to 4,282 acre-ft. Natural flow is calculated as the actual measured flow minus Clean Water Services released flow. The table below shows that the natural flow at West Linn exceeded the flow targets for these four months, and therefore, Clean Water Services was not entitled to a natural flow credit in 2008.

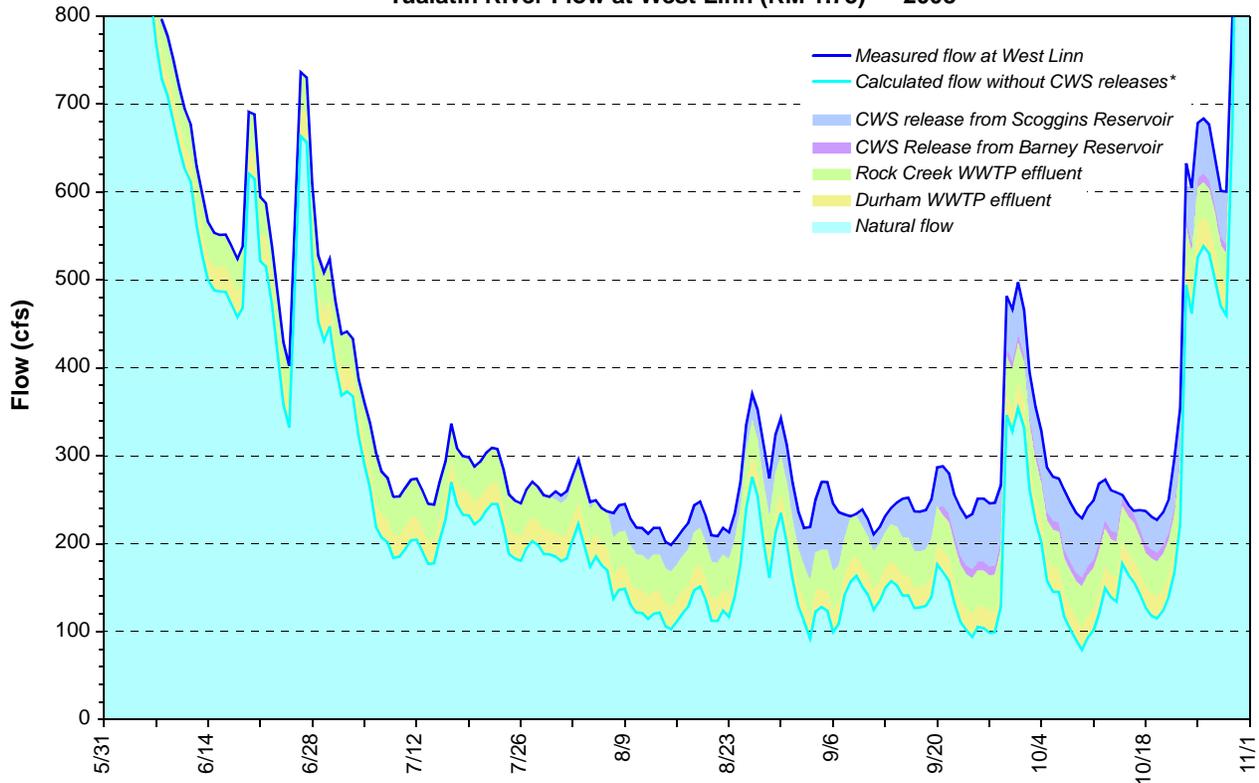
**BUREAU OF RECLAMATION NATURAL FLOW CREDIT 2008**

Month	Mean Daily Measured Flow at West Linn (cfs)	Mean Daily CWS Release (cfs)	Calculated Natural Flow at West Linn (cfs)	Target Natural Flow at West Linn (cfs)	Maximum Possible CWS Natural Flow Credit (cfs) [acre-ft]	CWS Natural Flow Credit (cfs)
May	768	0	768	85	13 [798]	0
June	393	0	393	140	21 [1250]	0
October	292	69	223	95	16 [984]	0
November	669	28	641	110	21 [1250]	0

**Tualatin River Flow at Farmington (RM 33.3) — 2008**



**Tualatin River Flow at West Linn (RM 1.75) — 2008**



\*Flows without CWS releases were calculated as follows. (Constant travel times and a uniform evaporative loss of 0.25% per mile were assumed.)

Flow at Farmington without CWS releases =

- + Measured flow at Farmington
- 0.988 x Rock Ck WWTP flow from the same day
- 0.933 x CWS Scoggins Release from 2 days before
- 0.888 x CWS Barney Release from 4 days before

Flow at West Linn without CWS releases =

- + Measured flow at West Linn
- 0.981 x Durham WWTP flow from 3 days before
- 0.909 x Rock Ck WWTP flow from 14 days before
- 0.854 x CWS Scoggins Release from 17 days before
- 0.809 x CWS Barney Release from 19 days before

## Historical perspective

In 1987, Clean Water Services begin managing the release of its water with the goal of maintaining a monthly average of 150 cfs at the Tualatin River at Farmington. Work by the United States Geological Survey in the early 1990's indicated that it was more important to have higher flows in the fall to maintain dissolved oxygen levels than in the early summer to prevent algal blooms. The flow goals were changed to maintaining 120 cfs in the early summer, 150 cfs in August and then 180–200 cfs from September until the winter flows start. Winter flows are defined as flows that exceed a 7-day median of at least 350 cfs. In 2004, an additional goal of releasing water in July and August for temperature trading was added. The following table shows the history of Clean Water Services releases from Scoggins Reservoir.

### CLEAN WATER SERVICES — SCOGGINS RESERVOIR RELEASES

Year	Start Date	End Date	Total Release Days	Total Release (acre-ft)	Average per Release Day (cfs)	Minimum Monthly Flow at Farmington (RM 33.3) (cfs)
1987	6/9	11/30	175	16,722	48.2	138
1988	7/2	11/4	126	15,071	60.3	149
1989	6/27	11/15	141	16,586	59.3	158
1990	7/12	11/1	113	11,889	53.0	172
1991	7/12	11/4	116	13,024	56.6	181
1992	6/5	11/19	168	12,730	38.2	138
1993	7/3	12/1	150	11,486	38.6	154
1994	6/21	10/27	129	10,917	42.7	137
1995	6/24	11/8	138	9,824	35.9	174
1996	7/27	11/10	114	10,952	48.4	205
1997	7/4	10/2	91	6,716	37.2	202
1998	8/12	11/7	87	9,407	54.5	175
1999	7/27	11/12	109	12,001	55.5	188
2000	7/21	11/27	130	15,275	59.2	174
2001	9/25	11/14	50	2,403	24.0	114
2002	6/12	11/9	151	12,618	42.0	103
2003	7/11	11/17	130	11,765	52.4	107
2004	7/1	11/2	125	8,650	34.9	130
2005	7/8	10/31	116	9,918	43.1	153
2006	7/1	11/3	126	9,634	38.5	148
2007	7/3	11/13	119	10,134	42.9	145
2008	7/1	11/4	127	11,896	47.2	171

Water is released from Barney Reservoir at a constant rate during the late summer to supplement the water released from Scoggins Reservoir. The following table shows the historic use of Barney Reservoir releases. Clean Water Services owns 10% of the 20,000 acre-foot reservoir. Each year the Joint Water Commission decides how much water is to be released for the Department of Fish and Wildlife. This, plus the dead pool, is subtracted from the available water. The remainder is allocated to the owners.

**CLEAN WATER SERVICES — BARNEY RESERVOIR RELEASES**

<b>Year</b>	<b>Start Date</b>	<b>End Date</b>	<b>Total Release (acre-ft)</b>	<b>Daily Release Rate (cfs)</b>	<b>Comment</b>
1998	7/12	8/27	2,779	24.6	extra water released to draw down reservoir
1999	9/1	10/19	1,025	10	10 cfs also released 6/4–6/10
2000	9/8	10/23	1,461	18	—
2001	9/18	10/29	1,416	17	1000 acre-ft purchased in addition to allocation; reservoir did not fill; 4,000 acre-ft held in reserve
2002	8/26	10/24	1,667	14	—
2003	8/15	10/14	1,742	14	—
2004	9/1	11/2	1,777	14	—
2005	9/1	11/8	1,874	14	miscommunication about end date; extra water released
2006	9/1	11/3	1,638	14	—
2007	9/1	10/30	1,667	14	—
2008	9/4	10/31	1,611	14	—

# JOINT WATER COMMISSION & JOINT BARNEY COMMISSION

BY NIKI IVERSON, WATER RESOURCES MANAGER, JOINT WATER COMMISSION/CITY OF HILLSBORO

## Introduction

Over 300,000 people in Washington County receive at least a portion of their water from the Joint Water Commission (JWC). JWC provides water to its member agencies: the Cities of Hillsboro, Forest Grove, Beaverton and Tigard, and the Tualatin Valley Water District. JWC also provides wholesale service directly to the City of North Plains, and, indirectly, to Cornelius, Gaston, and the LA Water Cooperative as wholesale customers of Hillsboro. JWC's water production averages approximately 31 to 33 million gallons per day. During the peak periods of the summer, production increases substantially. In 2008, production peaked at 66.8 million gallons per day, JWC's highest peak production to date.

JWC's water treatment plant is supplied with water from the nearby Tualatin River. Water is pumped from an intake facility at Spring Hill that was constructed by the Bureau of Reclamation and is shared with the Tualatin Valley Irrigation District (TVID). Flows in the Tualatin River are supplemented during the summer with water from impounds at Scoggins Dam (Hagg Lake) and Barney Reservoir. The Barney Reservoir Joint Ownership Commission (BRJOC) owns Barney Reservoir. BRJOC includes the Cities of Hillsboro, Forest Grove and Beaverton, the Tualatin Valley Water District, and Clean Water Services.

The JWC water treatment plant uses conventional dual media filtration, along with disinfection, to produce high quality potable water. Treated water is pumped from the plant to the member agencies either directly through finished water pipelines leaving the plant or via the Fern Hill Reservoirs. Fern Hill Reservoirs include two 20 million gallon covered concrete tanks, for a total of 40 million gallons of storage, located about one-third mile to the east of the treatment plant. The JWC finished water pipelines include master meter and pressure reducing stations at the connection points to the member agencies.

## 2008 Operations

**Water Quality Monitoring–Barney Reservoir:** In 2008, BRJOC contracted with Portland State University (PSU) to develop recommendations on water quality monitoring programs. Several levels of monitoring were presented for consideration.

- Level 1 includes a baseline monitoring plan that would be the minimum level recommended by the PSU team to gain a basic understanding of the water quality dynamics in the reservoir and related streams or tributaries.
- Level 2 includes a section on algal bloom monitoring which would be event driven.
- Level 3 includes additional monitoring methods and protocols for increased turbidity events associated with changing land use conditions such as increased clear cutting from logging operations.
- Level 4 was included after the first draft review at the request of our water quality and treatment staff. It includes additional monitoring methods and protocols for pesticide monitoring associated with planting preparation from increased clear cutting from logging operations.
- Level 5 would collect data to enable the construction of a numeric model for reservoir water quality or fill reliability.

The baseline water quality and algal programs (Levels 1 and 2) were selected by BRJOC to begin in 2008 and 2009. BRJOC started a water quality monitoring program of the streams and tributaries surrounding Barney Reservoir in 2008. The reservoir water quality monitoring program will begin in 2009.

**Source Water Capture Efficiency:** JWC continued to maximize the capture of our source waters through improved coordination of the operation of Fern Hill Reservoirs with JWC member system demands, and through careful tracking of individual member use of their stored water. The 2008 program had continued success, as the JWC pump station recovered 94% of the water available at our intake from natural flow rights and releases from our impounded supplies.

**SUMMARY OF 2008 RELEASE SEASON**

Description	Beginning Balance (acre-ft)	Amount Released (acre-ft)	Calculated Inflow (acre-ft)	Ending Balance (acre-ft)	Average Release (acre-ft/day)
<b>Breakdown by Reservoir</b>					
Scoggins	13,500.00	10,163.45		3,336.55	75.28
Barney (M&I)	14,886.00	4,407.34	1,222.90	10,478.66	32.65
<b>Total</b>	<b>28,386.00</b>	<b>14,570.79</b>	<b>1,222.90</b>	<b>13,815.21</b>	<b>107.93</b>
<b>Breakdown by Agency – Including Leased Allocations</b>					
Hillsboro	9,327.40	4,577.97		4,749.43	33.91
Forest Grove	2,413.50	1,442.62		970.88	10.69
Beaverton	6,556.10	3,491.58		3,064.52	25.86
TVWD	9,589.00	4,621.29		4,967.71	34.23
Tigard	500.00	437.32		62.68	3.24
<b>Total</b>	<b>28,386.00</b>	<b>14,570.79</b>		<b>13,815.21</b>	<b>107.93</b>

**Reservoir release detail after reallocation for leases (total released by storage ownership):**

	Reservoir Release (acre-ft)			Average Release (acre-ft/day)
	Barney	Scoggins	Total Release	
Hillsboro	749.93	4,276.73	5,026.66	37.23
Forest Grove	380.55	2,431.74	2,812.29	20.83
Beaverton	579.74	3,454.99	4,034.72	29.89
TVWD	2,697.12	—	2,697.12	19.98
<b>Total</b>	<b>4,407.34</b>	<b>10,163.45</b>	<b>14,570.79</b>	<b>107.93</b>
North Plains usage is reflected in the figures for JWC partners:			33.02	0.24

**COMPARISON OF STORED WATER RELEASES— 2006–2008**

Year	Begin Date	End Date	Days Regulated Use	Stored Water Release (acre-ft)			Average Release (acre-ft/day)
				Barney	Scoggins	Total	
<b>2008</b>	6/18/2008	10/31/2008	135	4,407.34	10,163.45	14,570.79	107.93
<b>2007</b>	5/25/2007	11/13/2007	155	5,543.88	10,371.72	15,915.60	102.68
<b>2006</b>	5/18/2006	11/3/2006	160	8,100.61	11,331.74	19,432.35	121.45

**ESTIMATED WATER CAPTURE RATES (THROUGH 11/14/2008)**

<b>Peak production for season:</b>	204.95 acre-ft/day
<b>Average production for season:</b>	117.39 acre-ft/day
<b>Stored water released:</b>	14,570.79 acre-ft
<b>WRD loss factor:</b>	-466.00 acre-ft
<b>Natural flow:</b>	+3,203.35 acre-ft
<b>Total water available to be pumped:</b>	17,308.14 acre-ft
<b>Raw water pumped at Spring Hill Pump Station:</b>	15,735.90 acre-ft = 90.92% of available
<b>Water produced through Slow Sand Filter Plant:</b>	514.04 acre-ft
<b>Total water pumped for regulated season:</b>	16,249.94 acre-ft = 93.89% of available
<b>Finished water produced:</b>	15,847.77 acre-ft = 91.56% of available
<b>Total production:</b>	16,381.81 acre-ft = 94.53% of available

## 2008 Taste and Odor Event

From late May through July, several hundred complaints were received by customers of JWC member agencies concerning the taste and odor of their drinking water. JWC implemented a number of steps to address the problem, and communicated with the public to explain the nature of the problem. JWC's water supply continued to meet all Safe Drinking Water Act standards and the taste and odor problem did not pose any threat to the health of our customers or their pets.

Taste and odor problems are not an unusual occurrence for water utilities. Fortunately for JWC residents, such problems are rare. The last event occurred in 2001 due to a severe drought. The 2008 event was traced to the release of impounded flood water created when the Wapato Improvement District's levee failed. Additional information about the levee failure and water quality issues related to the released water from Wapato Lake is on page 28.

Plant materials frequently collect in watersheds and infuse the water with an odor and taste that is not removed by standard filtration materials. The chemicals associated with such tastes and odors, such as geosmin, do not have any adverse health impacts. Geosmin is the same substance that gives beets their earthy flavor, and can impart that taste to a water supply if present even in extremely low concentrations.

JWC and Hillsboro, as the managing agency, actively addressed the taste and odor problem immediately after it first appeared. A number of progressive steps were implemented.

- At the treatment plant, the chlorine feed part of the treatment process was relocated to minimize the potential for reactions that could worsen the problem.
- A powdered activated carbon (PAC) step was added to the treatment process to facilitate removal of taste and odor compounds. PAC is a fine charcoal-type substance that is effective at adsorbing the tastes and odors that are present, and is the industry standard response for such problems.
- Additional stored water was released from Hagg Lake and Barney Reservoir to dilute the odor-infused water in the Tualatin River.
- Targeted pipeline flushing was conducted in the distribution systems of the JWC member agencies to keep the water fresh throughout the service area.
- Several means of communication were utilized to keep the public informed of the situation including articles in local newspapers, interviews with local television news stations, and information posted on the JWC website. Letters were also mailed to all Hillsboro customers explaining the situation and what was being done to improve taste and odor conditions.

The taste and odor problem was temporary. As the test reports came back on the Tualatin River samples, the discharge from the Wapato Improvement District (WID) was determined to be the cause. The problem water abated as discharges from Wapato Lake ended once the lake area was drained. JWC assisted WID in repairing the dike that was breached in the 2007 December storm. The total cost to JWC of responding to the geosmin event was calculated to have been \$286,032. The costs included:

- Chemicals: High levels of organic material in the raw water required higher than usual dosages of chemicals to achieve effective levels of sedimentation and disinfection.
- Equipment: Feeder equipment for powdered activated carbon was purchased and installed (including plumbing and electrical work).
- Sampling: JWC sampled for geosmin at nine locations throughout the basin to monitor potential sources. These samples were above and beyond the JWC's normal sampling program.
- Assistance to Wapato Improvement District: JWC helped WID repair the levee, including hiring a contractor to load and transport clay from JWC's site to the Wapato levee breach.

For the long term, the water treatment plant expansion that is planned to be complete in approximately eight years offers opportunities to address taste and odor problems. During the design process, JWC will evaluate different filter media (such as granular activated carbon) and disinfection compounds (such as ozone) that have proven effective against taste and odors.

# LAKE OSWEGO CORPORATION

BY MARK ROSENKRANZ, WATER RESOURCE SPECIALIST

## Introduction

The Lake Oswego Corporation (LOC), a non-profit organization, owns and manages Oswego Lake, a 168-hectare (403 acre) reservoir located 10 miles south of Portland, Oregon. LOC was formed in 1942 when the Oregon Iron and Steel Company, then owner of the land around the Lake, deeded to LOC the land, three dam structures, and all water rights. The original dam was constructed in 1871 and later upgraded in 1921. Oswego Lake is a private water body whose primary water right is hydropower generation. Secondary uses include irrigation, aesthetic viewing, contact recreation, fishing, and boating.

## Oswego Lake and Watershed Morphology

The original natural lake, called Waluga, was formed 10,000 years ago by the Missoula glacial floods which altered the old Tualatin River channel. Today, the Lake has three basins: West Bay, the Main Lake, and Lakewood Bay. There are also two shallow, man-made canals, Blue Heron Canal and Oswego Canal. Oswego Canal is the 2.4-km conduit from the Tualatin River (RM 6.7). Total lake surface area and volume is 1.63 km<sup>2</sup> (403 acres) and 12.7 x 10<sup>6</sup> m<sup>3</sup> (10,300 acre-feet). Shoreline length, including bays and canals, is 18.62 km (11.56 mi.). Oswego Lake has a 5.08-km (3.15-mi) fetch and a narrow 0.56-km width (0.34-mi). The hydraulic residence time is 390 days.

Oswego Lake's two watersheds include the natural, 7.5-mi<sup>2</sup> urban basin around the Lake (10:1 watershed to lake-area ratio) and the larger 700-mi<sup>2</sup> Tualatin River basin (1,000:1 ratio) when the LOC Headgate is opened. Major inflows from the watershed include Springbrook Creek, Lostdog Creek, Blue Heron Creek, and 70-plus storm drains from the City of Lake Oswego.

## LOC Water Rights and Contracts

**Hydropower Generation:** The primary hydropower water right is 57.5 cubic feet per second (cfs) obtained in 1906 that allows year around diversion. To guarantee this flow during the dry season, LOC owns and operates a diversion dam located downstream of the Oswego Canal (RM 3.4). Flaps are erected on an "as needed" basis. In 2008, no flaps were used.

**Irrigation:** A contract between LOC and the Bureau of Reclamation (Oct 20, 1972) provides for up to 500 ac-ft from Scoggins Reservoir for irrigation use during March through November. The largest irrigator on the Lake is the Lake Oswego Country Club (approximately 175 acre-feet).

**Maintenance/Evaporation:** LOC also has a maintenance/evaporation water right of 3.36 cfs dating from 1985. This water can be diverted between September 16th and July 30th.

## Oswego Lake Watershed Management

To provide long-term water quality solutions and to be proactive in preserving the quality of the Lake, watershed activities are a major part of the LOC management plan.

**Management in the Future:** LOC continues to monitor the Lake and watershed to better understand the ecosystem. Future plans are:

- Continue to implement the integrated aquatic plant management plan involving hand pulling, harvesting, and herbicides
- Continue educating watershed residents about water quality impacts
- Assess conditions in bays and canals and propose localized solutions
- Work with the City to improve surface water runoff to the Lake
- Maximize the water quality improvements with the 2-layer lake aeration system
- Continue to use alum (aluminum sulfate) as a phosphorus reduction tool.

## 2008 Oswego Lake Management Summary

Water quality improvements and safety are the top priorities for LOC. The goal for the annual LOC Water Quality Management Plan is to reduce cyanobacteria productivity and maximize the aesthetic value of the Lake by focusing on flow management, water quality treatment, and macrophyte issues.

**Water Quality:** In 2008 the Oswego Lake water quality monitoring program included six sites where water clarity, nutrient content, biological productivity, and chemical profiles were measured. Monitoring was conducted weekly from June through September and bi-weekly from October through May.

### 2008 OSWEGO LAKE WATER QUALITY SUMMARY AVERAGES

Location	Season	Chlorophyll-a (µg/L)	Total P (µg/L)	SRP (µg/L)	Total N (µg/L)	Secchi (m)	Turbidity (NTU)
Lakewood Bay	Annual	5.6	19	2	283	2.8	1.3
	Summer	<u>3.7</u>	<u>18</u>	2	<u>246</u>	2.9	1.4
Main Lake	Annual	10.1	27	7	403	3.3	2.1
	Summer	8.6	24	3	308	3.5	1.7
West Bay	Annual	5.7	45	13	1048	1.3	2.6
	Summer	4.9	28	2	519	1.3	1.4
Oswego Canal	Annual	11.5	140	59	3613	0.8	3.5
	Summer	<b>15.5</b>	<b>133</b>	<b>46</b>	<b>3536</b>	<u>0.8</u>	<b>3.4</b>
Blue Heron Canal	Annual	5.3	37	4	715	1.1	4.0
	Summer	5.0	30	2	554	1.2	2.13
Outlet	Annual	8.5	22	3	379	3.3	2.1
	Summer	5.4	19	<u>1</u>	289	<b>3.6</b>	<u>1.2</u>

**Bold** = highest average during the summer; Underline = lowest average during the summer

Summer=June-September

Abbreviations: Total P = Total Phosphorus, SRP = Soluble Reactive Phosphorus, Total N = Total Nitrogen, Secchi = Secchi depth, Turb = Turbidity; µg/L = micrograms per liter, m = meters, NTU = nephelometric turbidity units, C = Celsius

**Algae Control:** Although the summer was dominated by cyanobacteria this year, West Bay and Main Lake concentrations were reduced from previous years because of periodic surface alum applications and ongoing alum injection. Lakewood Bay will need increased attention in the future as cyanobacteria is becoming problematic in this section of the lake.

In 2008, LOC surface applied 24,000 gallons of liquid alum and injected an additional 16,000 gallons. Surface applications occurred in Lakewood Bay, West End, Main Lake, and the NE Arm. Alum injectors are installed in Lakewood Bay, Half Moon Bay, West Bay, Oswego Canal, and Blue Heron Canal. The alum program has been effective in reducing phosphorus and the resultant cyanobacteria growth, and it will continue as needed. Nutrient input from the watershed and Tualatin River will have to be dramatically reduced in order to greatly reduce the amount of active management required to control phosphorus.

**Macrophyte Control:** In 2008, herbicide applications were used only to control non-native aquatic weeds in Lakewood Bay, Half Moon Bay, Oswego Canal, Blue Heron Canal, West Bay, and the northern shoreline. A spring application of fluridone to Lakewood Bay helped reduce the amount of invasive *Potamogeton crispus* (curlyleaf pondweed) that dominates this area. Later applications of diquat to West Bay, both canals, and spots along the northern shore helped control *Egeria densa* (Brazilian elodea).

In addition to herbicides, macrophytes were controlled by an aquatic weed harvester and diver hand-pulling. Harvesting is most effective when large areas of vegetation have reached the surface. Harvesting clips the vegetation about five feet below the surface. Hand-pulling is an effective long-term control solution used for removing complete plants from root to stem. A barge is equipped with a four inch suction hose that draws in plants which are then macerated and emptied into a tote for removal.

**Tualatin River Flows:** Minimal Tualatin river flows were used to keep the lake full. River water contains high concentrations of phosphorus and sediment, making reduced river flow into Oswego Lake desirable.



## OREGON WATER RESOURCES DEPARTMENT BY DARRELL C. HEDIN, WATERMASTER, DISTRICT 18

### Introduction

The District 18 Watermaster's Office is a field office of the Oregon Water Resources Department (OWRD) in cooperation with Washington County, and is responsible for water supply management within the Tualatin, Lake Oswego, and Lower Willamette Drainage Basins. The Office is part of the Field Services Division of OWRD and functions as a local contact for landowners, elected officials, and watershed councils, as well as other governmental agencies at the local, state and federal level. Duties include conducting streamflow measurements and maintaining gaging stations, performing well inspections, and collecting groundwater level data. Information is also provided to landowners and others on water rights and Oregon Water Law. The Watermaster is also responsible for regulating water use during times of shortage.

### District 18 Watermaster Regulatory Function

**Oregon Water Law:** Under Oregon law, all water is publicly owned. With some exceptions, cities, farmers, factory owners, and other water users must obtain a permit or water right from the OWRD to use water from any source, whether it is underground or from lakes or streams. Generally speaking, landowners with water flowing past, through, or under their property do not automatically have the right to use that water without a permit. Oregon's water laws are based on the principle of prior appropriation. This means the first person to obtain a water right on a stream is the last to be shut off in times of low streamflows. In water-short times, the water right holder with the oldest date of priority can demand the water specified in their water right regardless of the needs of junior users.

**Tualatin Basin:** The mainstem Tualatin River and all tributary streams above river mile 44.7 have a high number of recorded regulations annually due to over appropriation. These streams have seasonal regulation that is largely triggered when streamflow, monitored via the existing gaging network, drops below a threshold or when a complaint is received.

Within the Tualatin River Basin, 16 water availability basins have been identified as having zero expected flow. The availability of storage water for irrigation of 17,000 acres for TVID members greatly decreases the burden on natural flow in the basin.

**Watermaster Information Management System:** The Watermaster's office, with assistance from Washington County and consultants Geo-Spatial Solutions, Inc., recently implemented a Watermaster Information Management System (WIMS). The WIMS facilitates faster and more efficient water rights regulation process by using state of the art technology to assist the Watermaster in regulating any stream segment. The system is GIS-based and gives the user the ability to search for a taxlot, name, or water right permit and view the associated information. The system is linked to the Washington County assessors office so changes made to a property, water rights and/or ownership are automatically updated.

## Regulatory Summary 2008

- Wet weather conditions provided for higher streamflows throughout May and early June.
- Water right regulation began in mid to late June which is fairly normal for the upper Tualatin River.
- Because summer natural flows remained at above-normal levels, additional regulation in August or September was not required in 2008.
- Adequate levels returned at the end of October, which is earlier than normal, and restored natural flow supplies for municipal users.

### 2008 WATER RIGHTS REGULATION SUMMARY

Date	On/Off	Regulatory Activity	Mile	Priority Date
6/18/2008	Off	City of Beaverton (P-45455, 7/15/1980) – Tualatin River City of Forest Grove (P-40615, 4/28/1976) – Tualatin River City of Hillsboro (P-46423,2/6/1974) – Tualatin River City of Hillsboro (P-50879, 6/9/1988) – Scoggins Creek	>56.09	2/5/1974
6/19/2008	Off	Tualatin River & tributaries above Spring Hill Pump Plant Tualatin River — 11, 2/20/1963 Gales Creek — 62, 9/24/1963 Carpenter Creek — 4, 7/10/1967 Scoggins Creek — 3, 7/28/1975	> 56.09	2/19/1963
6/25/2008	Off	TVID (P-35792, 2/20/1963) – Scoggins Creek	n/a	n/a
8/8/2008	Off	McKay Creek and tributaries above Northrup Road	=44.73 =2.26 >15.5	Between 5/25/1966 and 10/8/1976
8/15/2008	Off	City of Hillsboro (P-2443, 5/1/1915) – Sain Creek City of Hillsboro (P-1136, 1/22/1912) – Sain Creek	n/a	1/21/1912
10/7/2008	On	City of Hillsboro (P-2443, 5/1/1915) – Sain Creek City of Hillsboro (P-1136, 1/22/1912) – Sain Creek (for a total of 5 cfs)	n/a	
10/7/2008	On	TVID (P-35792) – Scoggins Creek TVID (P-5777) – Scoggins Creek	n/a	n/a
10/31/2008	On	City of Beaverton (P-45455, 7/15/1980) – Tualatin River City of Forest Grove (P-40615, 4/28/1976) – Tualatin River City of Hillsboro (P-46423,2/6/1974) – Tualatin River City of Hillsboro (P-50879, 6/9/1988) – Scoggins Creek	>56.09	n/a

## Watermaster, District 18 Stream Gaging Summary 2008

### WATERMASTER DISTRICT 18 GAGING STATIONS FOR 2008

Station Number	Stream	Stream Mile	Latitude	Longitude	Type
14206200	Dairy Creek at Hwy 8 near Hillsboro, OR	2.06	45°30'38"N	123°06'56"W	*Logger
14205480	E. Fk. Dairy Creek at Dairy Creek Rd near Mountaindale, OR	12.33	45°40'32"N	123°03'54"W	Staff
14205000	W. Fk. Dairy Creek @ Banks, OR	7.7	45°37'26"N	123°06'59"W	Staff
14205160	W. Fk. Dairy Creek @ Evers Rd near Roy, OR	1.96	45°34'34"N	123°05'34"W	Staff
14204530	Gales Creek @ Old Hwy 47 near Forest Grove, OR	2.36	45°30'39"N	123°06'56"W	*Logger
14204540	Gales Creek @ Clapshaw Hill Rd near Gales Creek, OR	12.36	45°35'39"N	123°12'38"W	Staff
14207000	Oswego Canal near Lake Oswego, OR	6.7	45°23'18"N	122°43'10"W	Logger
14202920	Sain Creek above Hagg Lake near Gaston, OR	1.6	45°28'50"N	123°14'40"W	Logger
14202850	Scoggins Creek above Hagg Lake near Gaston, OR	8.0	45°30'06"N	123°15'06"W	*Logger
14202980	Scoggins Creek below Hagg Lake near Gaston, OR	4.8	45°28'10"N	123°11'56"W	Logger
14202860	Tanner Creek above Hagg Lake near Gaston, OR	1.6	45°30'21"N	123°13'10"W	Staff
14206500	Tualatin River @ Farmington, OR	33.3	45°26'58"N	122°57'02"W	*Logger
14202510	Tualatin River @ Gaston, OR	62.3	45°26'21"N	123°07'85"W	*Logger
14204800	Tualatin River @ Golf Course Rd near Cornelius, OR	51.5	45°30'08"N	123°03'22"W	*Logger
14202450	Tualatin River below Lee Falls near Cherry Grove, OR	70.7	45°30'21"N	123°13'06"W	*Logger
14206295	Tualatin River @ Rood Bridge Rd near Hillsboro, OR	38.4	45°29'24"N	122°57'06"W	*Logger
14206956	Tualatin River @ Tualatin (station number formerly 14206960)	8.9	45°23'14"N	122°45'46"W	*Logger
WAPO	Wapato Canal near Gaston, OR (from Tualatin R)	61.9	45°26'29"N	123°07'17"W	Staff

\*Telemetry

### Stream gaging changes in 2008

Starting July 1 the number of OWRD flow monitoring sites contracted for Clean Water Services was reduced. This change allows the Watermaster Department to focus its efforts on those areas that provide the streamflow information needed for water right regulation and distribution purposes. The discontinued sites include gages at or near the mouths of Rock and Fanno Creeks. These gages are not necessary for regulatory purposes or to determine the live and storage component of streamflow. Clean Water Services has contracted with a consulting firm to continue flow monitoring for water quality purposes at many of the discontinued sites, including the sites on Rock and Fanno Creeks.

### Streams not requiring continuous monitoring

The Instream Water Rights (ISWR) associated with some tributary streams (McKay @ Northrup, E. Fk. Dairy Cr @ Dairy Cr Rd, and W. Fk. Dairy Cr @ Banks) are senior enough to cause regulatory activity. These streams are monitored through routine reading of staff gages coupled with manual measurement and rating curves. Official recording stream gages currently are not needed for monitoring these ISWR. Instream flow requirements associated with transfers and/or leases of irrigation rights to instream uses are generally small compared to typical flows and are handled on a case by case basis.

# TUALATIN VALLEY IRRIGATION DISTRICT

BY WALLY OTTO, RESERVOIR SUPERINTENDENT

## Tualatin Valley Irrigation District Overview

The Tualatin Valley Irrigation District (TVID), located in Forest Grove, Oregon, is the agricultural water service agency in the Tualatin Basin. In the early twentieth century, relatively little agricultural land was irrigated in Washington County: about 15 acres in 1915 and about 130 acres in 1933. By 1951, however, 18,455 acres had water rights registered in the county. When the TVID was formed in 1962, the total had grown to 33,885 acres. TVID was formed to assist in the delivery of irrigation water to about half of those acres (17,000) in the Tualatin Basin. The water was supplied from natural flow and return flows, and was extremely limited due to early summer withdrawals from the Tualatin River and increasing demands for water for irrigation and municipal use and for maintaining instream water quality and fish. The only storage at this time was Barney Reservoir which stored 4000 acre feet for municipal use. Beginning in 1975, additional stored water became available behind the newly completed Bureau of Reclamation Project, Scoggins Dam. Approximately half of the water stored in Scoggins Reservoir (Henry Hagg Lake) is allocated to TVID.

Most of the water supplied by TVID is pumped from the Tualatin River at the Spring Hill Pump Plant and delivered to TVID patrons via approximately 120 miles of pressurized pipeline. Additionally, water in both Scoggins Creek and the Tualatin River is withdrawn by irrigators with land abutting the river. When natural flow no longer meets demand, the District 18 Watermaster begins regulating water users with “junior” (or more recent) water rights off, starting with users with the most recent water right. The TVID storage right is dated 1963, so TVID patrons with water rights after that date must stop withdrawing natural and return flow water. Storage water is discharged from Scoggins Reservoir to either augment the river flow or supply the entire need for the TVID patrons, both the pump plant/pressure pipeline users and the river users. Water for some of the TVID members on the lower Tualatin River is supplied by reuse water discharged from Clean Water Services’ Rock Creek Wastewater Treatment Plant.

## 2008 TVID Water Use

During 2008, TVID used 18,203 acre-feet of water from storage in Henry Hagg Lake or 110% of the average over the past 20 years. Compared to the 10 year average, usage was 106%, ranking the 2008 usage as reasonably close to normal. In 2008, a total of 16,250.5 acres received water from the TVID. The following table shows how TVID water was distributed among various crops by intensity of water use.

**WATER YEAR 2008 CROP SUMMARY**

<b>Crop</b>	<b>Water Use</b>	<b>Irrigated Acres</b>
Berries, Nursery, Flowers	<i>High</i>	6,574.6
Corn, Turf, Yard, Garden, Vegetables (non-corn)	<i>Medium</i>	2,976.8
Grain, Grass, Pasture, Trees, Nuts, Willow, Grapes	<i>Low</i>	6,501.0
miscellaneous unknown crops	<i>Unknown</i>	98.1
<b>Total</b>		16,250.5

Peak use for delivery in 2008 was 121 cfs on July 17th. The temperature had been in the 90's for seven of the nine previous days. Only 0.02" of precipitation fell during this time period. Sixty eight days went by starting in mid-June and ending in mid-August with a total of only 0.10" of precipitation.

The typical irrigation season is from May through September; TVID, however, has an extended season. Through an agreement with OWRD, TVID is allowed to provide water beginning in March and continuing through November. The water must come from TVID's annual allocation of 27,022 acre-feet. In 2008, 177 acre-feet were delivered in the March–April period; 1,480 acre-feet were delivered in October–November. Water demand by TVID users during both the early and late extended season was lower than average due to rainfall that occurred at regular intervals with dry periods in-between. The extended irrigation season has facilitated growing specialty crops, such as berries, nursery stock and flowers.

## 2008 TVID Operation and Maintenance

The TVID Manager reports that 2008 was a relatively quiet year compared to others.

**Pipeline Maintenance:** TVID delivers irrigation water by high pressure pipeline to customers from Gaston to North Plains and from west of Forest Grove to Highway 219 south of Hillsboro. The water withdrawn at the Spring Hill Pump Plant is lifted by pumps to a water regulating tank on Blooming Fern Hill and is then under gravity pressure to all points of delivery. Preventative maintenance continues to keep service delivery as dependable as possible. Pipeline breaks and pump plant shutdowns still occur, but much less frequently than in the past. TVID personnel are “on call” to respond when something in the system fails and repairs are made ranging from minutes to a day depending on severity and conditions.

**McKay Creek Project:** TVID continued to deliver 1 cfs of water to each of two locations on McKay Creek for a pilot project of Clean Water Services (July 1 through October 23). The resulting increased flow in the creek caused lower water temperatures and improved water quality. Expansion of this program to Gales Creek and to the West and East Forks of Dairy Creek is currently being explored.

**Wapato Levee Failure:** The single biggest news for 2008 was the Wapato Dike failure during the flood event in December of 2007. During the irrigation season, TVID normally delivers river water both to users with land on the inside of the dike and to others with land on the outside. Water delivery was prohibited in 2008 due to damage that occurred to both the dike and the canal. The effect of the Wapato Levee failure on Tualatin River water quality is discussed on page 28.

**Road Improvements:** Cornelius-Schefflin Road was closed for several weeks in the fall of 2008 to allow relocation of the casing for TVID’s delivery mainlines that crossed the new road or were near the new construction. Although the Council Creek Bridge is scheduled to be replaced in 2009 as part of the Cornelius-Schefflin Road Improvement Project, TVID’s line stops a few hundred yards before the site.

## Scoggins Dam

**Water Use:** Scoggins Dam completed 34 years of storing and releasing water as of 2008. A total of 41,592 acre-feet were delivered in 2008 bringing the 34 total years of delivery from the Project to more than 1,050,000 acre-feet. The spring and summer were generally dry. Oregon Water Resources Department regulated the TVID from natural flow completely to storage on June 25<sup>th</sup> where they remained until October 7<sup>th</sup>, which is considered a normal water use season.

2008 WATER DELIVERIES FROM SCOGGINS RESERVOIR	
Delivered to	Volume (ac-ft)
Tualatin Valley Irrigation District	18,203
Clean Water Services	11,893
City of Beaverton	3,455
City of Forest Grove	2,432
City of Hillsboro	4,277
Lake Oswego Corporation	500
Other (includes several golf courses)	833
<b>Total</b>	<b>41,592</b>

**Recreation:** In 2008, there were 673,954 user-days recorded at Scoggins Valley Park/Henry Hagg Lake. The park and lake opened on March 1<sup>st</sup> and closed November 23<sup>rd</sup>. In addition to the usual recreational uses, numerous races were held throughout the year including triathlons.

**Tours:** Four hundred and fifty school children along with their teachers and chaperones toured the Project in 2008. Each individual learned the purposes of Scoggins Dam/Henry Hagg Lake and its benefits to the Basin including irrigation, municipal and industrial use, water quality improvement, flood control, and recreation. These tours followed the release of fish fry which each classroom had reared through the incubation process. Other groups included stakeholders, politicians and various consultant groups.

**Dam Safety:** At Scoggins Dam, earthquake activity, weather including temperature and precipitation, river stage levels and the water surface elevation are reported and recorded electronically. Many of these electronic reporting stations have alarms to alert operators if sudden and or unusual conditions develop including earthquakes and flooding. Operation and maintenance of the dam is managed under contract between the TVID and BOR. While operators are not on site 24/7, the Project is monitored 24/7, both by BOR and TVID personnel.

A Site Security Plan specific to Scoggins Dam, adopted in October 2005, is used to maintain a level of security on the Project for the protection of life and supply of water. The Plan documents existing security systems, procedures, security responses and responsibilities and is used in conjunction with other documents relating to the safe operation of the Project. Site security is taken very seriously at Scoggins Dam.

The Department of Homeland Security (DHS) uses a five level alert system as shown in the table at the right. BOR's Advisory System and Response Measures require the Project to follow the DHS alert levels. The alert level remained at yellow for all of 2008.

Green alert	Low risk of terrorist attacks
Blue alert	General risk of terrorist attacks
Yellow alert	Significant risk of terrorist attacks
Orange alert	High risk of terrorist attacks
Red alert	Severe risk of terrorist attacks

**Dam Raise:** Since 2001, water resource agencies in the Tualatin Basin have sought a sustainable source of water that would supply the region's homes, farms, businesses, and environment for the next 50 years. The Tualatin Basin Water Supply Project Partners include Clean Water Services, the Cities of Hillsboro and Beaverton, and the Tualatin Valley Water District. The Partners are pursuing raising the height of Scoggins Dam to increase water storage in Hagg Lake. More than 7 years of analysis have provided a wealth of technical information about raising Scoggins Dam. TVID has not joined other water users in pursuing a greater supply because it is limited to serving 17,000 acres and has enough water to serve its patrons in all but possibly a severe drought. TVID's active participation in the ongoing proceedings, however, is critical to protect its interest of over 50% of the current stored water supply.

The Partners have been studying title transfer of Scoggins Dam and related facilities from federal ownership to local ownership. Originally, a full transfer was proposed, which would include not just Scoggins Dam, but the entire TVID water delivery system, pumping plants and office, as well. Under a full transfer, all partners in the existing Project must be made "whole" meaning that each partner would retain all benefits of the existing Project. Therefore, the cost of electrical power for TVID water delivery would have to be paid ("made whole") each year by the Partners in the new project. Currently, TVID receives Federally-subsidized power at a cost of \$80,000. At current retail rates, this power would cost \$400,000. The new proposal is a "partial title transfer" which would include only Scoggins Dam and the Spring Hill Pump Plant. By going with the partial transfer, the Partners would own the dam without having to pay the retail power rate for TVID's electrical use. Currently, the transfer and dam raise are proceeding forward but much has to be done before it can actually happen including "de-authorization" by Congress.

## 2008 Events at Scoggins Dam

**Major wind, and rain event in December of 2007.** Between December 2 and 5, 2007, 6.71" of rain fell and was accompanied by high winds. Although inflow to the reservoir exceeded 3000 cfs, there was ample room to store water because the reservoir was well below the flood control fill curve. High winds knocked out power to Scoggins Dam so the stand-by generator was used for several days. The inflow streamflows rose and then dropped extremely fast, leaving a large debris field floating in the reservoir. The debris, ranging from huge logs to small limbs, was left in the lake for later removal since it was early in the flood season and the amount was so large. By December 15<sup>th</sup>, the reservoir was almost 10,000 acre-feet above the fill curve. The Dilley gage on the Tualatin River went to 17.25' on December 16<sup>th</sup> before it began dropping. On January 18<sup>th</sup>, spillway releases began as the river level at Dilley began to drop below flood stage. Releases continued until January 31<sup>st</sup> when the water surface elevation finally returned back down to the flood control fill curve. The watershed snow water equivalent rose to 614% of average, so flood control operations continued until the middle of February.

**Debris removal from the lake and face of dam.**



Debris is pushed from dam face into V-trap (top), delivered to shore and then removed (bottom).

The debris removal project in 2008 was a major additional operation for the TVID and occurred in the middle of February. Other cooperators in this removal project included BOR, Washington County Land Use & Transportation, Washington County Parks, Mike Pihl Logging, Washington County Sheriff (8 inmates and one deputy), Coast Guard Auxiliary, and Scott Land and Timber. There were 22 people involved in the removal project at one point. At the center of the operation was an 11,000 lb. boom boat with special designed V-trap attached to one side. Inmates pushed debris and flotsam from the face of the dam so it could be collected. It then was delivered to different shoreline access points where a log shovel picked out all the material and loaded it into waiting dump trucks. In all, 130 loads were removed. The majority of the wood debris was later cut and chopped by inmates on a work release program and made available to the Washington County Woodcutters Association for distribution to needy families. The priority cleanup area was on the dam and in the Reclamation Zone. When that was completed, the operation shifted to shoreline areas where there were heavy deposits of debris. The Tanner Creek arm was hard to access and loaded with more logs and flotsam. It was left in place and then pushed onshore with a backhoe in October while the water level was low and the shoreline was dry.

**Record breaking snow and ice event in December 2008.**

*Christmas 2008 is by far the snowiest in Portland history. Falling snow was reported at the Portland Airport today for the 11th consecutive calendar day. The 18.9 inches of snow that have fallen so far this month at the NWS office ranks this as the snowiest December since records began at the nearby airport in 1940. Additionally...this month now ranks as the second snowiest month on record, only beaten by the remarkable 41.0" that fell in January 1950. (from National Weather Service, December 25, 2008)*

**SNOW DATA PERIOD OF RECORD  
Portland Airport National Weather Service Office — 1940–present**

Snowiest Decembers			Snowiest Months (any month)		
Rank	Year	Amount	Rank	Month Year	Amount
1	2008	18.9 inches	1	January 1950	41.0 inches
2	1968	15.7 inches	2	December 2008	18.9 inches
3	1964	11.0 inches	3	January 1969	18.3 inches

The snow was over 5 feet deep on Saddle Mountain in the Coast Range and in the upper watershed of Scoggins Dam/Henry Hagg Lake. The snow water content approached 2 feet. At lower elevations, the snow was about 2 feet deep with 6 inches of water content. The entire event began about the 15<sup>th</sup> of December with temperatures reaching down to the mid-teens. Warmer temperatures began the last several days of the year and by January 2, 2009, 6.13" of rain had fallen in seven days. Peak inflow was over 2000 cfs. The pool elevation rose over 25 feet, but there was ample room to store and the maximum discharge was about 750 cfs.

**Scoggins Dam Seismic Study:** According to the Bureau of Reclamation, Scoggins Dam could be impacted by a subduction earthquake. The Cascadia Region Earthquake Workgroup (CREW) in 2005 identified our region as having the potential for a magnitude (M) 8-9 earthquake. The following information is taken from “Cascadia Subduction Zone Earthquakes: A magnitude 9.0 Earthquake Scenario”, 2005 (<http://crew.org>):

*From the Brooks Peninsula on Vancouver Island to Cape Mendocino, the Cascadia subduction zone is where the Juan de Fuca plate meets the North American plate. This meeting has created an 800 mile long earthquake fault called the Cascadia Subduction Zone. Earthquakes generated here have far more widespread effects than other types of quakes in the region.*

*When a M8-9 subduction earthquake occurs, it will cause many fatalities and much damage unless we prepare for it. These quakes have occurred anywhere from 200 to 1000 years apart, with an average of 500 years between them. Our last one was on January 26, 1700. Ground shaking, landslides, liquefaction, tsunamis, fires, hazardous material spills, and building damage are some of the hazards we face from a Cascadia subduction zone earthquake. The ground could shake for four minutes, even more in some places. This will create unprecedented damage and potentially thousands of casualties.*

In the 2004 Comprehensive Facility Review of Scoggins Dam, BOR raised the issue of the risk of seismic activity on the Dam. In the spring of 2008, the US Geological Survey published updated earthquake hazard maps for the region. BOR officials stress that Scoggins Dam is well-built and safe under normal operating conditions. When completed in 1975, Scoggins Dam was designed and constructed to then-current earthquake standards. The improved understanding of local seismic hazards, however, will affect decisions regarding a potential dam raise and prompted BOR with the Tualatin Basin Water Supply Project Partners to conduct a seismic investigation of Scoggins Dam in 2008.

Drill rigs were mobilized at the dam in July. The spillway floor and walls were cored and cone penetrometer testing was performed on and below the toe of the dam. Work was supervised by BOR's Regional Geologist and the Bend Area Field Office geologist with additional help from BOR's Montana office. Field explorations were completed in early November. Kleinfelder, consultant for the Partners, mobilized an additional drill rig in mid-November, and due to the heavy snow and ice, were on site until January 2009. They drilled additional test holes in fields and on the abutments but not on the dam itself. They also performed additional geophysical testing on the toe of the dam.

The results of the testing are being evaluated in Denver at the Technical Service Center. BOR shared their data with Kleinfelder for their analysis as well. The final report should be released during the Spring of 2009.

The Seismic Study created a lot of activity on and around Scoggins Dam in 2008. Fortunately, it began just after the peak park attendance occurred so there was minimal inconvenience to park users. Good press releases helped keep the public, and especially the neighbors, informed. Huge drill rigs on the dam generated much curiosity, but all were satisfied when the work was explained.



Drill rigs at Scoggins Dam, summer 2008

# WATER QUALITY EFFECTS OF WAPATO LAKE DRAINAGE IN 2008

BY BERNIE BONN AND JAN MILLER, CLEAN WATER SERVICES

IN CONSULTATION WITH STEWART ROUNDS, U.S. GEOLOGICAL SURVEY

The former Wapato Lake bed southeast of Gaston, Oregon, normally is drained during spring so that it can be farmed during the summer. The Wapato Lake area (page 29) has been leveed and drained since the 1930s by the Wapato Improvement District to support local agricultural activities. A levee protects the former lake bed from severe flooding during the winter, thus allowing easier drainage in the spring. The water pumped out of Wapato Lake in springtime typically has a minimal downstream water-quality effect as a result of high river flow and ample dilution. Some increased difficulties in treating municipal drinking water at the Joint Water Commission's plant downstream, however, have been reported to coincide with these springtime discharges from Wapato Lake

## A Levee Breach

On December 2-3, 2007, more than 6 inches of total rainfall were recorded at several weather stations across the Tualatin River basin. By December 3<sup>rd</sup>, the Tualatin River at Gaston and at Dilley was cresting at near-flood levels. The peak streamflow recorded at the USGS gage at Dilley (site 14203500) was just under 10,000 cfs, almost identical to the peak streamflow recorded during the large flood of February 1996. During these high-water conditions, a small section of the levee on the west side of Wapato Lake failed (page 29), causing flood water to inundate the lake bed to a depth of approximately 8 feet, although no reliable measurements were taken.

Without first repairing or temporarily patching the levee, Wapato Improvement District personnel could not pump flood waters out of the lake. Any water pumped out would simply re-enter the lake through the levee breach. The levee, however, could not be patched because flood water prevented access. Consequently, the lake could not be drained in the springtime, and water remained ponded in the Wapato Lake bed until early summer when river levels finally receded below the levee breach. Once the levee was patched, pumps were turned on to transfer the ponded water into Wapato Creek, which discharges to the Tualatin River just upstream of the mouth of Scoggins Creek. While ponded on the peat soils of the lake bed, however, the water had a chance to warm up, pick up nutrients, and grow a substantial population of algae and zooplankton. The water-quality effects of this discharge were not discovered until weeks later.

## Downstream Water-Quality Problems

**Algae:** On July 7, 2008, a sampling crew from Clean Water Services noticed unusual algal conditions and what might have been floating algal mats at RM 16.2 (Elsner). On July 9, 2008, U.S. Geological Survey (USGS) and Tualatin Riverkeeper (TRK) personnel independently discovered floating mats of blue-green algae in the lower Tualatin River at Tualatin's Jurgens Park (RM 10.8) and Tigard's Cook Park (RM 9.9). Floating mats of nuisance algae had not occurred in the Tualatin River since the early 1970s.



Photograph of water samples from Jurgens Park (left) and Cook Park (right) from July 9, 2008, showing the high concentrations of algae. The sample from Jurgens Park appears more concentrated partly because it was sampled directly from a floating algal mat.

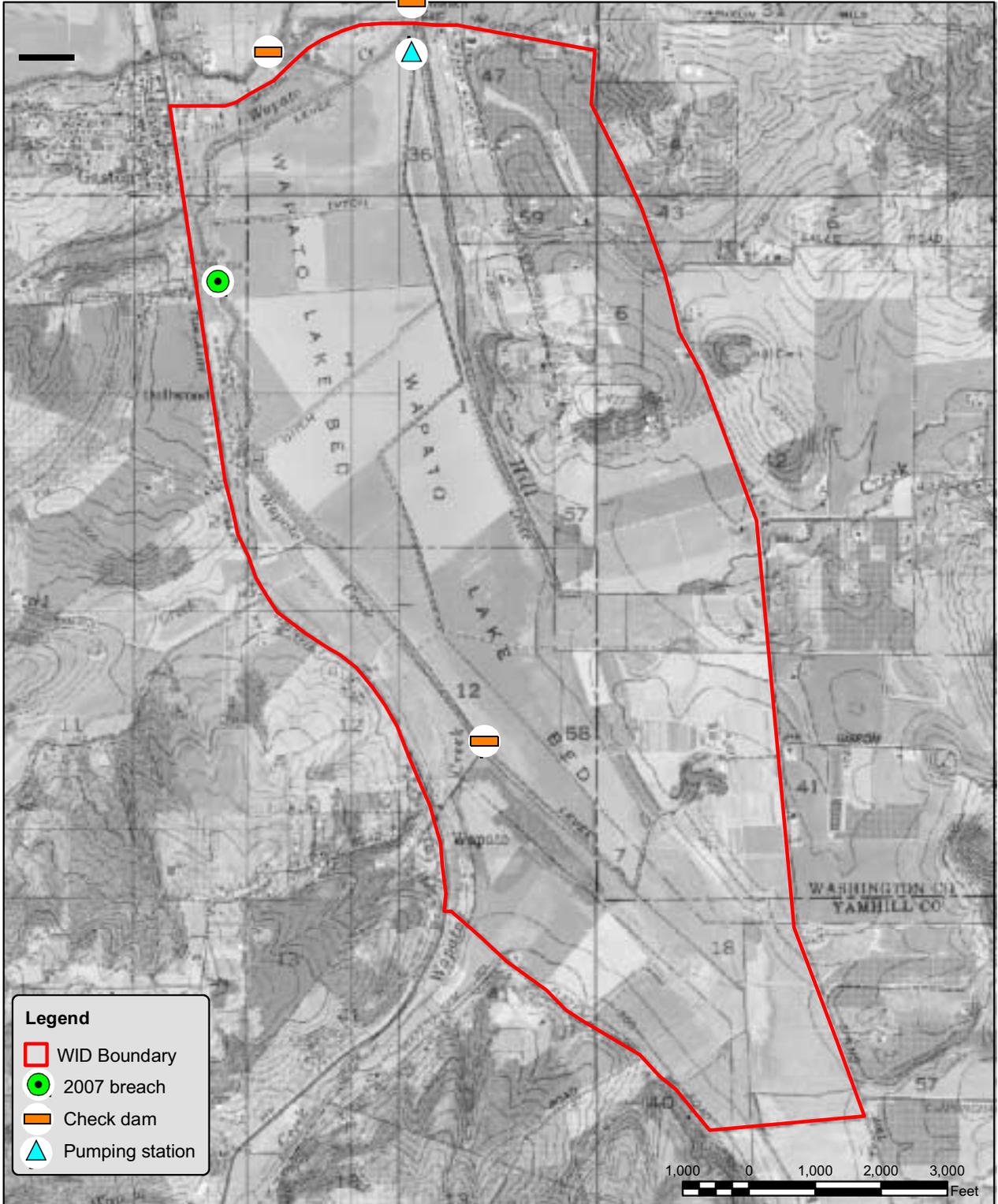
Microscopic examination of water samples by USGS revealed the mats to be composed primarily of *anaebaena flos aquae*, a blue-green algae (or cyanobacteria) that is capable of producing toxins and therefore can be a public health hazard. Water samples were sent to a laboratory (Aquatic Analysts) for cell counts, and USGS staff tested samples for microcystins, a class of toxin that can be produced by *anaebaena*.



T1N, R3W, S19  
Forest Grove Quad

### Wapato Lake Improvement District Site Plan Map

Map from Dean P. Moberg  
USDA-NRCS



Map of Wapato Lake showing location of levee breach.

Results showed microcystin concentrations of 2.4, 0.19, and 0.14 µg/L for samples collected from three locations on July 9<sup>th</sup>. The World Health Organization's drinking water standard for microcystins is 1 µg/L, and Oregon's recreational health-hazard guideline concentration is 8 µg/L. Results of cell counts revealed *anabaena* concentrations at less than 30,000 cells/mL; Oregon's public health action level is 100,000 cells/mL. Despite most measurements being below guideline or action levels, the presence of floating mats of a potentially toxin-producing blue-green algae was sufficient for the Public Health Division of the Oregon Department of Human Services to issue a public health advisory on July 12<sup>th</sup> for the Tualatin River from Jurgens Park (RM 10.8) to the river's mouth. Clean Water Services increased their releases of water from Hagg Lake to help mitigate the problem and speed the river's recovery. The health advisory was lifted about two weeks later, on July 25<sup>th</sup>, after further sampling showed that the *anabaena* bloom had diminished.

**Geosmin:** At the same time that nuisance algae were present in the lower Tualatin River, the Joint Water Commission (JWC) was having unusual problems at its drinking water treatment plant near Forest Grove. Although JWC has rights to water in Scoggins and Barney Reservoirs, that water is delivered to the JWC plant via the Tualatin River. The withdrawal point near Forest Grove is downstream of Wapato Creek. During June and July of 2008, water withdrawn by JWC from the Tualatin River was more turbid than usual, and water users complained about taste and odor in the finished water. Tests on the river water by JWC staff showed unusually high levels of total organic carbon and of geosmin, a substance produced by blue-green algae that often accounts for an “earthy” taste and odor in water. In response, JWC modified its treatment processes, including the use of powdered activated carbon to help remove the higher load of organic materials, and initiated an investigation to determine the source of the water-quality problems. JWC also increased their releases from Barney Reservoir and Hagg Lake to help dilute geosmin and related substances. More information about JWC’s taste and odor event are on page 17.

**Other water quality measurements:** Routine water-quality monitoring by Clean Water Services includes weekly sample collection from many sites along the Tualatin River as well as samples from many of its tributaries. Samples collected in late June and throughout July showed anomalously high concentrations of chlorophyll, turbidity, suspended solids, particulate and dissolved phosphorus, and chemical oxygen demand in the upper reaches of the Tualatin River, but downstream of Cherry Grove. These concentrations were much higher than those that were measured in previous years.

#### Tracking the Problems to Their Source

Clean Water Services data from June and July of 2008 indicated that a source rich in particulate material, phosphorus, algae, and organic matter was discharging to the Tualatin River upstream of their sampling location at Dille (Spring Hill Road, USGS RM 58.8) but downstream of Cherry Grove (South Road, USGS RM 67.8). Samples from Scoggins Creek, the largest tributary in that reach, showed that it (and Hagg Lake) was not the source of the problem.

JWC expanded its monitoring program during June and July of 2008 in an attempt to identify the source of the high organic matter concentrations in the Tualatin River. Samples and field readings taken from multiple locations in the upper Tualatin River basin identified the pump discharge from Wapato Lake as the potential source of organic carbon and geosmin to the Tualatin River.

Water samples were collected by USGS on July 19, 2008, just downstream of the Wapato Improvement District's pump house at Gaston Road and analyzed for a variety of constituents. The water was turbid and had a low dissolved oxygen concentration (3.0 mg/L). Samples were sent to the Clean Water Services laboratory for chemical analyses and to other laboratories for species identification and enumeration of algae and zooplankton. Results showed high concentrations of oxygen demand (BOD5, 25 mg/L), organic nitrogen (6.6 mg/L), suspended solids (74 mg/L), chlorophyll (>300 µg/L), total phosphorus (2.5 mg/L), and phosphate (0.47 mg/L as P). Concentrations of algae and zooplankton in the pump discharge water also were very high, compared to concentrations that typically occur in the Tualatin River.

### Putting the Pieces Together

USGS staff analyzed the results of the chemical tests to determine whether the Wapato Lake pump discharge could account for the anomalously high concentrations measured in the Tualatin River downstream. Using an estimated discharge rate based on the pumps' rated capacity (13,000 gal/min) and measured streamflows in Scoggins Creek (site 14202980) and the Tualatin River at Gaston (site 14202510), the downstream measured concentrations at Dilley were compared to estimated concentrations based on a mass balance of upstream sources. Results showed that the Wapato Lake source was sufficient to account for the elevated downstream concentrations of phosphorus, suspended solids, and oxygen demand in the Tualatin River.

In addition to the chemical data, results from algae samples collected from various sites in the upper Tualatin River basin showed that elevated algae concentrations at the JWC intake in July 2008 were largely coming from Wapato Lake. The available chemical and biological data from Clean Water Services, JWC, and USGS suggest that Wapato Lake pump discharge waters were responsible for the June and July 2008 water-quality problems at the JWC treatment plant as well as the anomalously high phosphorus, algae, and particulate concentrations in the Tualatin River at and downstream of Dilley (USGS RM 58.8).

A further analysis of streamflow and continuous monitor data was undertaken by USGS to determine whether the nuisance *anabaena* bloom that occurred in the lower Tualatin River in July 2008 could have been caused by discharges from Wapato Lake. Elevated dissolved oxygen measurements at three USGS continuous water-quality monitors at RMs 24.5 (downstream of Scholls), 9.9 (Cook Park), and 3.4 (Oswego Dam) were well correlated with the presence of large algae populations, and those data clearly showed the movement of a mass of algae from one site to the next in early July. The *anabaena* bloom, therefore, did not originate in the lower Tualatin River but was transported from an upstream source. Algae and zooplankton samples from RM 24.5 were also present at unusually high concentrations, illustrating that an upstream source must have been present.

The USGS analysis of streamflow data in the upper Tualatin River basin suggest that the greatest discharges from Wapato Lake might have occurred between June 30 and July 30, 2008. That timing is entirely consistent with known travel times from the Forest Grove area to the lower Tualatin River and the elevated dissolved oxygen concentrations that were measured at RM 24.5. That timing also is consistent with the available algae and zooplankton data in the lower Tualatin River. Those data suggest that a large bloom of *anabaena* had grown in Wapato Lake and was discharged along with a large population of zooplankton on or about June 30<sup>th</sup>. Many blue-green algae such as *anabaena* are resistant to grazing by zooplankton, and the zooplankton likely fed on other diatom and green algae, thus reducing the population of those algae and further favoring the presence of blue-greens. Data are not available to prove that the nuisance *anabaena* bloom came from Wapato Lake, but the available streamflow, chemical, and biological data all are consistent with that hypothesis. A USGS report is being drafted that will document the available data and explore the upstream/downstream connections associated with the Tualatin River's water-quality problems during the summer of 2008.

Clean Water Services, JWC, USGS, and other agencies are working to collaborate on future monitoring plans in the upper Tualatin River basin.

# WATER QUALITY STATUS REPORT

BY JAN MILLER, CLEAN WATER SERVICES

## Tualatin Basin TMDLs

The current Tualatin Total Maximum Daily Load (TMDL) became effective in August 2001. The Department of Environmental Quality revised the 1988 TMDLs for total phosphorus (for excessive algal growth and high pH) and for ammonia (for low dissolved oxygen in the mainstem river) and added TMDLs for temperature, bacteria, and settleable volatile solids which uses total suspended solids as a surrogate (for low dissolved oxygen in the tributaries). The Department of Environmental Quality issued Clean Water Services an NPDES Watershed-Based Waste Discharge Permit in February 2004. The following evaluation of river and tributary conditions and wastewater treatment plant effluent is for general information and not for determining compliance. In many instances, the statistics and reporting periods shown in this review are different than those used to judge compliance with the permits or to compare the river conditions to the TMDLs.

## Total Phosphorus TMDL

The 2001 Tualatin TMDL set river and tributary loading capacities in mg/L. The following table shows the loading capacities and the data for the key sites both historically (1990, 1995, and 2000) and in recent years (2005 to 2008).

**MEDIAN TOTAL PHOSPHORUS CONCENTRATIONS FOR SUMMER SEASON (MAY 1–OCT 31)**

Location Code	Location	River Mile	2001 TMDL Loading Capacity (mg/L as P)	Total Phosphorus (mg/L as P)						
				1990	1995	2000	2005	2006	2007	2008
<b><i>Tualatin River</i></b>										
3701715	Cherry Grove	71.5	0.04	—	0.01	0.01	0.01	0.01	0.01	0.01
3701612	Spring Hill	61.2	0.04	0.04	0.03	0.03	0.01	0.01	0.01	0.03
3701528	Golf Course Road	52.8	0.04	0.05	0.04	0.03	0.03	0.03	0.03	0.05
3701450	Hwy 219	44.4	0.04	—	0.07	0.05	0.06	0.06	0.06	0.07
3701391	Rood Bridge Road	39.1	0.09	0.10	0.08	0.06	0.07	0.07	0.07	0.07
3701333	Farmington Road	33.3	0.10	0.43	0.08	0.09	*	0.08	0.08	0.09
3701271	Scholls	27.1	0.10	0.15	0.09	0.08	0.09	0.09	0.09	0.09
3701165	Elsner	16.5	0.11	0.14	0.09	0.08	0.09	0.09	0.09	0.09
3701087	Boones Ferry Road	8.7	0.11	0.23	0.09	0.08	0.09	0.09	0.10	0.10
3701054	Stafford Road	5.4	0.10	0.23	0.09	0.08	0.09	0.09	0.10	0.09
3701002	Weiss Bridge	0.2	0.10	0.22	0.09	0.08	0.09	0.08	0.08	0.08
<b><i>Tributaries</i></b>										
3805017	Scoggins @ Hwy 47		0.04	—	0.03	0.01	0.01	0.01	0.01	0.01
3810015	Gales @ New Hwy 47		0.04	0.06	0.05	0.04	0.04	0.04	0.04	0.04
3815021	Dairy @ Hwy 8		0.09	0.13	0.11	0.11	0.12	0.12	0.13	0.13
3820022	Rock @ Brookwood		0.19	0.21	0.21	0.18	0.19	0.24	0.20	0.20
3824001	Bronson @ 205th		0.13	0.13	0.12	0.12	0.14	0.19	0.15	0.16
3835020	Chicken @ Scholls-Sherwood		0.14	0.23	0.12	0.11	0.11	0.11	0.11	0.12
3838001	Nyberg @ Brown		0.14	—	—	0.17	0.20	0.19	0.20	0.18
3840012	Fanno @ Durham		0.13	0.15	0.15	0.15	0.15	0.16	0.14	0.15

\* Water quality data for the Tualatin River at Farmington was not available for the summer of 2005 due to bridge construction.

The following table shows the treatment plant performance relative to total phosphorus.

**2008 MONTHLY MEDIAN TOTAL PHOSPHORUS CONCENTRATIONS IN WWTP EFFLUENT**

		May (mg/L as P)	June (mg/L as P)	July (mg/L as P)	Aug (mg/L as P)	Sept (mg/L as P)	Oct (mg/L as P)
<b>Rock Creek WWTP</b>	Effluent	0.08	0.08	0.09	0.07	0.08	0.08
	Limit	0.10	0.10	0.10	0.10	0.10	0.10
<b>Durham WWTP</b>	Effluent	0.09	0.07	0.07	0.10	0.11	0.10
	Limit	0.11	0.11	0.11	0.11	0.11	0.11

The phosphorus TMDL was developed to protect two beneficial uses: aesthetics, as measured by chlorophyll-*a*, and fish and wildlife, as measured by pH.

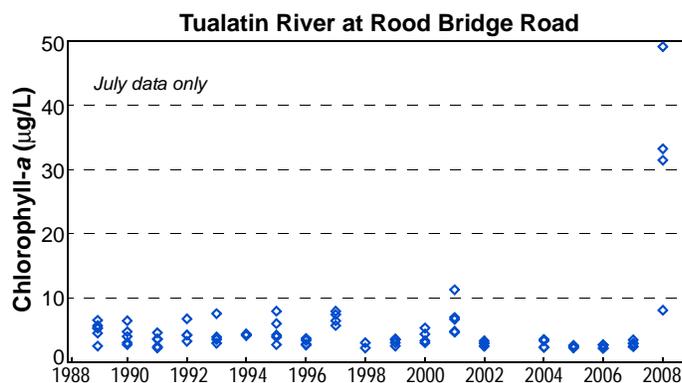
**Chlorophyll-*a*:** Chlorophyll-*a* concentrations are an indicator of the amount of algae in the river. Three-month stratified means of chlorophyll-*a* concentrations are shown in the following table. The water quality guidance level for this statistic is 15 µg/L.

**2008 THREE-MONTH MEAN CHLOROPHYLL-*a* CONCENTRATIONS**

Location	River Mile	Mar–May (µg/L)	Apr–Jun (µg/L)	May–Jul (µg/L)	Jun–Aug (µg/L)	Jul–Sep (µg/L)	Aug–Oct (µg/L)
<b>Tualatin River</b>							
Rood Bridge Road	39.1	3.9	3.4	12.4	12.8	12.5	3.2
Farmington Road	33.3	3.6	3.0	13.1	13.7	13.3	2.8
Scholls	27.1	3.6	3.5	6.6*	7.0*	6.2*	2.5
Elsner	16.5	4.0	4.4	20.8	24.8	23.7	6.3
Boones Ferry Road	8.7	4.0	5.3	14.5	15.8	14.1	3.9
Stafford Road	5.4	3.7	5.7	13.4	15.2	13.3	4.9

\*This value is likely too small. Due to bridge work, samples were not collected on two dates in July during the period of time when a large algal bloom occurred and chlorophyll-*a* concentrations were high at nearby sites.

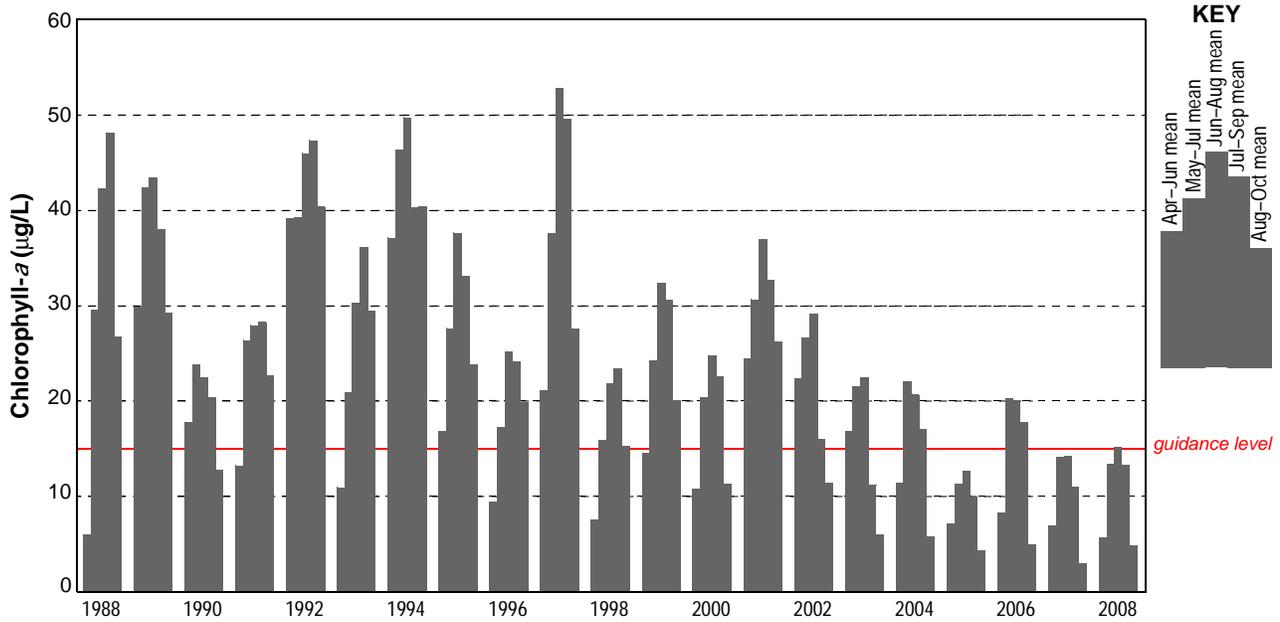
During July 2008, chlorophyll-*a* concentrations were much higher than those in recent years. Moreover, high concentrations were seen much farther upriver than usual. Typically, the highest chlorophyll-*a* concentrations are seen at the Stafford Road site. The graph at the right shows that the chlorophyll-*a* concentrations at Rood Bridge Road in July 2008 were unprecedented over the 20-year period of record. The anomalously high chlorophyll-*a* concentrations were likely related to mid-summer discharges of ponded water from Wapato Lake. For more information about effects of the Wapato Lake flood drainage, see page 28.



**pH:** High pH values can result from photosynthesis by algae and negatively affect aquatic resources. The pH data from the continuous recorders at RM 3.4 (Lake Oswego dam) and RM 24.5 were evaluated. Normally, the lower part of the river has the maximum algal production, but in 2008 algal production occurred much higher in the river system. No pH values at either site exceeded 8.5, although the pH did exceed 8.0 at RM 24.5 (more than 0.2 units greater than the next largest pH value recorded at this site for the past 12 years). In addition to pH data from continuous monitors, weekly pH measurements are taken at a number of sites during the summer by Clean Water Services. None of these data showed values greater than 8.5. Low pH values are not a problem in the Tualatin River system.

The data for chlorophyll-*a* concentrations in the lower river show generally decreasing trend over time.

**TUALATIN RIVER AT STAFFORD ROAD (RM 5.4)**



**MEAN CHLOROPHYLL-*a* CONCENTRATIONS – TUALATIN RIVER AT STAFFORD ROAD (RM 5.4)**

Year	Apr-Jun (µg/L)	May-Jul (µg/L)	Jun-Aug (µg/L)	Jul-Sep (µg/L)	Aug-Oct (µg/L)
1988	6.1	29.6	42.2	48.1	26.7
1989	29.8	42.3	43.4	38.0	29.3
1990	17.8	23.8	22.4	20.4	12.8
1991	13.2	26.3	27.9	28.2	22.7
1992	39.1	39.2	45.9	47.3	40.3
1993	10.9	20.9	30.3	36.1	29.5
1994	37.0	46.3	49.7	40.3	40.4
1995	16.9	27.6	37.6	33.0	23.8
1996	9.4	17.2	25.2	24.1	19.9
1997	21.1	37.6	52.7	49.5	27.6
1998	7.6	15.8	21.8	23.4	15.2
1999	14.5	24.3	32.3	30.6	20.1
2000	10.8	20.4	24.7	22.5	11.3
2001	24.4	30.6	36.9	32.7	26.2
2002	22.3	26.6	29.2	16.0	11.4
2003	16.8	21.5	22.4	11.2	6.0
2004	11.4	22.0	20.6	17.0	5.8
2005	7.1	11.3	12.7	10.0	4.4
2006	8.3	20.3	20.1	17.8	5.0
2007	7.0	14.2	14.3	11.1	3.0
2008	5.7	13.4	15.2	13.3	4.9

## Ammonia TMDL

The 2001 TMDL revised the permitted ammonia loads. It allows higher loads of ammonia in the spring and early summer when river conditions are favorable for the assimilation of ammonia and lower ammonia loads in the fall when sediment oxygen demand consumes more oxygen leaving very little assimilative capacity. For the months of July through November, there are two tiers of ammonia limits. The applicable tier is based on the previous weeks downstream dissolved oxygen levels. The ammonia limit ends when Farmington flow exceeds 350 cfs. Flows were above 425 cfs on November 4, 2008.

The following table compares the effluent ammonia load with the most restrictive ammonia limit (most restrictive tier). A less restrictive limit would be in place if dissolved oxygen levels downstream of the treatment plants were above 6.7 mg/L. The actual permit is based on weekly ammonia discharges. There were no weekly permit violations in 2008.

**2008 MONTHLY AMMONIA LOADS AND LIMITS FOR WWTP EFFLUENT**

	May	June	July	August	Sept	October
Rock Creek WWTP median load (lb/day)	12	6	17	6	6	5
Durham WWTP median load (lb/day)	285	55	26	7	6	6
Total allowed load (lb/day)	4656	2234	927	320	220	255

The ammonia TMDL is designed to protect the dissolved oxygen levels in the reservoir-like section of the Tualatin River (RM 33 to 3.4). The water quality criteria for this section of the river, which is considered “Cool Water Habitat,” are.

- Grab samples: DO > 6.5 mg/L
- Continuous Monitoring:
  - 30-day average of daily mean DO > 6.5 mg/L (no credit for supersaturation)
  - 7-day average of daily minimum DO > 5.0 mg/L (no credit for supersaturation)
  - Daily minimum DO > 4.0 mg/L

The following table shows the river conditions relative to dissolved oxygen at two locations in the reservoir section of the river. Continuous monitors are deployed at these locations.

**NUMBER OF DAYS THAT DID NOT MEET DISSOLVED OXYGEN CRITERIA IN 2008**

Criterion	May	June	July	Aug	Sept	Oct	Summer Percentage
<b><i>Tualatin River at RM 24.5</i></b>							
30 day	0	0	0	0	0	0	0 %
7 day	0	0	0	0	0	0	0 %
Daily	0	0	0	0	0	0	0 %
<b><i>Tualatin River at Oswego Dam</i></b>							
30 day	0	0	0	4	30	19	29%
7 day	0	0	0	12	3	0	8 %
Daily	0	0	0	2	0	0	1 %

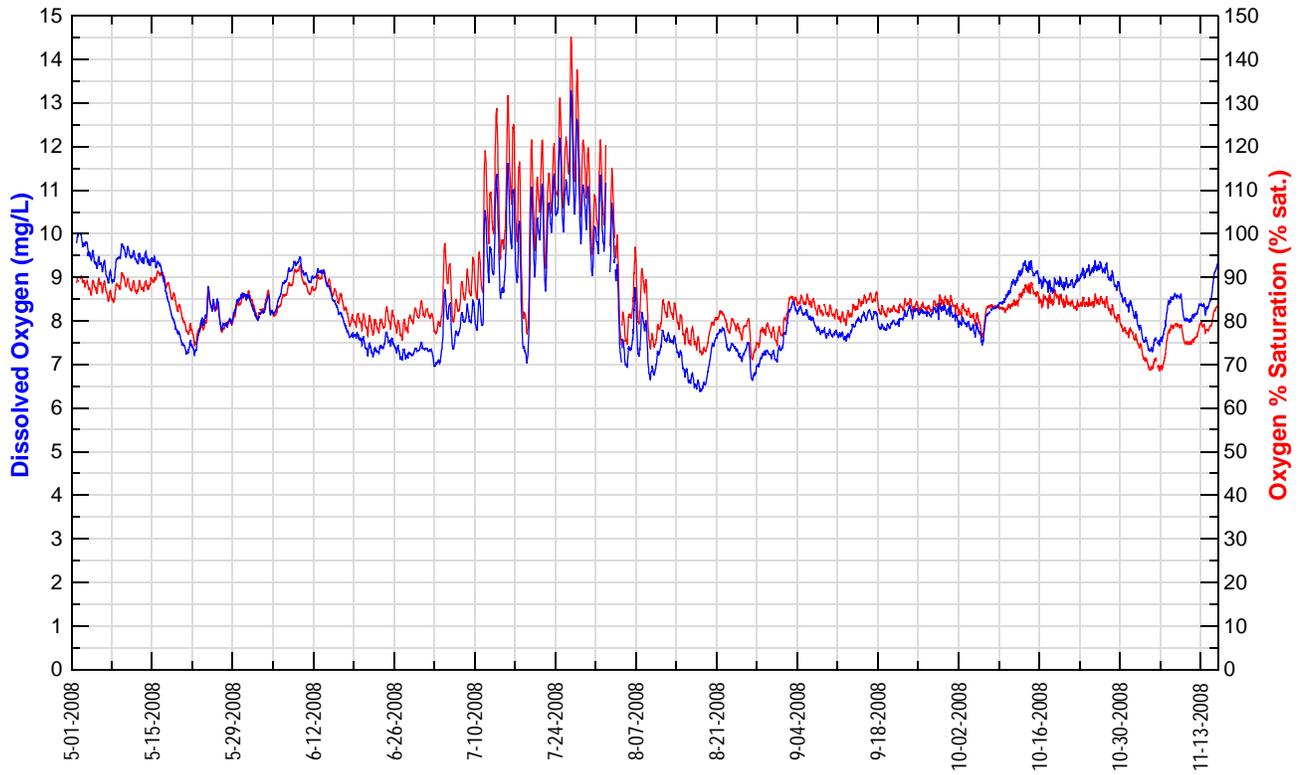
Graphs of the dissolved oxygen concentrations at these two locations are shown on the following page.

Data are available at:

[http://or.water.usgs.gov/cgi-bin/grapher/table\\_setup.pl?basin\\_id=tualatin#step1](http://or.water.usgs.gov/cgi-bin/grapher/table_setup.pl?basin_id=tualatin#step1)

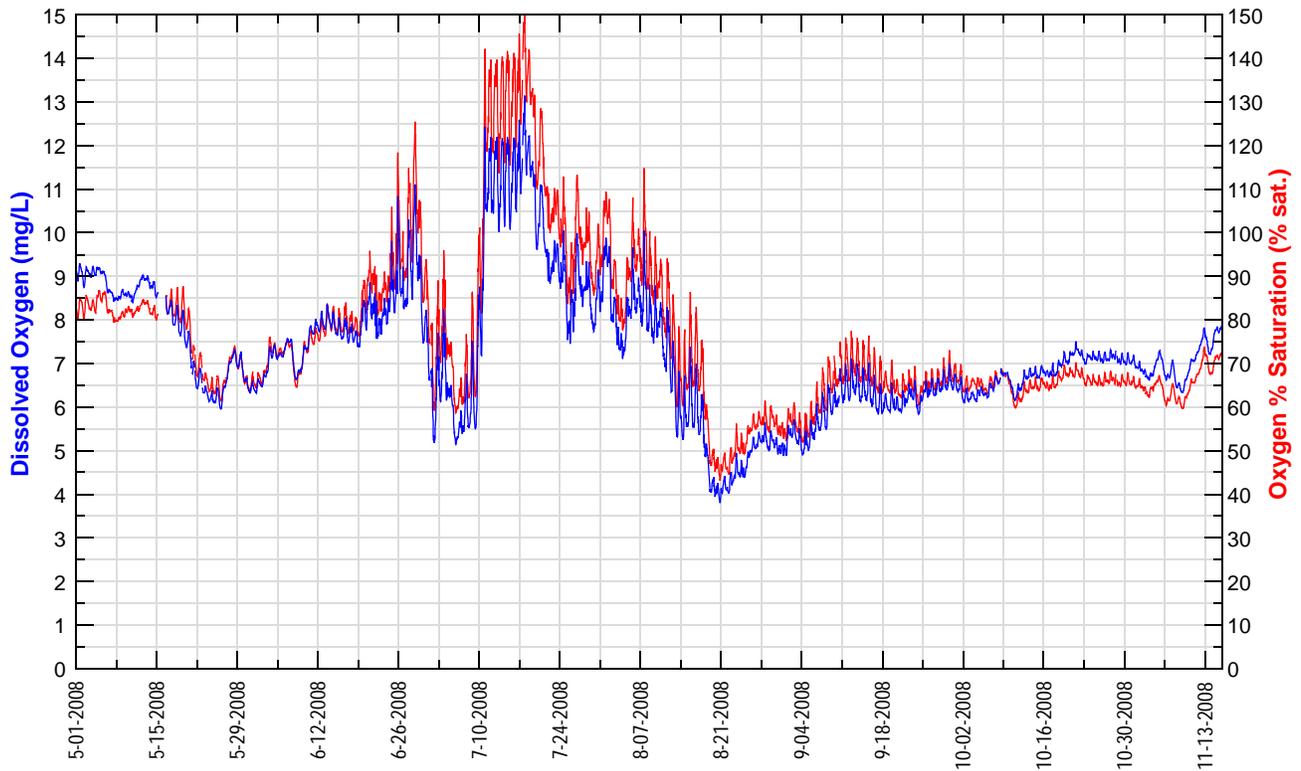
### Tualatin River at River Mile 24.5 (14206694)

Data from U.S. Geological Survey



### Tualatin River at Oswego Diversion Dam (14207200)

Data from U.S. Geological Survey

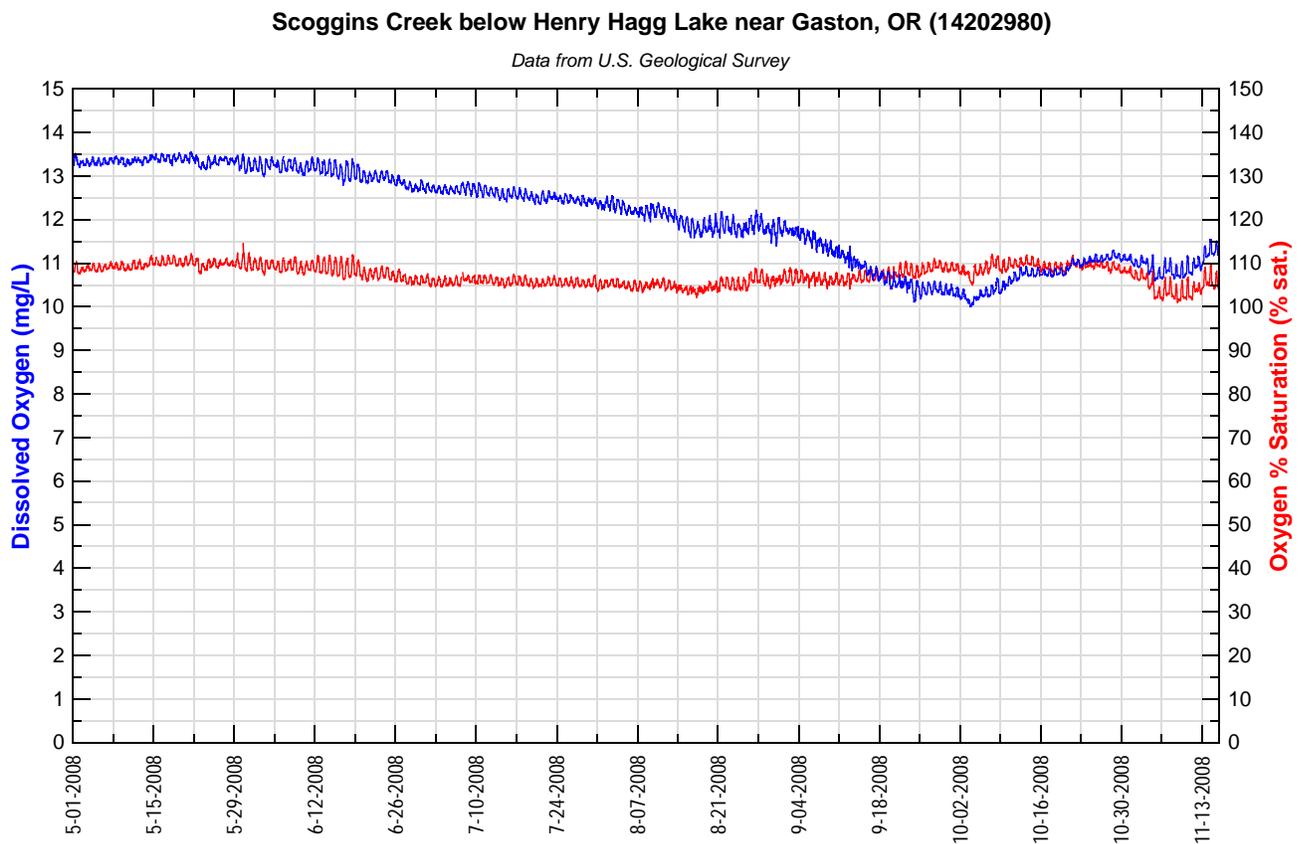


## Temperature TMDL

Temperature data for the Tualatin River and its tributaries are shown in Appendix F.

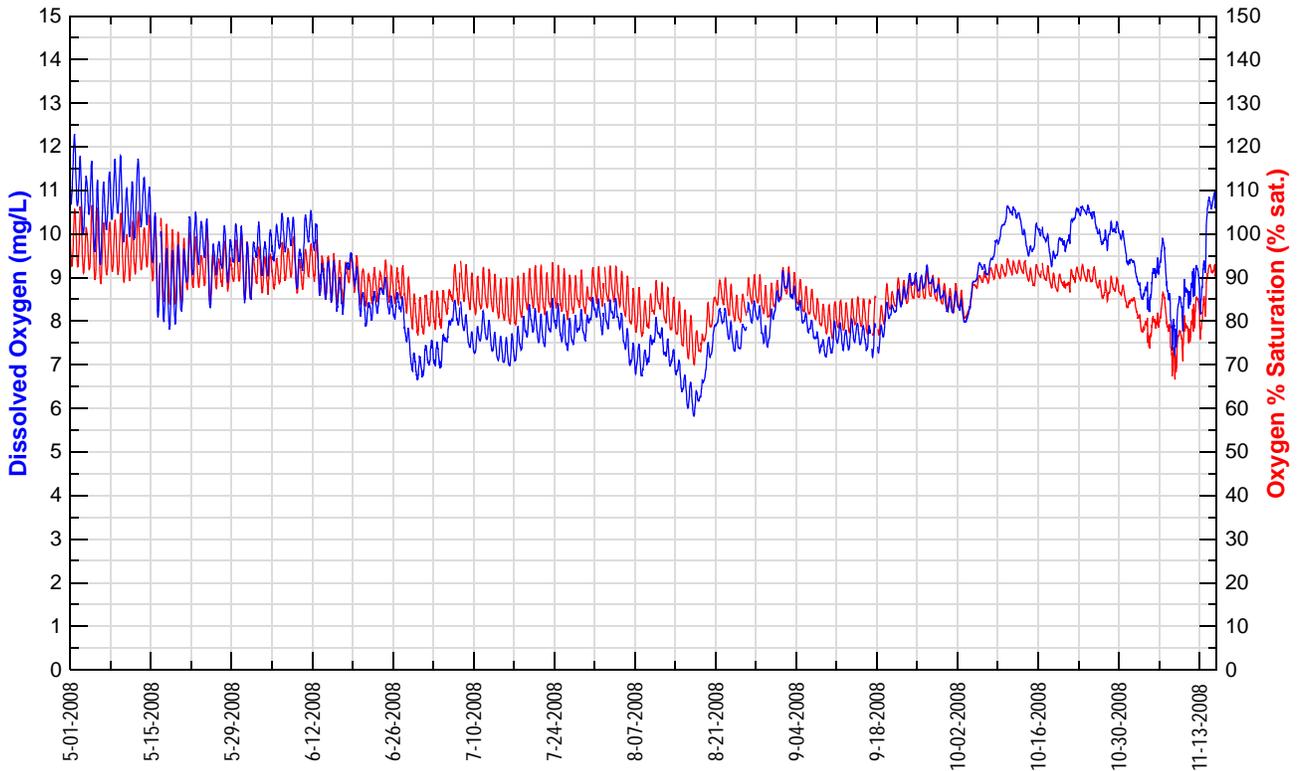
## Dissolved Oxygen TMDL for Tributaries

The 2001 Tualatin TMDL contained requirements for tributary total suspended solids (a surrogate for settleable volatile solids) load reductions to protect dissolved oxygen. The best way to display data concerning solids reduction are being developed. The following graphs show the dissolved oxygen levels measured by continuous monitors at several tributaries during the summer period. These data are available at [http://or.water.usgs.gov/cgi-bin/grapher/graph\\_setup.pl?basin\\_id=tualatin](http://or.water.usgs.gov/cgi-bin/grapher/graph_setup.pl?basin_id=tualatin).



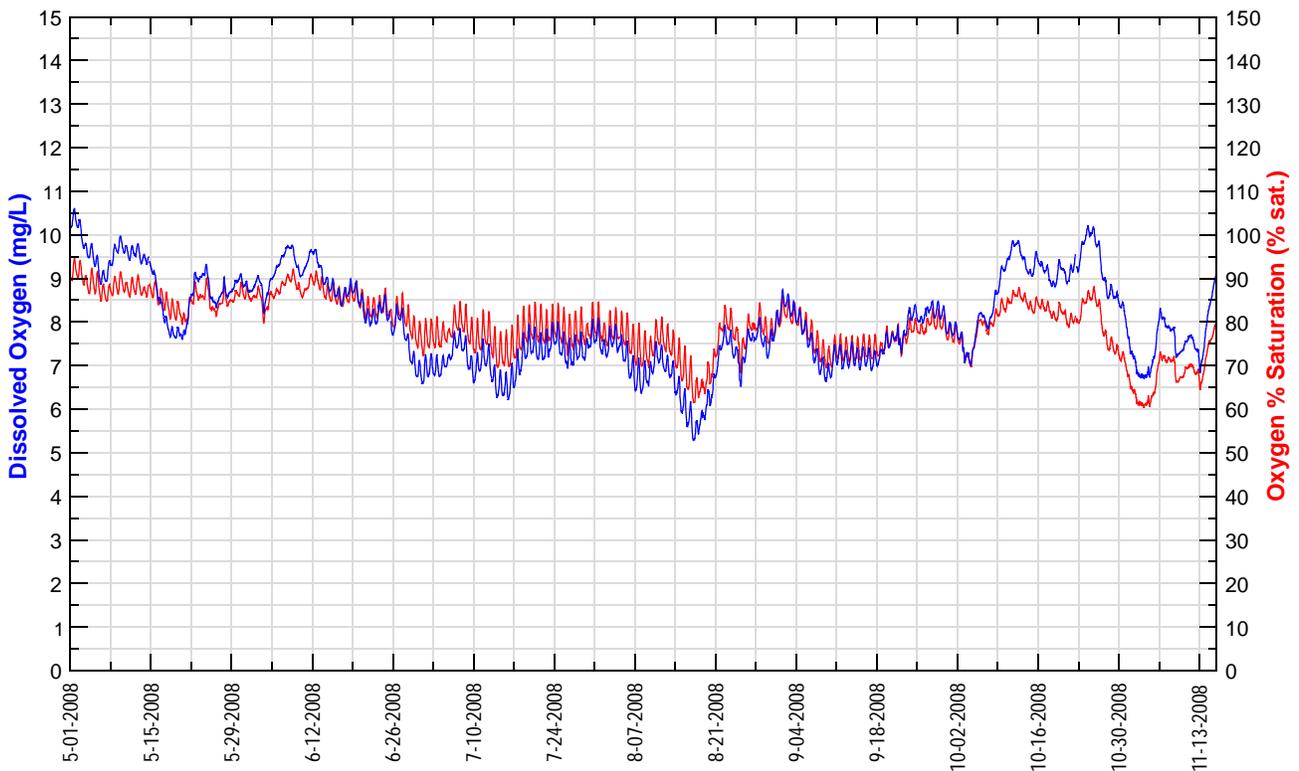
**Gales Creek at Old Hwy 47, Forest Grove, OR (453040123065201)**

Data from U.S. Geological Survey



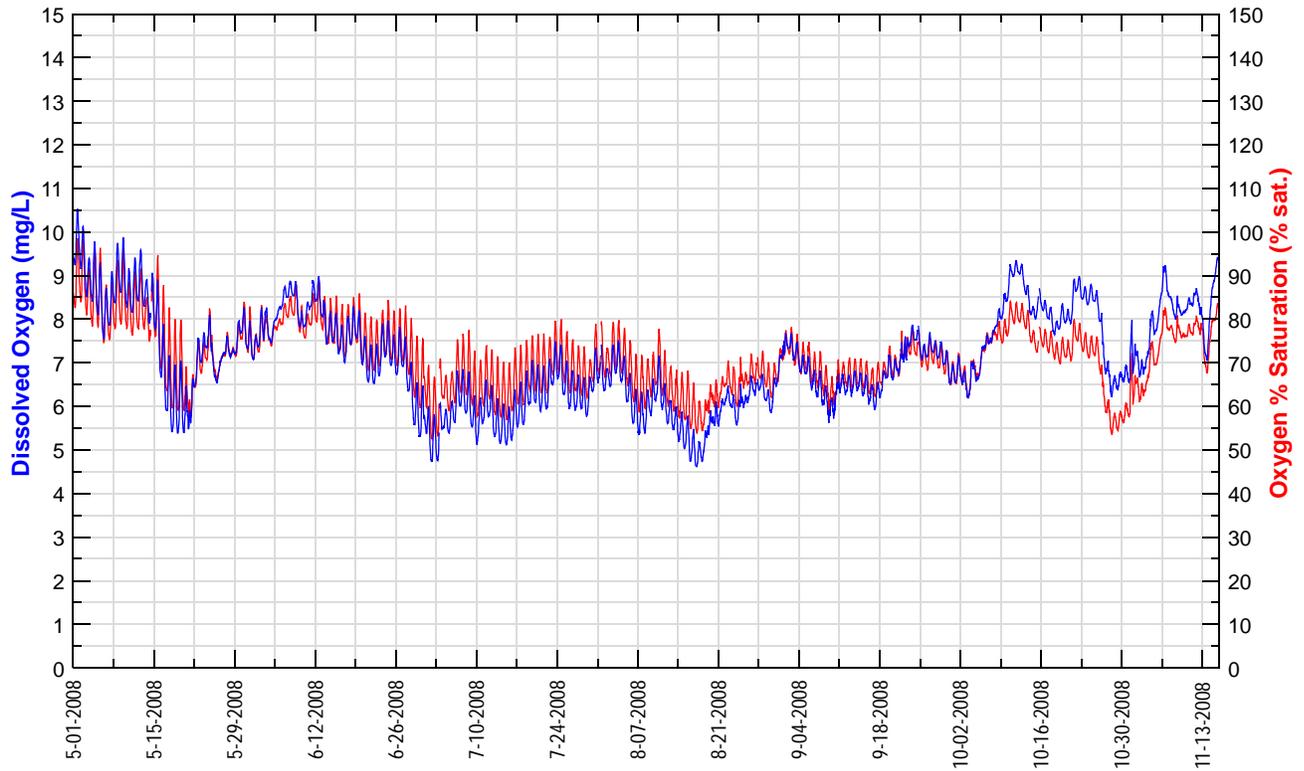
**Dairy Creek at Hwy 8, Hillsboro, OR (453113123003501)**

Data from U.S. Geological Survey



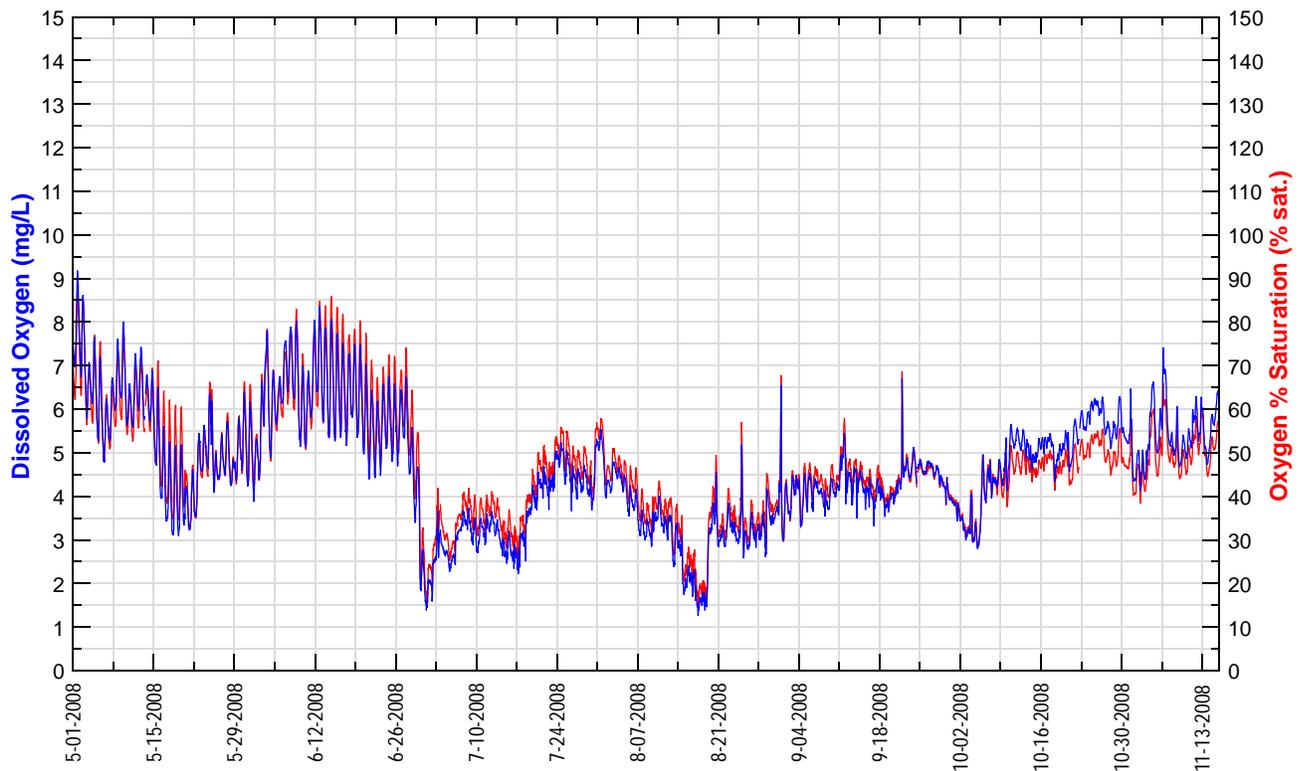
**Rock Creek at Brookwood Ave, Hillsboro, OR (453030122560101)**

Data from U.S. Geological Survey



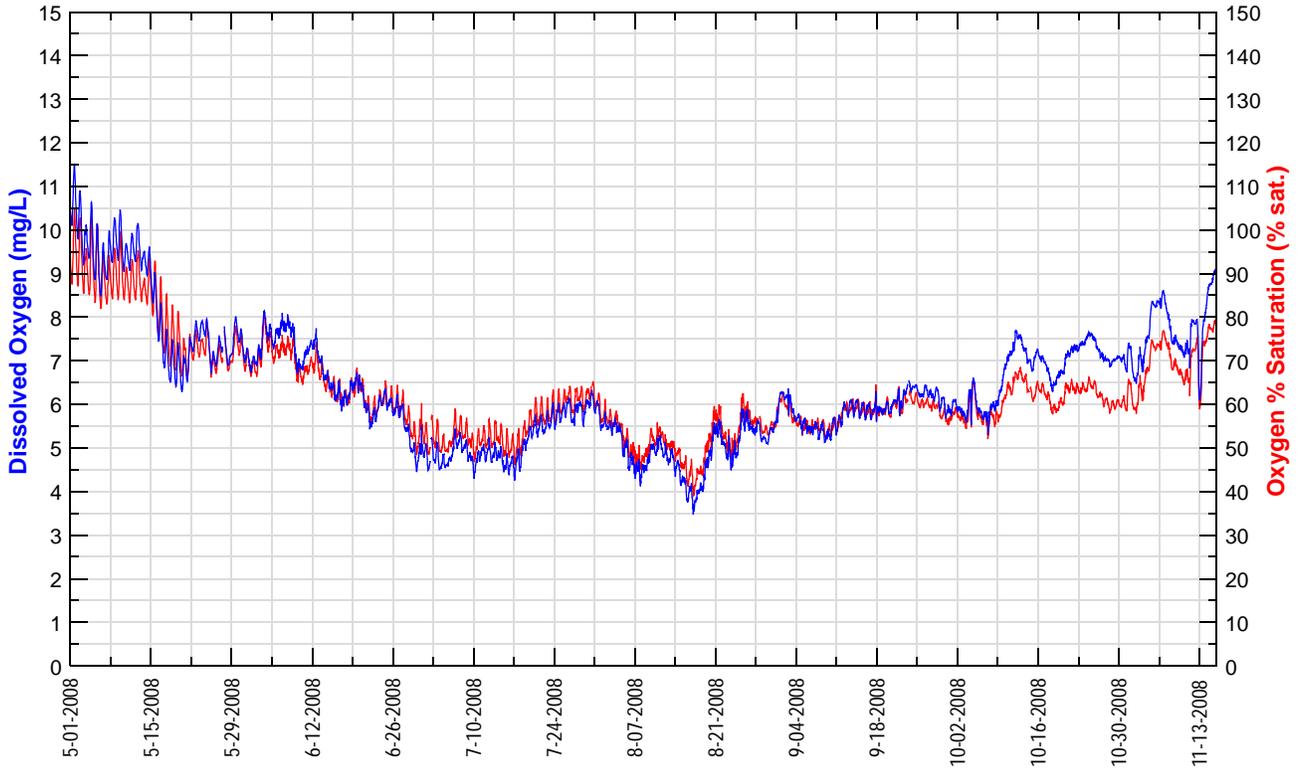
**Beaverton Creek at 170th Ave, Beaverton, OR (453004122510301)**

Data from U.S. Geological Survey



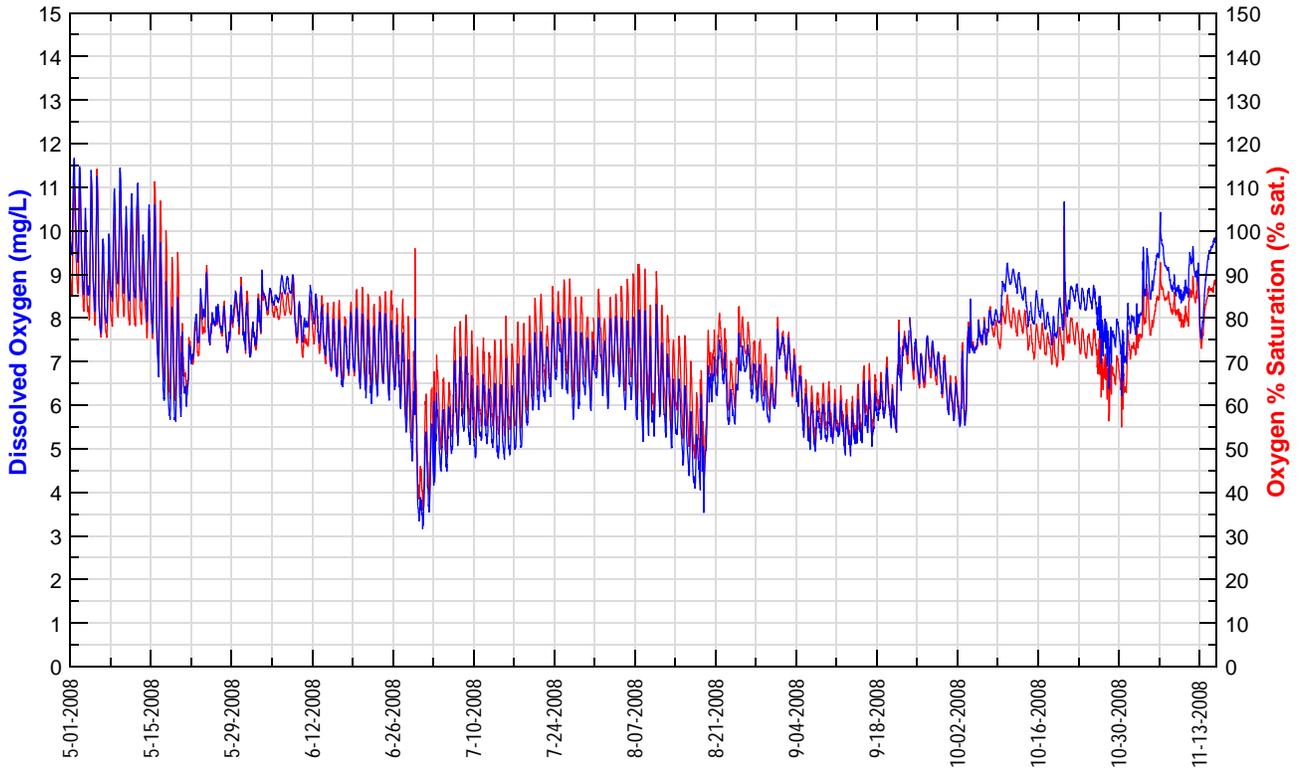
### Chicken Creek at Scholls-Sherwood Hwy, Sherwood, OR (452230122512201)

Data from U.S. Geological Survey



### Fanno Creek at Durham Road (14206950)

Data from U.S. Geological Survey



## Bacteria TMDL

The TMDL for bacteria applies to both the Tualatin River and its tributaries during both summer and winter. The table below shows median and 90th-percentile bacteria levels for the 2008 winter and summer seasons. The median is the middle value—half of the measured values were less than the median and half were greater. Similarly, the 90th percentile also divides the data—90% of the measured values were less and 10% were greater. The water quality goals are the same for summer and winter; they are:

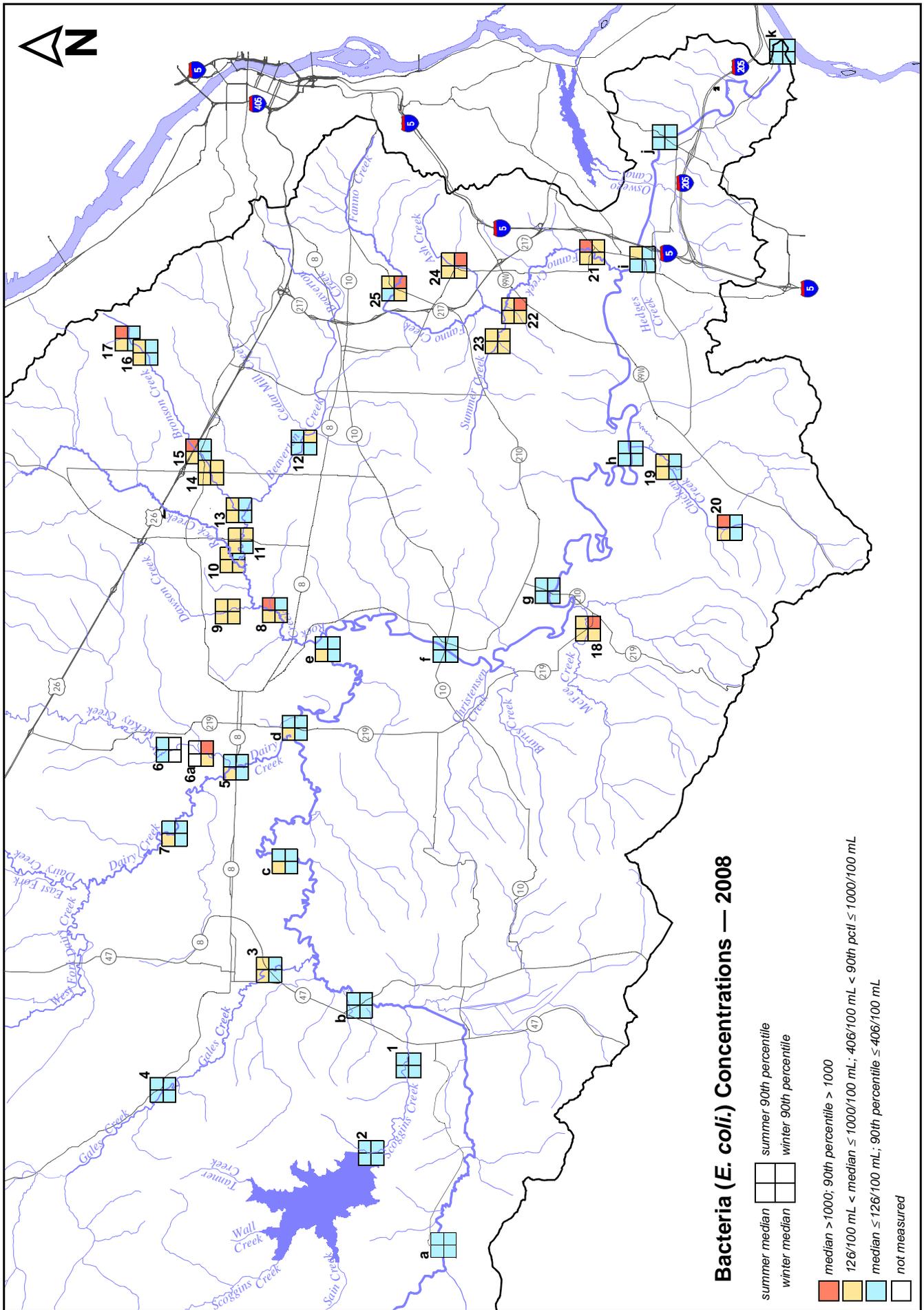
- median concentration of no more than 126 colony forming units/100 mL (#/100 mL)
- 90th percentile concentration of no more than 406/100 mL.

A map comparing the values to water quality goals is shown on the following page.

### 90TH PERCENTILES OF *E. COLI* CONCENTRATIONS FOR 2008

Map Code	Location Code	Location	River Mile	Winter (Nov-07 – Apr-08) (#/100 mL)*		Summer (May-07 – Oct-08) (#/100 mL)*	
				median	90th pctl	median	90th pctl
<b><i>Tualatin River</i></b>							
a	3701715	Cherry Grove	71.5	4	20	19	54
b	3701612	Spring Hill	61.2	46	158	65	135
c	3701528	Golf Course Road	52.8	55	112	133	212
d	3701450	Hwy 219	44.4	71	134	172	329
e	3701391	Rood Bridge Road	39.1	72	208	114	244
f	3701333	Farmington Road	33.3	67	285	101	243
g	3701271	Scholls	27.1	49	160	61	113
h	3701165	Elsner	16.5	32	210	31	64
i	3701087	Boones Ferry Road	8.7	42	298	40	444
j	3701054	Stafford Road	5.4	34	147	35	164
k	3701002	Weiss Bridge	0.2	23	143	19	56
<b><i>Tributaries</i></b>							
1	3805017	Scoggins @ Hwy 47		43	124	23	73
2	3805050	Scoggins below Hagg		1	22	1	2
3	3810015	Gales @ New Hwy 47		94	320	248	464
4	3810070	Gales @ Stringtown		24	77	110	208
5	3815021	Dairy @ Hwy 8		68	162	254	399
6	3816020	McKay at Hornecker		30	135		
6a	3816010	McKay at Padgett				179	1156
7	3815058	Dairy @ Susbauer		74	156	194	329
8	3820022	Rock @ Brookwood		140	308	292	1220
9	3850006	Dawson @ Brookwood		201	687	435	955
10	3820047	Rock @ Quatama		137	387	175	567
11	3821008	Beaverton @ Guston Court		122	613	174	539
12	3821050	Beaverton @ 170th		82	461	78	158
13	3824001	Bronson @ 205th		111	387	268	799
14	3824018	Bronson @ 185th		162	488	614	911
15	3824020	Bronson @ Bronson Park		46	276	273	1034
16	3824072	Bronson @ Saltzman		40	194	142	598
17	3859010	Bannister @ 124th		31	109	54	1574
18	3811010	McFee @ Hwy 219		658	1172	210	621
19	3835020	Chicken @ Scholls-Sherwood		96	353	214	723
20	3835060	Chicken @ Kruger		69	277	313	1640
—	3838001	Nyberg @ Brown		83	365	188	373
21	3840012	Fanno @ Durham		179	675	210	2016
22	3500035	unnamed trib to Fanno @ Walnut		431	1410	533	762
23	3844009	Summer Creek at 121st		365	649	308	866
24	3845014	Ash @ Hemlock		326	1300	390	852
25	3840095	Fanno near Allen		344	1300	119	534

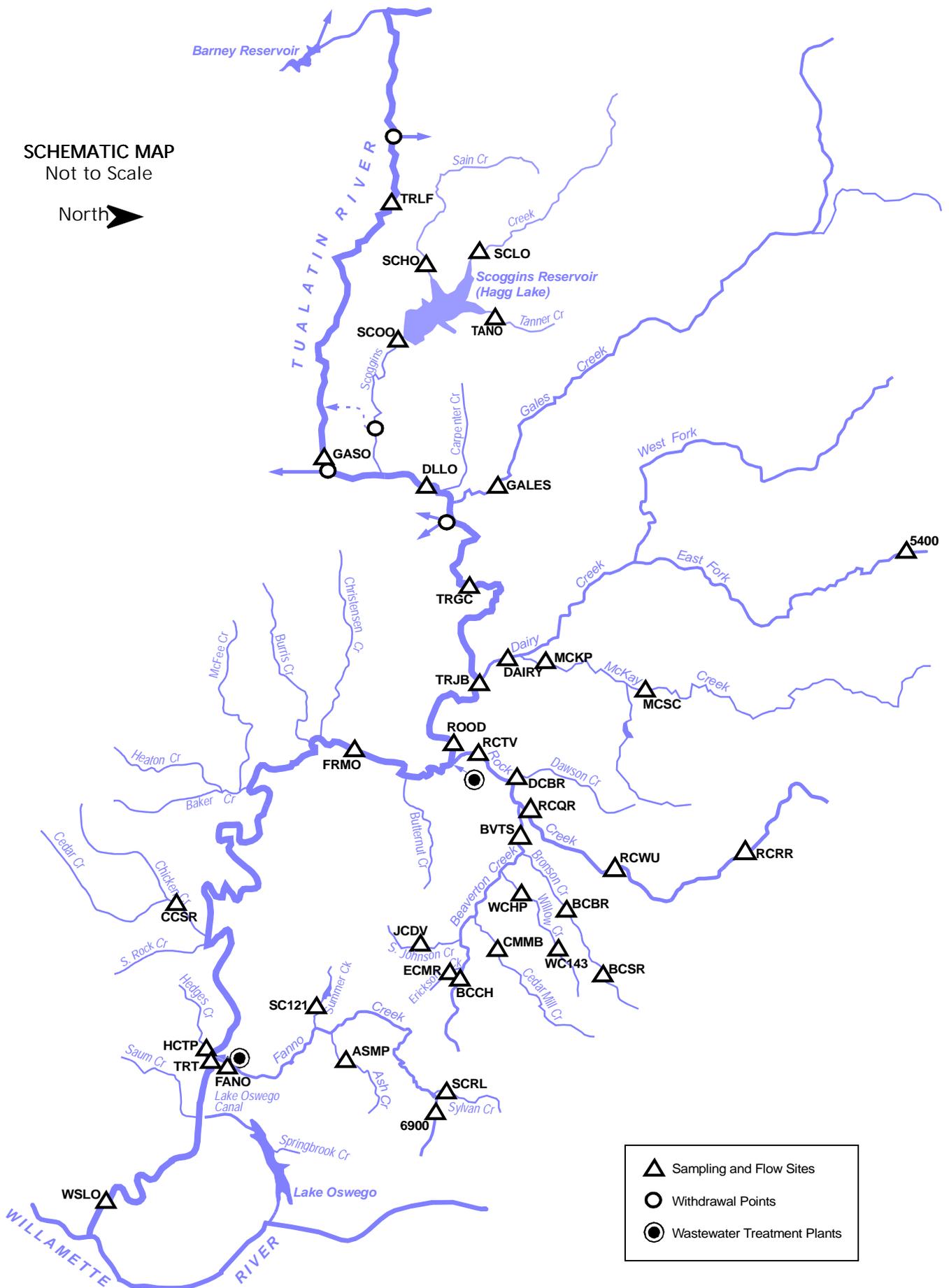
\*The Colilert-18 (Most Probable Number) method was used for all analyses.



# Appendix A

## Stream Gage Records

# STREAM GAGE SITES — LOCATIONS



**STREAM GAGE SITES — ALPHABETICAL LISTING BY SITE CODE**

<b>SITE CODE</b>	<b>SITE NAME</b>	<b>RIVER MILE</b>	<b>STATION ID</b>	<b>PAGE</b>
5400	East Fork Dairy Creek near Meacham Corner, OR	12.4	14205400	A-13
6900	Fanno Creek at 56th Avenue	11.9	14206900	A-35
ASMP	Ash Creek at Metzger Park at Metzger, Oregon	1.25	14206933	A-37
BCBR	Bronson Creek at Bronson Road near Orenco, Oregon	2.1	14206423	A-29
BCCH	Beaverton Creek at Cedar Hills Blvd at Beaverton, Oregon	7.45	14206360	A-22
BCSR	Bronson Creek at Saltzman Road near Orenco, Oregon	5.1	14206419	A-28
BVTS	Beaverton Creek at NE Guston Court near Orenco, Oregon	1.2	14206435	A-30
CCSR	Chicken Creek at Roy Rogers Road near Sherwood, Oregon	2.3	14206750	A-34
CMMB	Cedar Mill Creek at Murray Blvd near Beaverton, Oregon	1.64	14206395	A-25
DAIRY	Dairy Creek at Hwy 8 near Hillsboro, Oregon	2.06	14206200	A-16
DCBR	Dawson Creek at Brookwood Road near Hillsboro, Oregon	0.7	14206443	A-31
DLLO	Tualatin River at Dilley, Oregon	58.8	14203500	A-10
ECMR	Erickson Creek at Menlo Drive at Beaverton, Oregon	0.76	14206365	A-23
FANO	Fanno Creek at Durham Road near Tigard, Oregon	1.2	14206950	A-39
FRMO	Tualatin River at Farmington, Oregon	33.3	14206500	A-33
GALES	Gales Creek at Old Hwy 47 near Forest Grove, Oregon	2.36	14204530	A-11
GASO	Tualatin River at Gaston, Oregon	62.3	14202510	A-5
HCTP	Hedges Creek at Tualatin Park at Tualatin, Oregon	0.3	14206958	A-40
JCDV	Johnson Creek at Davis Road near Beaverton, Oregon	1.3	14206372	A-24
MCKP	McKay Creek at Padgett Road near Hillsboro, Oregon	1.31	14206190	A-15
MCSC	McKay Creek at Scotch Church Rd above Waible Ck near North Plains, Oregon	6.3	14206070	A-14
RCQR	Rock Creek at Quatama Road near Orenco, Oregon	4.9	14206347	A-21
RCRR	Rock Creek at NW Rock Creek Road near Bowers Junction, Oregon	15.8	14206305	A-19
RCTV	Rock Creek at Hwy 8 near Hillsboro, Oregon	1.2	14206450	A-32
RCWU	Rock Creek at West Union Road near Bethany, Oregon	9.0	14206338	A-20
ROOD	Tualatin River at Rood Bridge Road near Hillsboro, Oregon	38.4	14206295	A-18
SC121	Summer Creek at 121st Avenue near Tigard, Oregon	1.0	14206938	A-38
SCHO	Sain Creek above Henry Hagg Lake near Gaston, Oregon	1.6	14202920	A-7
SCLO	Scoggins Creek above Henry Hagg Lake near Gaston, Oregon	9.3	14202850	A-6
SCOO	Scoggins Creek below Henry Hagg Lake near Gaston, Oregon	4.80	14202980	A-9
SCRL	Sylvan Creek at Raleighwood Lane near West Slope, Oregon	1.0	14206905	A-36
TANO	Tanner Creek above Henry Hagg Lake near Gaston, Oregon	1.6	14202860	A-8
TRGC	Tualatin River at Golf Course Road near Cornelius, Oregon	51.5	14204800	A-12
TRJB	Tualatin River at Hwy 219 Bridge	44.4	14206241	A-17
TRLF	Tualatin River below Lee Falls near Cherry Grove, Oregon	70.7	14202450	A-4
TRT	Tualatin River at Tualatin, Oregon	8.9	14206956	A-41
WC143	Willow Creek at 143rd Avenue near Beaverton, Oregon	3.5	14206410	A-26
WCHP	Willow Creek at Heritage Parkway near Beaverton, Oregon	0.75	14206413	A-27
WSLO	Tualatin River at West Linn	1.75	14207500	A-42

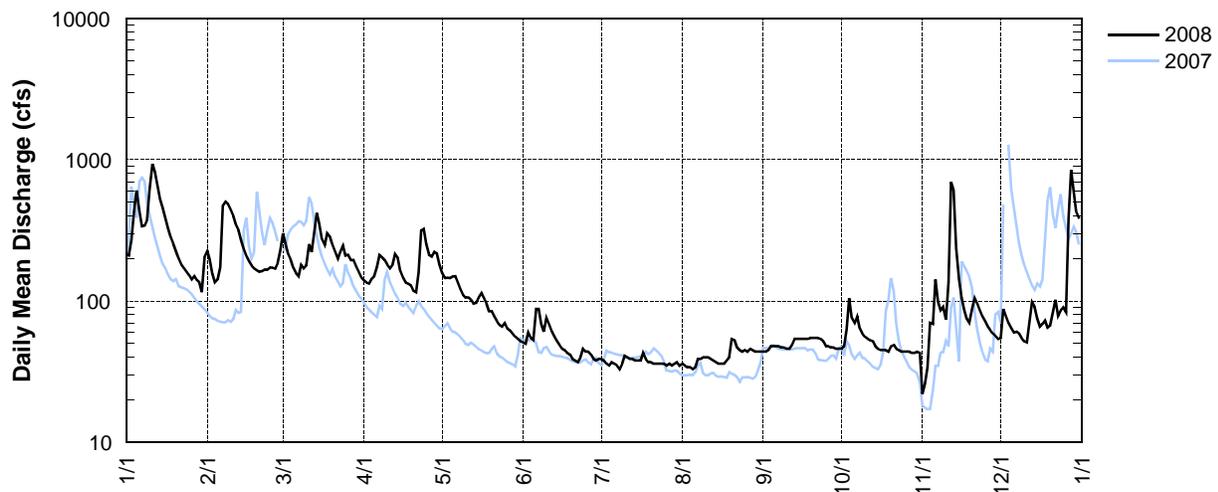
**TRLF – 14202450 – TUALATIN RIVER BELOW LEE FALLS NEAR CHERRY GROVE, OREGON [RM 70.7]**

Latitude: 45 30 21 Longitude: 123 13 06

Source Agency: District 18 Watermaster

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	220	230	300	140	160	51	39	36	44	46	22	55
2	210	200	250	130	150	50	38	35	44	48	26	88
3	270	160	220	130	150	60	36	34	45	63	34	78
4	430	140	200	140	140	55	35	34	48	110	70	70
5	610	140	170	150	150	53	37	33	48	76	69	64
6	440	170	160	170	150	88	37	34	48	70	140	60
7	340	470	150	210	130	88	35	39	48	78	99	61
8	340	500	180	200	120	69	33	39	47	64	86	59
9	370	490	170	190	110	61	36	40	47	59	91	55
10	620	440	180	180	110	76	41	40	46	56	74	52
11	930	400	250	170	110	68	40	39	46	54	140	51
12	820	350	220	180	100	61	39	39	49	53	700	72
13	660	320	310	220	96	56	39	38	54	52	610	98
14	530	270	420	200	97	52	38	37	54	48	240	91
15	460	230	350	160	110	49	38	36	54	46	140	76
16	380	210	280	150	110	46	38	36	54	45	110	66
17	330	190	250	140	110	45	43	36	54	45	87	69
18	280	180	300	130	96	43	39	38	54	45	75	73
19	250	170	290	130	85	41	37	39	55	44	69	65
20	230	160	250	120	85	39	37	54	55	48	88	67
21	200	160	220	120	78	38	36	53	55	49	110	84
22	180	160	200	160	72	37	36	47	55	46	97	100
23	170	170	220	320	68	40	36	45	54	45	86	79
24	160	170	250	320	66	46	36	44	52	44	78	86
25	e150	170	210	250	70	44	36	45	48	44	73	90
26	e140	170	210	210	64	44	35	44	48	44	66	83
27	e150	170	190	210	62	42	36	46	47	44	62	380
28	e140	180	200	220	59	39	35	45	47	43	59	850
29	e140	220	180	220	56	38	35	44	46	43	57	590
30	120	—	160	180	54	39	37	44	46	44	55	430
31	210	—	150	—	52	—	35	44	—	43	—	380
TOTAL	10480	6990	7090	5450	3070	1558	1148	1257	1492	1639	3713	4522
MEAN	338.1	241.0	228.7	181.7	99.0	51.9	37.0	40.6	49.7	52.9	123.8	145.9
MAX	930	500	420	320	160	88	43	54	55	110	700	850
MIN	120	140	150	120	52	37	33	33	44	43	22	51
AC-FT	20787	13864	14063	10810	6089	3090	2277	2493	2959	3251	7365	8969

**TRLF — 14202450 — Tualatin River below Lee Falls near Cherry Grove, Oregon [RM 70.7]**



### GASO – 14202510 – TUALATIN RIVER AT GASTON, OREGON [RM 62.3]

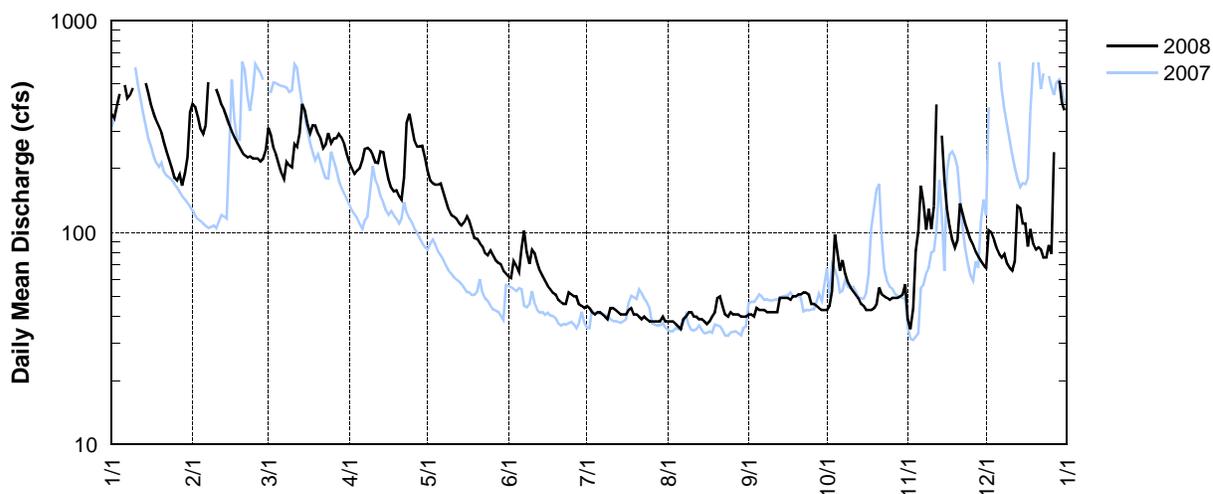
Latitude: 45 26 21 Longitude: 123 07 85

Source Agency: District 18 Watermaster

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN*	FEB*	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV*	DEC*
1	360	400	310	210	200	62	45	38	41	43	39	68
2	340	390	290	200	180	61	44	38	41	45	35	100
3	390	350	250	190	170	73	42	38	40	53	44	100
4	e450	310	230	200	170	69	41	37	43	98	82	e92
5	r	290	210	200	170	65	42	36	43	80	100	85
6	e500	320	190	220	170	84	43	35	43	66	170	79
7	e430	e510	180	250	160	100	41	39	43	74	140	76
8	e450	r	210	250	140	81	40	40	42	64	100	79
9	e480	r	210	240	130	71	39	42	42	58	130	71
10	r	e470	200	230	120	83	44	42	42	55	100	68
11	r	e440	260	210	120	80	44	40	42	53	130	66
12	r	400	250	210	120	72	43	40	42	51	e400	73
13	r	380	290	240	110	66	42	39	49	49	r	130
14	e510	350	400	240	110	62	41	39	49	46	290	130
15	e450	320	370	200	110	59	41	38	49	45	180	110
16	400	300	320	180	120	56	41	37	49	43	130	110
17	370	280	290	160	110	53	43	38	48	43	110	86
18	340	260	320	160	100	52	44	40	50	43	93	100
19	320	250	320	160	95	51	41	41	50	44	85	88
20	300	240	290	150	93	48	41	49	51	46	92	83
21	270	230	280	140	89	47	40	50	51	55	140	85
22	240	230	250	180	86	46	39	45	52	51	120	83
23	220	230	260	330	81	46	40	41	52	50	110	76
24	200	220	290	360	79	52	39	40	51	49	100	76
25	180	220	260	310	82	51	38	42	46	48	92	87
26	180	220	280	270	78	50	38	41	46	49	87	79
27	190	220	280	250	74	50	38	41	45	49	81	240
28	170	220	290	250	72	46	38	41	44	49	77	r
29	190	250	280	260	71	45	38	40	43	50	73	e520
30	230	—	260	220	66	44	40	40	43	51	70	e410
31	370	—	230	—	64	—	39	40	—	57	—	380
<b>TOTAL</b>	<b>8530</b>	<b>8300</b>	<b>8350</b>	<b>6670</b>	<b>3540</b>	<b>1825</b>	<b>1269</b>	<b>1247</b>	<b>1372</b>	<b>1657</b>	<b>3400</b>	<b>3830</b>
<b>MEAN</b>	<b>328.1</b>	<b>307.4</b>	<b>269.4</b>	<b>222.3</b>	<b>114.2</b>	<b>60.8</b>	<b>40.9</b>	<b>40.2</b>	<b>45.7</b>	<b>53.4</b>	<b>117.2</b>	<b>127.7</b>
<b>MAX</b>	<b>510</b>	<b>510</b>	<b>400</b>	<b>360</b>	<b>200</b>	<b>100</b>	<b>45</b>	<b>50</b>	<b>52</b>	<b>98</b>	<b>400</b>	<b>520</b>
<b>MIN</b>	<b>170</b>	<b>220</b>	<b>180</b>	<b>140</b>	<b>64</b>	<b>44</b>	<b>38</b>	<b>35</b>	<b>40</b>	<b>43</b>	<b>35</b>	<b>66</b>
<b>AC-FT</b>	<b>16919</b>	<b>16463</b>	<b>16562</b>	<b>13230</b>	<b>7021</b>	<b>3620</b>	<b>2517</b>	<b>2473</b>	<b>2721</b>	<b>3287</b>	<b>6744</b>	<b>7597</b>

\*Incomplete record (monthly totals were computed when at least 80% of the record was complete for the month); e=estimated value; r=rating curve exceeded.

### GASO — 14202510 — Tualatin River at Gaston, Oregon [RM 62.3]



**SCLO – 14202850 – SCOGGINS CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 9.3]**

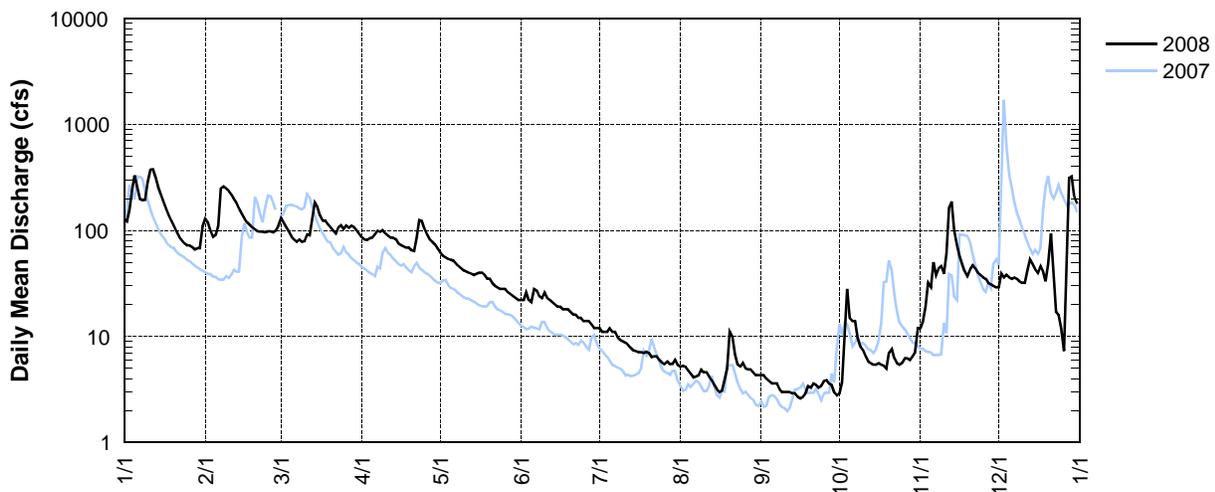
Latitude: 45 30 06 Longitude: 123 15 06

Source Agency: District 18 Watermaster

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	130	130	130	86	62	22	12	5.2	4.3	2.9	12	29
2	120	120	120	83	58	22	11	5.3	4.3	3.7	14	39
3	150	100	110	81	56	26	11	5.2	4	11	19	36
4	240	87	98	84	54	22	11	4.8	3.8	28	32	e38
5	330	91	89	85	53	21	12	4.5	3.6	15	29	36
6	250	110	81	92	52	28	11	4.1	3.6	13	51	35
7	200	250	77	99	49	27	11	4.2	3.5	14	38	35
8	190	260	82	97	47	24	9.8	4.3	3.1	9.6	44	35
9	190	250	78	100	44	23	9.3	4.9	3	8.1	46	33
10	280	230	79	94	42	26	9	4.6	3	7.5	39	32
11	370	220	92	89	41	23	8.7	4.6	3	6.5	61	32
12	380	200	90	85	39	22	8.3	4.2	3	5.9	170	42
13	320	180	130	85	39	21	7.8	3.9	2.9	5.6	190	e53
14	260	160	180	83	38	20	7.4	3.5	2.9	5.4	100	48
15	220	140	170	76	39	19	7.3	3.2	2.7	5.4	72	43
16	190	130	140	73	40	19	7.1	3	2.6	5.6	57	40
17	160	120	120	71	40	18	7.1	3.1	2.7	5.4	47	46
18	140	110	120	69	37	18	7	3.9	2.9	5.3	41	e41
19	120	110	120	69	35	17	7.1	5	3.4	5	37	33
20	110	100	110	65	35	17	7	11	3.3	7	43	48
21	97	98	100	64	32	16	6.4	9.8	3.6	7.6	47	93
22	87	97	94	85	30	16	6.5	6.7	3.5	6.2	44	42
23	81	97	110	120	29	15	6.5	5.4	3.3	5.6	40	17
24	76	97	110	120	28	15	6	5.2	3.4	5.4	38	e16
25	72	98	100	100	28	15	5.7	5.6	3.8	5.6	36	12
26	72	98	110	91	28	14	5.5	5	3.9	6.2	35	7.3
27	70	96	110	82	26	14	5.8	4.9	3.6	6.2	33	60
28	66	99	110	78	25	13	5.5	4.9	3.5	6	31	310
29	68	110	110	74	24	12	5.5	4.6	3	6.5	30	320
30	68	—	100	68	23	12	6	4.3	2.8	7.1	29	210
31	110	—	93	—	22	—	5.4	4.3	—	12	—	180
TOTAL	5217	3988	3363	2548	1195	577	246.7	153.2	100	244.3	1505	2041.3
MEAN	168.3	137.5	108.5	84.9	38.6	19.2	8.0	4.9	3.3	7.9	50.2	65.8
MAX	380	260	180	120	62	28	12	11	4.3	28	190	320
MIN	66	87	77	64	22	12	5.4	3	2.6	2.9	12	7.3
AC-FT	10348	7910	6670	5054	2370	1144	489	304	198	485	2985	4049

e=estimated value

**SCLO — 14202850 — Scoggins Creek above Henry Hagg Lake near Gaston, Oregon [RM 9.3]**



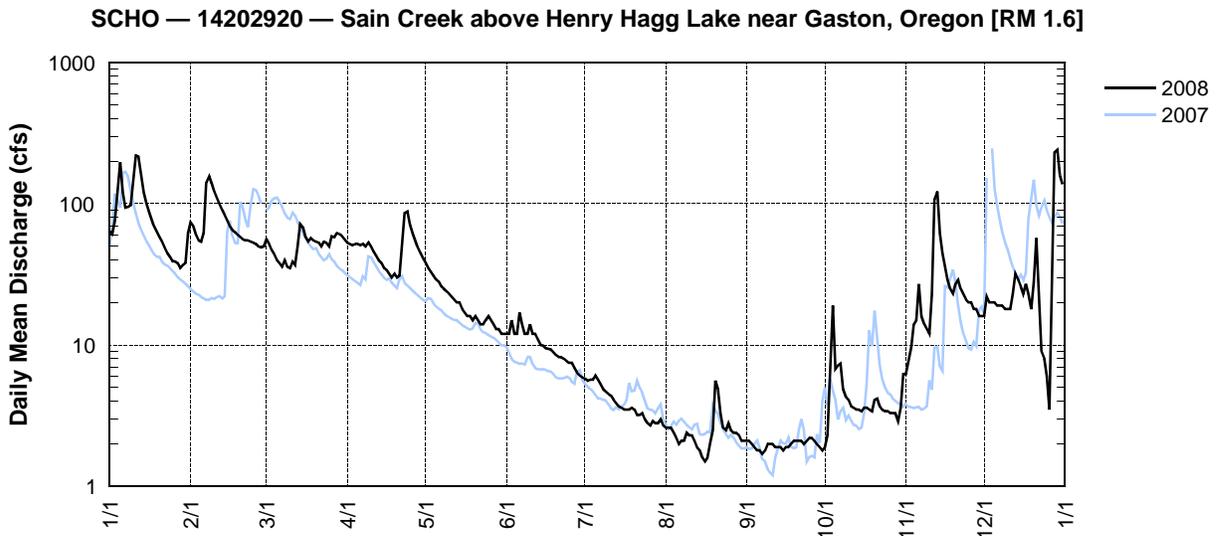
**SCHO – 14202920 – SAIN CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 1.6]**

Latitude: 45 28 50 Longitude: 123 14 40

Source Agency: District 18 Watermaster

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	65	74	56	53	38	12	e5.8	e2.6	e2.1	1.9	6.2	e16
2	61	70	52	52	35	12	e5.6	e2.7	e2.1	2.3	7.6	e22
3	75	60	47	51	33	15	e5.7	e2.6	e2	7.2	9.6	e20
4	120	55	44	52	31	12	e5.7	e2.4	e1.9	19	14	e20
5	200	54	40	51	29	12	e6.1	e2.2	e1.8	6.8	15	e20
6	120	62	38	51	28	17	e5.7	e2	e1.8	7.2	27	e19
7	94	140	36	52	26	14	e5.3	e2.1	e1.7	7.4	16	e19
8	95	160	40	50	25	12	e4.9	e2.1	e1.9	4.9	14	e19
9	98	140	36	53	24	12	e4.7	e2.4	2	4.3	13	e19
10	140	120	35	e50	23	15	e4.5	e2.3	2	4.1	12	e18
11	220	110	39	46	22	12	e4.4	e2.3	2	3.7	23	e18
12	220	100	37	43	21	11	e4.1	e2.1	1.9	3.6	110	e23
13	160	90	50	40	20	11	e3.9	e1.9	1.9	3.5	e120	e32
14	120	83	73	38	19	10	e3.7	e1.8	1.9	3.5	e63	e29
15	100	76	68	35	18	9.9	e3.6	e1.6	1.8	3.4	e45	e27
16	87	69	59	33	17	9.5	e3.5	e1.5	1.9	3.6	e36	e23
17	78	65	54	32	16	9.4	e3.5	e1.6	1.9	3.6	e29	e27
18	69	63	57	31	15	9.3	e3.5	e2	2	3.5	e25	e23
19	63	60	55	32	15	8.9	e3.6	e2.5	2.1	3.4	e23	e18
20	58	58	e55	30	16	8.5	e3.5	e5.6	2.1	4.1	e27	e28
21	54	56	53	31	15	8.2	e3.2	e4.9	2.1	4.2	e29	e57
22	49	55	50	49	15	8.2	e3.3	e3.3	2.1	3.7	e25	e23
23	45	55	54	86	14	8	e3.3	e2.6	2	3.5	e23	e9
24	42	54	53	88	15	7.7	e3	e2.5	2.1	3.4	e21	e8
25	39	53	50	71	17	7.5	e2.8	e2.8	2.2	3.4	e20	e6
26	39	52	59	62	15	7.5	e2.7	e2.5	2.2	3.3	e20	e3.5
27	38	50	58	55	14	e6.9	e2.9	e2.4	2.1	3.3	e18	e45
28	35	49	62	49	13	e6.4	e2.8	e2.4	2	3.3	e18	e230
29	37	50	61	45	13	e6.1	e2.8	e2.3	1.9	2.9	e16	e240
30	38	—	59	41	12	e5.9	e3	e2.1	1.8	3.7	e16	e160
31	62	—	e56	—	12	—	e2.7	e2.1	—	6.2	—	e140
TOTAL	2721	2183	1586	1452	626	304.9	123.8	76.2	59.3	141.9	841.4	1361.5
MEAN	87.8	75.3	51.2	48.4	20.2	10.2	4.0	2.5	2.0	4.6	28.0	43.9
MAX	220	160	73	88	38	17	6.1	5.6	2.2	19	120	240
MIN	35	49	35	30	12	5.9	2.7	1.5	1.7	1.9	6.2	3.5
AC-FT	5397	4330	3146	2880	1242	605	246	151	118	281	1669	2700

e=estimated value



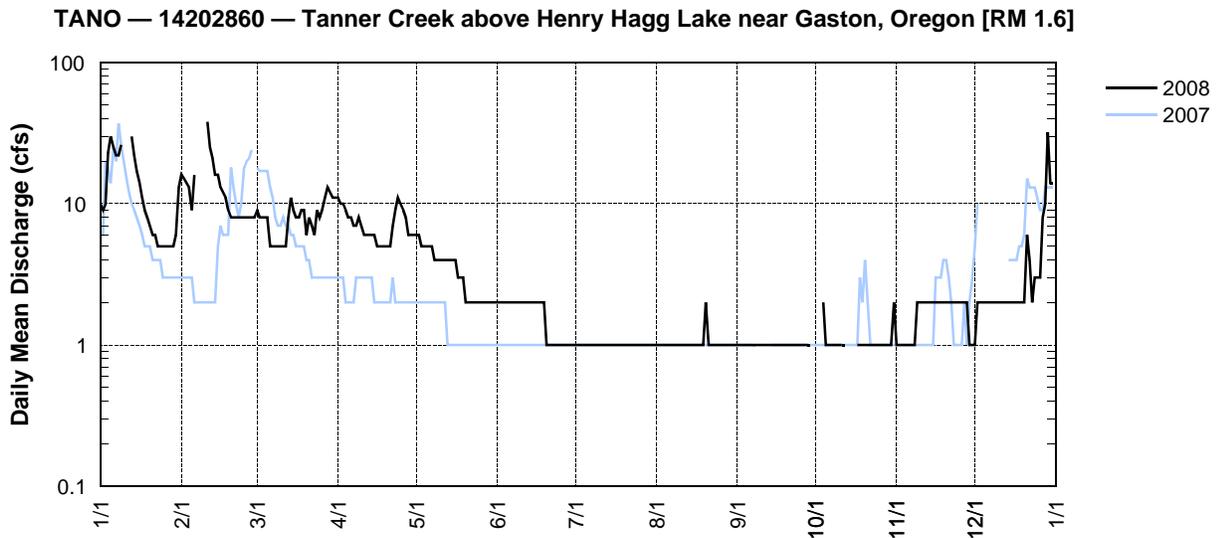
**TANO – 14202860 – TANNER CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 1.6]**

Latitude: 45 30 21 Longitude: 123 13 10

Source Agency: Tualatin Valley Irrigation District

Day	2008 Daily Mean Discharge in Cubic Feet per Second <sup>a</sup>											
	JAN	FEB*	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	10	16	9	11	6	2	1	1	1	0	1	1
2	9	15	8	10	6	2	1	1	1	0	1	2
3	10	14	8	10	5	2	1	1	1	0	1	2
4	23	13	8	9	5	2	1	1	1	2	1	2
5	30	9	8	8	5	2	1	1	1	1	1	2
6	25	16	5	8	5	2	1	1	1	1	1	2
7	22	m	5	7	5	2	1	1	1	1	1	2
8	22	m	5	7	4	2	1	1	1	1	1	2
9	26	m	5	8	4	2	1	1	1	1	2	2
10	>35	m	5	7	4	2	1	1	1	1	2	2
11	>35	38	5	6	4	2	1	1	1	1	2	2
12	>35	25	5	6	4	2	1	1	1	1	2	2
13	30	21	8	6	4	2	1	1	1	0	2	2
14	22	16	11	6	4	2	1	1	1	0	2	2
15	17	16	9	6	4	2	1	1	1	0	2	2
16	14	13	8	5	4	2	1	1	1	0	2	2
17	11	12	8	5	3	2	1	1	1	1	2	2
18	9	11	9	5	3	2	1	1	1	1	2	2
19	8	9	9	5	3	2	1	1	1	1	2	2
20	7	8	6	5	2	1	1	2	1	1	2	2
21	6	8	8	5	2	1	1	1	1	1	2	6
22	6	8	7	7	2	1	1	1	1	1	2	4
23	5	8	6	9	2	1	1	1	1	1	2	2
24	5	8	9	11	2	1	1	1	1	1	2	3
25	5	8	8	10	2	1	1	1	1	1	2	3
26	5	8	9	9	2	1	1	1	1	1	2	3
27	5	8	11	8	2	1	1	1	1	1	2	8
28	5	8	13	6	2	1	1	1	1	1	2	10
29	5	8	12	6	2	1	1	1	1	1	1	32
30	6	—	11	6	2	1	1	1	0	1	1	14
31	13	—	11	—	2	—	1	1	—	2	—	14
TOTAL	>466	324	249	217	106	49	31	32	29	26	50	138
AC-FT	>716	643	494	430	210	97	61	63	58	52	99	274

<sup>a</sup>Incomplete record; m=missing value; <sup>a</sup>Values are read from a staff plate. Values may be daily readings taken at about 0800 or averages over several days



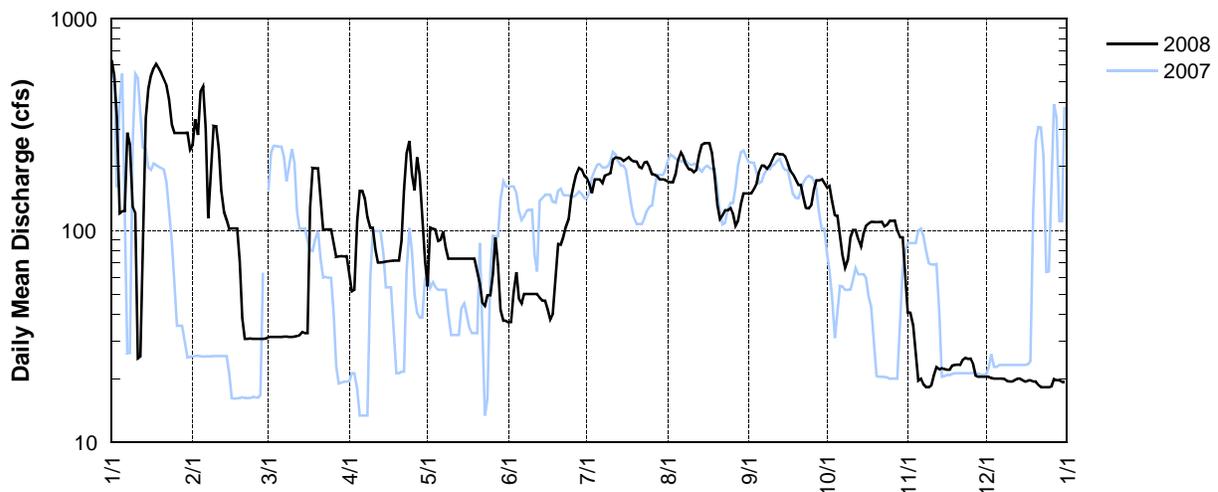
**SCOO – 14202980 – SCOGGINS CREEK BELOW HENRY HAGG LAKE NEAR GASTON, OREGON [RM 4.8]**

Latitude: 45 28 10 Longitude: 123 11 56

Source Agency: Bureau of Reclamation & District 18 Watermaster

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	636	253	31	62	55	37	176	170	149	159	41	20
2	537	335	31	52	103	37	165	168	149	162	41	20
3	345	282	31	53	102	51	150	168	157	138	36	20
4	121	453	31	112	101	64	174	185	166	117	26	20
5	123	478	31	154	89	47	174	217	190	117	20	20
6	123	305	31	153	90	45	174	233	202	96	20	20
7	289	114	32	141	99	50	167	222	202	76	19	20
8	254	198	31	115	83	50	181	204	195	67	18	20
9	129	311	31	103	74	50	183	194	202	73	18	19
10	120	310	31	103	74	50	186	194	215	93	19	19
11	25	245	32	82	74	50	216	188	228	100	21	19
12	25	154	32	70	74	50	221	193	230	100	23	20
13	112	122	32	70	74	48	220	225	229	91	22	20
14	338	112	33	71	74	47	219	253	228	84	22	20
15	465	102	33	71	74	47	212	257	223	97	22	20
16	536	102	33	72	74	42	217	258	207	105	22	19
17	581	102	128	72	74	38	221	258	192	108	22	20
18	609	102	197	72	74	40	215	231	184	110	23	20
19	577	72	196	72	74	62	212	178	173	110	23	19
20	546	39	196	72	64	86	211	132	164	110	23	19
21	514	31	143	89	56	86	200	113	164	110	23	19
22	482	31	101	156	46	93	197	118	143	110	24	18
23	415	31	101	231	44	104	208	124	127	105	25	18
24	315	31	101	264	49	113	210	124	127	106	25	18
25	288	31	101	183	49	144	198	127	132	111	25	18
26	288	31	87	155	62	165	183	120	155	111	23	18
27	288	31	75	221	93	185	183	105	172	111	21	20
28	287	31	75	184	69	198	181	111	172	100	20	20
29	288	31	75	120	42	194	174	133	175	93	20	20
30	289	—	75	72	37	181	174	149	167	93	20	19
31	240	—	76	—	38	—	173	149	—	64	—	19
TOTAL	10185	4466	2237	3447	2180	2453	5976	5504	5420	3225	708	604
MEAN	329	154	72	115	70	82	193	178	181	104	24	19
MAX	636	478	197	264	103	198	221	258	230	162	41	20
MIN	25	31	31	52	37	37	150	105	127	64	18	18
AC-FT	20202	8858	4437	6837	4324	4866	11853	10916	10751	6396	1404	1197

**SCOO — 14202980 — Scoggins Creek below Henry Hagg Lake near Gaston, Oregon [RM 4.8]**



**STATION NUMBER: 14203500 TUALATIN RIVER NEAR DILLEY, OREG.**

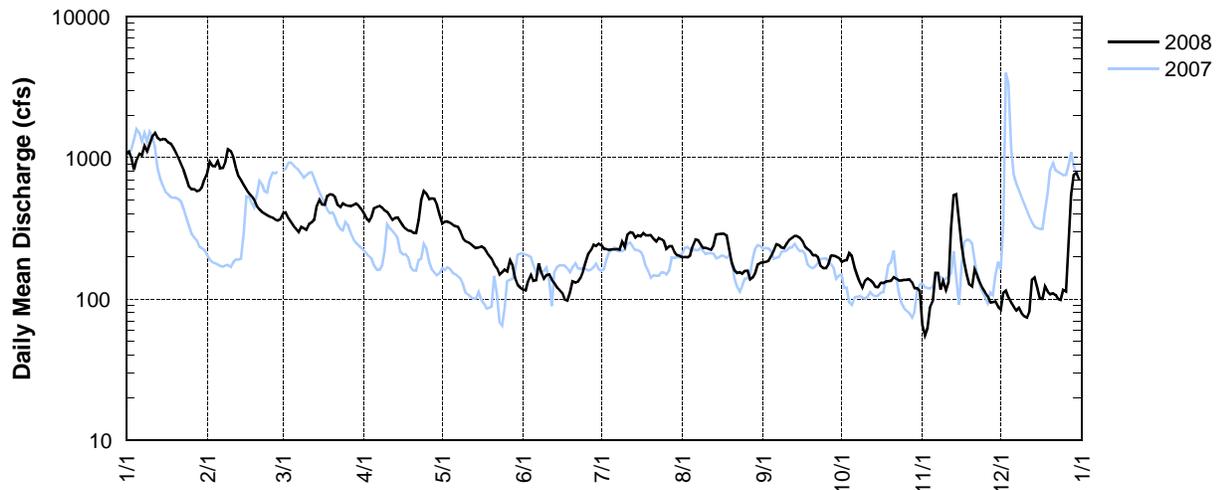
LATITUDE: 452830 LONGITUDE: 1230723 DRAINAGE AREA: 125.00 DATUM: 147.57

**Discharge, Cubic Feet per Second, Calendar Year January to December 2008 Daily Mean Values**

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1	1050	782	406	404	344	117	240	198	182	183	65	84
2	1100	930	409	371	352	115	226	199	184	187	55	111
3	993	873	375	356	354	135	226	197	187	189	62	115
4	820	870	353	381	348	148	222	202	201	210	88	103
5	968	947	331	441	337	135	224	236	220	203	99	94
6	1070	841	314	450	327	136	225	264	245	168	152	88
7	1040	846	299	458	325	179	226	261	242	147	154	83
8	1210	938	324	446	300	154	223	244	231	132	117	87
9	1110	1140	318	424	269	139	255	230	229	121	134	80
10	1240	1110	309	414	257	148	232	231	248	134	116	76
11	1420	1010	342	386	251	149	286	227	262	140	131	74
12	1500	846	350	363	243	138	297	223	271	137	318	82
13	1380	741	362	375	235	130	294	240	279	131	541	137
14	1340	691	457	378	230	121	271	286	280	122	554	142
15	1360	635	504	353	231	116	282	288	272	121	366	122
16	1350	595	468	330	237	111	277	290	259	131	242	101
17	1280	563	464	315	231	99	293	290	235	130	184	100
18	1260	538	537	305	216	97	283	283	226	133	149	123
19	1180	506	551	303	204	111	283	229	219	134	127	113
20	1090	454	548	293	194	133	283	182	204	134	122	108
21	988	431	528	293	176	131	267	160	204	143	162	110
22	895	415	461	360	166	133	256	153	197	139	147	107
23	819	404	447	501	149	141	271	155	172	135	131	100
24	720	393	475	578	155	157	265	152	165	135	120	99
25	631	383	463	557	161	181	257	158	166	136	111	117
26	598	377	456	508	156	210	227	159	176	137	105	113
27	597	366	455	513	188	222	237	138	204	138	94	249
28	579	360	465	512	173	243	236	143	202	132	95	545
29	585	368	473	467	141	238	216	153	200	119	96	752
30	617	—	460	399	126	247	204	176	196	119	88	784
31	711	—	435	—	121	—	202	181	—	114	—	699
TOTAL	31501	19353	13139	12234	7197	4514	7786	6528	6558	4434	4925	5698
MEAN	1016	667	424	408	232	150	251	211	219	143	164	184
MAX	1500	1140	551	578	354	247	297	290	280	210	554	784
MIN	579	360	299	293	121	97	202	138	165	114	55	74
AC-FT	62480	38390	26060	24270	14280	8950	15440	12950	13010	8790	9770	11300

<sup>†</sup> Provisional data—subject to revision

**DLLO — 14203500 — Tualatin River near Dilley, Oregon [RM 58.8]**



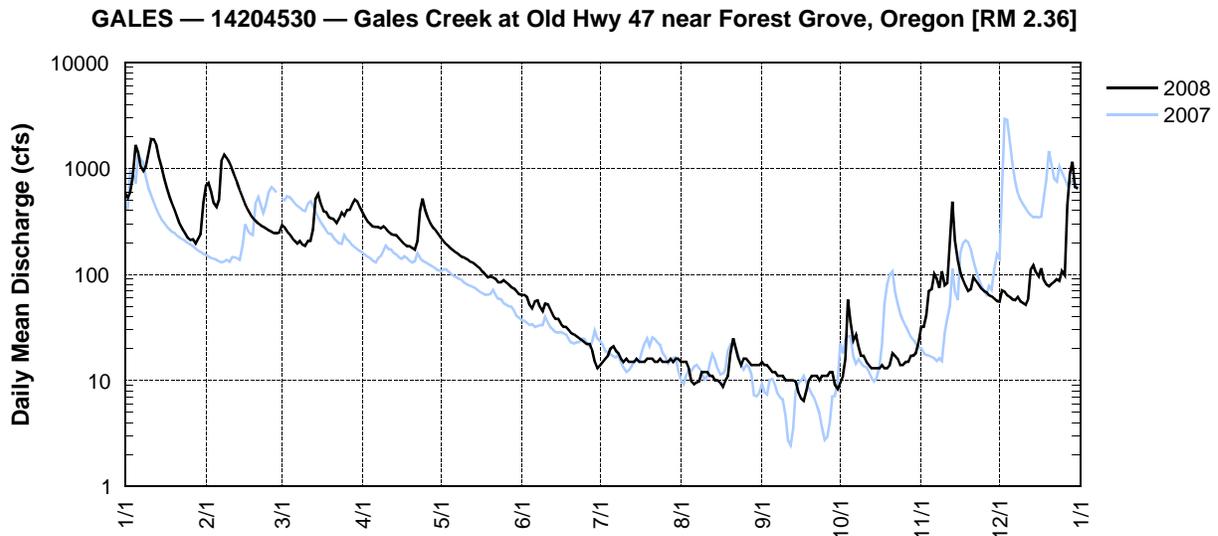
**GALES – 14204530 – GALES CREEK AT OLD HWY 47 NEAR FOREST GROVE, OREGON [RM 2.36]**

Latitude: 45 30 39 Longitude: 123 06 56

Source Agency: District 18 Watermaster

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	580	690	290	380	220	64	14	15	15	9.6	32	55
2	e530	730	280	340	210	64	15	15	14	11	32	71
3	e600	600	260	310	190	61	16	15	14	17	41	69
4	840	470	240	300	180	52	17	13	13	58	70	64
5	1700	430	220	280	170	48	19	9.9	12	36	73	61
6	1400	510	210	280	170	56	21	9.2	13	24	100	58
7	1000	1200	190	280	160	57	19	9.6	11	27	91	57
8	940	1300	210	270	150	49	18	9.8	11	21	75	61
9	1000	1300	190	280	150	45	16	12	11	17	110	56
10	1400	1100	190	270	140	53	15	12	10	17	79	54
11	1900	980	210	250	140	52	15	12	10	15	83	52
12	1900	840	210	240	130	46	15	11	11	14	210	59
13	1700	730	270	240	130	41	15	11	10	13	490	110
14	1300	620	520	230	130	39	15	10	9.8	13	210	120
15	1000	530	570	220	120	38	16	10	7.6	13	140	100
16	e800	460	470	200	110	34	15	9.5	6.7	13	110	95
17	650	410	390	190	110	32	15	8.7	6.4	14	89	110
18	550	370	390	180	99	32	15	10	7.9	13	78	88
19	470	340	350	180	94	30	16	11	10	13	71	80
20	410	320	340	180	97	29	17	18	11	14	73	77
21	340	300	330	170	95	27	16	25	11	18	94	82
22	300	290	310	200	91	26	15	20	11	17	87	e85
23	270	280	340	400	84	25	15	16	10	16	79	e90
24	240	270	380	520	84	24	16	14	11	14	74	e87
25	220	260	360	410	88	23	15	16	11	14	70	e110
26	210	250	400	340	84	23	15	16	11	15	68	e97
27	210	250	410	300	80	22	15	15	12	15	64	e450
28	190	240	460	280	76	19	16	14	11	17	62	e890
29	220	250	510	260	74	15	15	14	9.1	17	59	e1200
30	240	—	490	240	70	13	16	14	8.3	18	56	e670
31	480	—	430	—	65	—	17	14	—	23	—	650
TOTAL	23590	16320	10420	8220	3791	1139	495	409.7	319.8	556.6	2970	5908
MEAN	761.0	562.8	336.1	274.0	122.3	38.0	16.0	13.2	10.7	18.0	99.0	190.6
MAX	1900	1300	570	520	220	64	21	25	15	58	490	1200
MIN	190	240	190	170	65	13	14	8.7	6.4	9.6	32	52
AC-FT	46790	32370	20668	16304	7519	2259	982	813	634	1104	5891	11718

e=estimated value



**TRGC – 14204800 – TUALATIN RIVER AT GOLF COURSE ROAD NEAR CORNELIUS, OREGON [RM 51.5]**

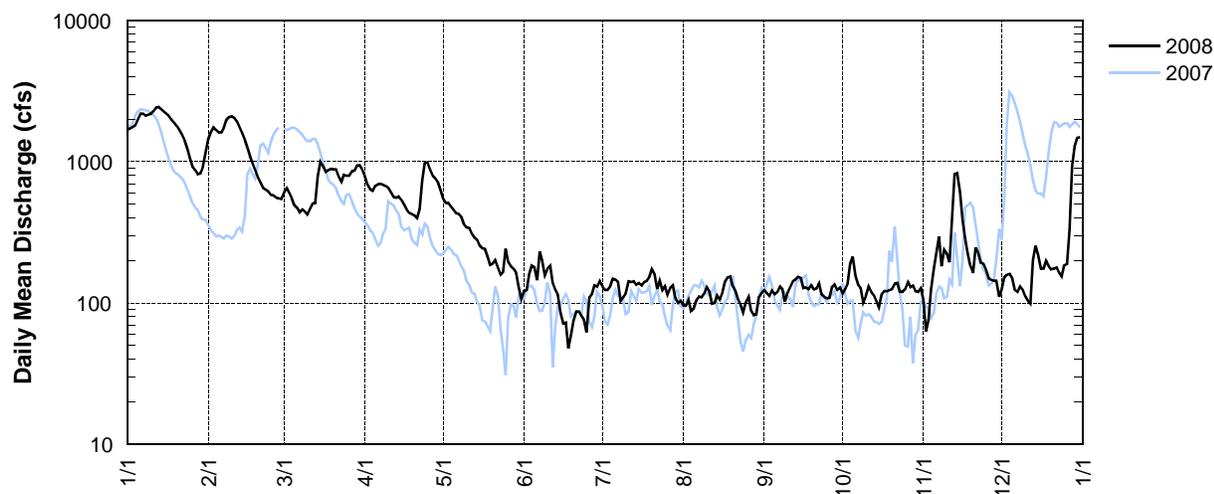
Latitude: 45 30 08 Longitude: 123 03 22

Source Agency: District 18 Watermaster

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1700	1400	610	790	540	120	130	96	120	120	110	130
2	1700	1600	650	690	510	120	120	96	120	130	63	150
3	1800	1700	600	640	510	160	120	110	110	140	76	160
4	1800	1700	550	620	480	180	130	88	120	190	120	160
5	2000	1600	490	670	460	180	150	91	120	210	180	150
6	2200	1600	470	690	430	140	150	100	120	150	230	120
7	2200	1700	440	700	430	230	140	110	130	130	300	120
8	e2100	2000	460	690	410	200	100	110	130	130	180	130
9	2100	2100	450	670	360	160	110	120	100	100	240	120
10	2200	2100	420	650	340	170	120	130	120	110	220	110
11	2300	2000	470	600	340	180	140	120	130	130	190	100
12	2400	1900	510	560	310	140	140	99	140	120	420	99
13	2400	1800	510	560	290	120	140	100	150	110	820	200
14	2300	1600	790	570	280	110	140	110	150	100	830	250
15	2300	1400	1000	540	260	86	140	110	150	93	610	220
16	2200	1300	930	500	240	72	130	120	130	120	390	170
17	2100	1100	850	460	240	73	140	140	130	120	290	180
18	2000	970	880	430	210	49	140	150	130	120	220	200
19	1900	870	890	430	190	59	150	150	130	120	180	180
20	1800	780	880	420	190	75	170	130	130	130	160	170
21	1700	710	880	400	200	87	160	120	130	140	250	170
22	1500	650	780	460	180	87	130	110	140	140	230	180
23	1400	640	720	730	160	81	140	97	120	120	190	160
24	1300	620	810	980	170	76	120	86	110	120	190	150
25	1100	580	800	990	240	62	130	100	110	130	170	180
26	920	580	790	870	200	110	120	110	110	140	150	190
27	870	560	850	800	180	120	130	88	130	130	150	330
28	820	550	870	760	170	130	130	82	130	130	140	940
29	830	540	940	720	160	130	110	83	120	120	140	1300
30	920	—	940	640	130	140	100	110	130	120	110	1500
31	1200	—	880	—	110	—	100	120	—	130	—	1500
TOTAL	54060	36650	22110	19230	8920	3647	4070	3386	3790	3993	7549	9719
MEAN	1743.9	1263.8	713.2	641.0	287.7	121.6	131.3	109.2	126.3	128.8	251.6	313.5
MAX	2400	2100	1000	990	540	230	170	150	150	210	830	1500
MIN	820	540	420	400	110	49	100	82	100	93	63	99
AC-FT	107226	72694	43855	38142	17693	7234	8073	6716	7517	7920	14973	19277

e=estimated value

**TRGC — 14204800 — Tualatin River at Golf Course Road near Cornelius, Oregon [RM 51.5]**



**STATION NUMBER: 14205400 EAST FORK DAIRY CREEK NEAR MEACHAM CORNER, OR**

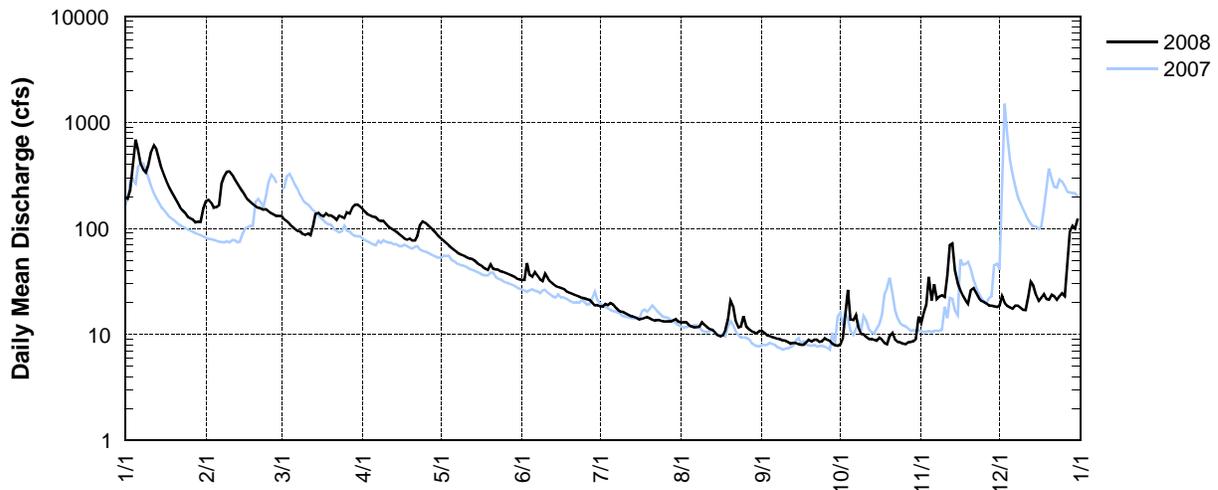
LATITUDE: 454051 LONGITUDE: 1230412 DRAINAGE AREA: 32.92 DATUM: 290

**Discharge, Cubic Feet per Second, Calendar Year January to December 2008 Daily Mean Values**

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1	198	182	131	152	80	33	18	13	11	8.1	13	19
2	192	186	122	144	76	33	18	13	10	9.2	16	23
3	228	175	117	135	73	47	19	13	9.8	15	19	20
4	382	157	111	133	69	37	19	12	9.7	27	35	19
5	689	158	104	129	66	35	20	12	9.4	14	21	18
6	546	165	99	127	62	39	19	12	9.3	14	30	18
7	403	265	94	121	60	36	18	12	9.1	15	22	19
8	359	310	94	117	58	33	17	12	9.0	12	23	19
9	336	343	89	118	56	32	16	13	8.8	10	24	18
10	398	344	87	111	55	37	16	12	8.7	10	23	17
11	536	322	90	103	53	34	16	12	8.6	9.4	35	17
12	607	291	86	100	52	31	15	11	8.2	9.0	69	22
13	558	266	104	97	51	30	15	11	8.3	9.0	73	31
14	458	242	137	93	50	29	15	11	8.3	8.9	40	29
15	370	221	141	88	47	28	14	9.9	8.1	8.7	31	24
16	313	203	133	84	45	28	14	9.6	8.0	9.3	26	21
17	273	188	130	80	43	27	14	9.8	8.0	8.9	23	22
18	241	177	138	78	42	26	14	11	8.4	8.3	21	24
19	216	169	132	80	41	25	15	14	8.9	8.1	19	22
20	198	161	133	77	46	24	14	21	8.6	9.7	26	21
21	176	157	129	77	42	24	14	18	8.9	10	27	24
22	159	154	120	85	41	23	14	13	8.9	8.9	25	23
23	148	150	131	108	41	23	14	12	8.5	8.5	22	21
24	140	151	129	117	39	22	14	12	8.5	8.4	21	23
25	129	144	125	113	39	22	13	15	9.2	8.2	20	24
26	125	139	142	107	38	21	13	12	8.9	8.1	20	23
27	121	135	138	101	37	21	13	11	8.7	8.5	19	46
28	114	131	157	96	36	20	13	11	8.2	8.5	19	94
29	116	131	167	92	35	19	14	11	7.9	8.6	18	106
30	115	—	168	86	34	19	14	10	7.8	9.0	18	100
31	155	—	161	—	33	—	13	11	—	15	—	123
TOTAL	8999	5817	3839	3149	1540	858	475	380.3	263.7	325.3	798	1030
MEAN	290	201	124	105	49.7	28.6	15.3	12.3	8.79	10.5	26.6	33.2
MAX	689	344	168	152	80	47	20	21	11	27	73	123
MIN	114	131	86	77	33	19	13	9.6	7.8	8.1	13	17
AC-FT	17850	11540	7610	6250	3050	1700	942	754	523	645	1580	2040

<sup>†</sup> Provisional data—subject to revision

**5400 — 14205400 — East Fork Dairy Creek near Meacham Corner, Oregon [RM 12.4]**

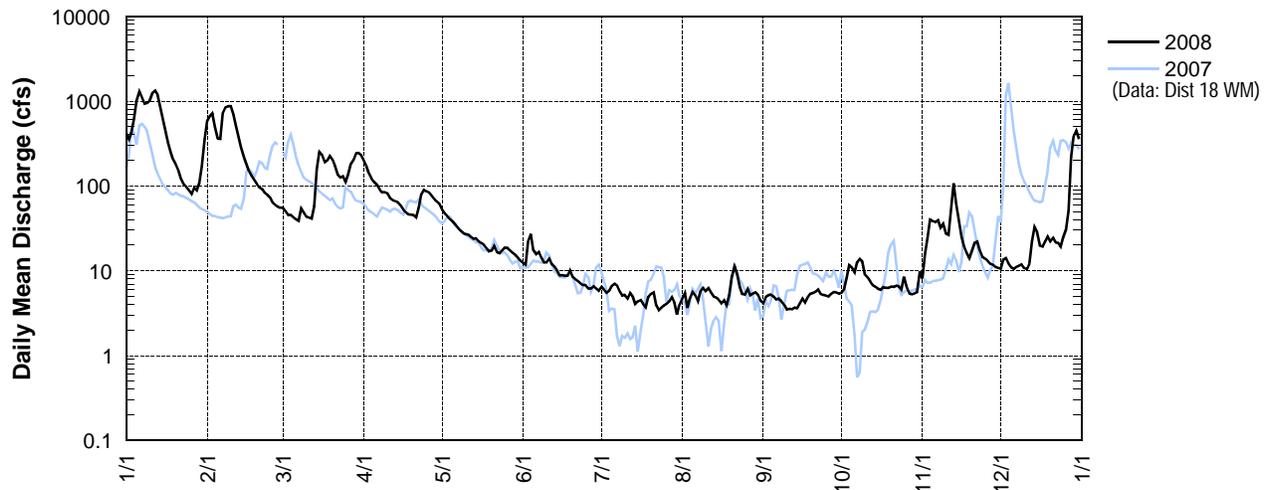


**MCSC – 14206070 – MCKAY CREEK AT SCOTCH CHURCH RD ABOVE WAIBLE CREEK NEAR NORTH PLAINS, OREGON [RM 6.3]**  
 Latitude: 45 57 21 Longitude: 122 99 18 Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	419	591	55	197	52	12	6.4	4.8	4.1	e5.5	e8.2	e11
2	354	665	50	170	47	12	6.0	5.5	4.9	e6.1	e16	e14
3	430	712	46	140	44	23	5.5	3.6	5.2	e8.2	e24	e14
4	618	499	45	122	41	27	5.8	4.8	5.2	e12	40	e12
5	1010	361	43	112	38	17	6.6	5.7	5.0	e11	38	e11
6	1300	357	41	103	36	16	7.0	5.1	4.6	e9.5	38	e11
7	1100	733	39	91	32	17	6.7	4.4	4.7	e13	39	e11
8	931	852	54	84	30	14	5.7	5.8	4.4	e14	32	e11
9	948	868	48	85	28	13	5.1	6.3	4.0	e13	36	e12
10	1010	872	43	83	27	13	5.2	5.8	3.5	e9.1	e27	e11
11	1250	699	42	72	27	14	4.7	6.2	3.6	e8.3	e27	e10
12	1330	516	41	68	25	12	5.5	5.5	3.5	e7.5	53	e12
13	1190	387	57	67	24	11	5.0	5.0	3.7	e6.8	108	e22
14	877	285	157	65	24	10	4.1	4.9	3.6	e6.5	62	e33
15	633	220	253	60	22	8.8	4.4	4.6	4.2	e6.1	38	e29
16	442	181	234	53	21	8.9	4.5	4.1	4.7	e6.0	e25	e20
17	323	150	191	49	20	8.8	4.0	4.5	4.2	e6.4	e19	e19
18	252	131	200	46	19	8.7	3.7	3.9	4.8	e6.3	e16	e22
19	204	118	227	46	17	10	5.0	5.1	5.3	e6.3	e14	e25
20	179	105	206	45	17	8.5	5.3	8.3	5.5	e6.5	e17	e22
21	149	97	173	42	20	7.9	5.6	11	5.7	e6.5	e21	e24
22	119	92	136	55	17	7.5	3.9	9.2	e6.0	e6.7	e22	e22
23	104	83	126	80	16	7.1	3.5	6.6	e5.3	e6.6	e17	e21
24	98	79	130	90	17	6.8	3.7	5.3	e5.2	e6.0	e15	e19
25	90	73	112	87	19	6.8	3.9	5.2	e5.1	e8.5	e14	e25
26	81	63	135	84	19	6.2	4.1	6.1	e5.0	e6.3	e13	e31
27	96	60	183	77	17	6.2	4.4	5.1	e5.4	e5.4	e12	51
28	89	57	202	71	16	6.6	4.9	5.4	e5.6	e5.3	e12	220
29	108	55	242	65	15	6.2	4.2	5.6	e5.6	e5.4	e11	391
30	171	—	245	62	14	5.8	3.0	5.2	e5.4	e5.6	e11	453
31	359	—	230	—	13	—	4.0	4.4	—	e9.9	—	357
TOTAL	16264	9961	3986	2471	774	331.8	151.4	173	143	240.3	825.2	1946
MEAN	524.7	343.5	128.7	82.3	25.0	11.0	4.9	5.6	4.8	7.7	27.6	62.8
MAX	1330	872	253	197	52	27	7.0	11	6.0	14	108	453
MIN	81	55	39	42	13	5.8	3.0	3.6	3.5	5.3	8.2	10
AC-FT	32260	19760	7906	4901	1535	658	300	343	284	477	1637	3860

e=estimated value

MCSC — 14206070 — McKay Creek at Scotch Church Road above Waible Creek near North Plains, Oregon [RM 6.3]



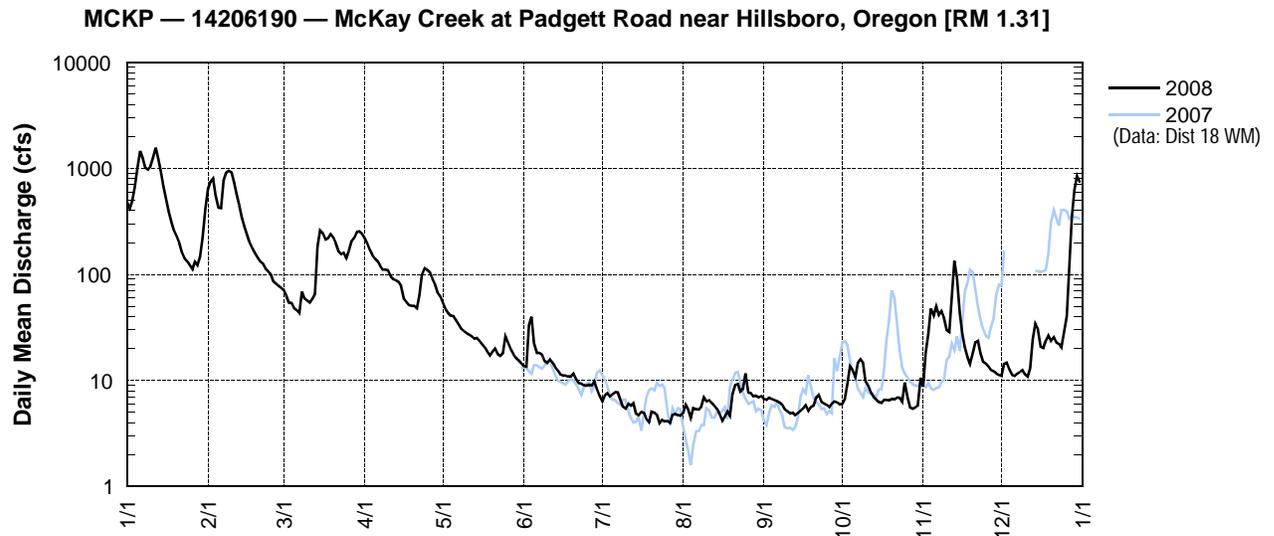
**MCKP – 14206190 – MCKAY CREEK AT PADGETT ROAD NEAR HILLSBORO, OREGON [RM 1.31]**

Latitude: 45 31 57 Longitude: 123 00 16

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e481	e640	e71	e218	53	14	6.3	4.9	6.7	6.0	8.8	11
2	e417	e753	e63	e196	47	14	7.3	5.9	6.6	6.7	18	14
3	e491	e803	e54	e170	43	33	7.6	5.3	6.9	9.3	27	15
4	e664	e556	e54	e152	41	40	7.1	4.4	6.7	14	48	13
5	e1030	e424	e48	e141	40	22	7.4	5.4	6.5	13	41	11
6	e1460	e420	e46	e133	37	18	7.7	5.3	6.4	11	50	11
7	e1250	e765	e43	e120	34	18	7.7	5.3	6.2	15	42	12
8	e1010	e909	e69	e111	31	17	6.6	5.7	5.9	16	45	12
9	e969	e953	e59	e111	29	15	5.7	6.9	5.3	15	39	13
10	e1040	e919	e57	e109	28	14	5.4	6.4	5.1	9.8	30	11
11	e1280	e735	e54	e95	27	16	6.0	6.5	4.9	8.8	28	11
12	e1560	e572	e59	e90	26	15	5.8	6.1	5.0	7.7	63	13
13	e1230	e450	e66	e88	25	13	6.1	5.8	4.7	7.0	135	24
14	e939	e347	e184	e85	25	12	4.9	5.4	4.9	6.6	95	34
15	e677	e278	e259	e78	24	11	4.7	4.8	5.2	6.3	43	31
16	e502	e234	e245	59	22	11	5.0	4.2	5.5	6.1	28	21
17	e386	e198	e213	55	20	11	4.9	4.6	5.9	6.6	20	20
18	e313	e176	e220	51	19	11	4.3	5.1	5.2	6.5	17	24
19	e260	e159	e241	50	17	11	4.0	4.6	5.6	6.5	14	27
20	e231	e143	e225	50	19	12	5.1	7.4	5.8	6.7	18	24
21	e197	e132	e198	48	20	10	4.9	9.1	6.9	6.6	23	26
22	e161	e126	e165	64	18	9.4	4.7	9.3	7.3	6.9	24	23
23	e142	e114	e156	101	17	9.4	4.0	7.9	6.3	6.8	18	22
24	e134	e108	e160	115	18	9.0	4.2	8.3	6.1	6.3	15	20
25	e123	e101	e142	111	26	8.9	4.1	12	5.9	9.5	14	29
26	e112	e87	e165	104	23	9.1	4.1	7.6	5.6	6.9	14	41
27	e132	e82	e207	90	20	9.0	4.0	7.6	6.1	5.6	13	121
28	e122	e78	e221	80	18	9.8	4.8	7.1	6.4	5.4	12	351
29	e146	e75	e251	68	16	8.3	4.8	7.2	6.2	5.6	12	629
30	e222	—	e254	63	16	7.2	4.7	6.9	5.9	5.8	11	848
31	e422	—	e242	—	15	—	4.6	7.1	—	11	—	734
TOTAL	18103	11337	4491	3006	814	418.1	168.5	200.1	177.7	261	965.8	3196
MEAN	584.1	390.8	144.9	100.2	26.2	14.0	5.4	6.5	5.9	8.3	32.1	103.0
MAX	1560	953	259	218	53	40	7.7	12	7.3	16	135	848
MIN	112	75	43	48	15	7.2	4.0	4.2	4.7	5.4	8.8	11
AC-FT	35910	22490	8908	5962	1615	829	334	397	352	518	1916	6339

e=estimated value



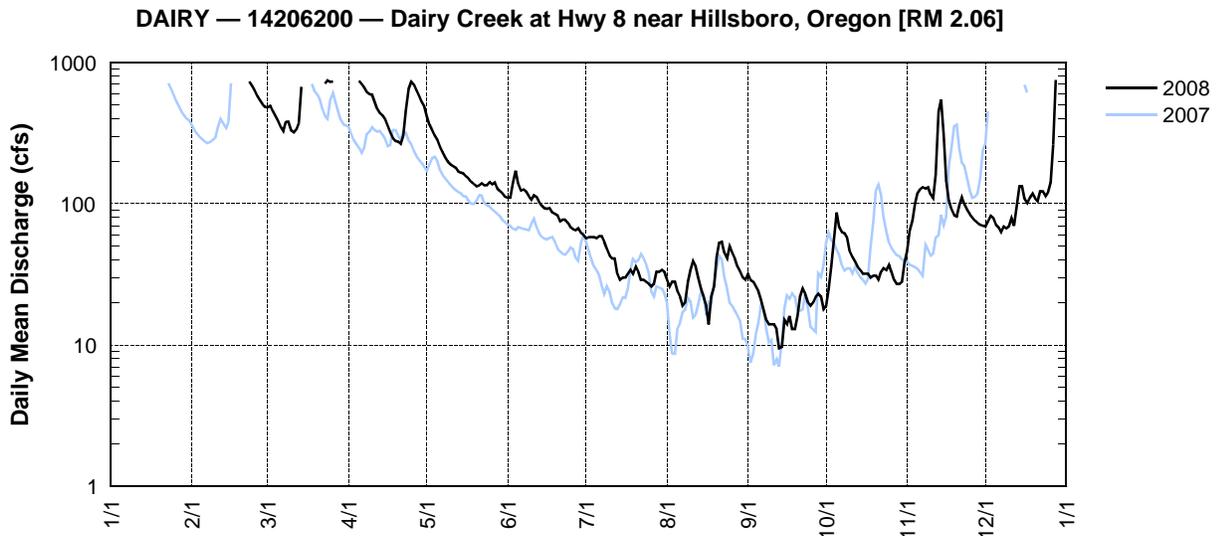
**DAIRY – 14206200 – DAIRY CREEK AT HWY 8 NEAR HILLSBORO, OREGON [RM 2.06]**

Latitude: 45 30 38 Longitude: 123 06 56

Source Agency: District 18 Watermaster

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN*	FEB*	MAR*	APR*	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC*
1	r	r	480	r	410	110	57	29	32	19	46	69
2	r	r	490	r	360	110	58	26	29	25	64	75
3	r	r	450	r	330	140	58	28	28	37	76	82
4	r	r	420	r	300	170	58	28	26	59	100	79
5	r	r	380	e740	280	140	57	24	24	87	120	71
6	r	r	350	710	250	120	59	21	21	68	130	68
7	r	r	330	660	230	130	59	19	18	63	130	63
8	r	r	380	620	210	120	55	20	15	62	130	69
9	r	r	380	590	200	110	47	28	14	57	130	67
10	r	r	330	590	190	110	43	34	14	46	120	69
11	r	r	320	530	190	120	41	39	14	42	110	79
12	r	r	340	470	180	110	41	35	13	39	160	70
13	r	r	370	440	170	100	32	30	9.5	36	450	96
14	r	r	e670	420	170	97	29	25	9.7	34	540	130
15	r	r	r	390	160	93	30	22	15	32	310	130
16	r	r	r	350	160	91	30	19	14	32	150	110
17	r	r	r	320	150	93	32	14	16	32	110	100
18	r	r	r	290	140	87	34	22	13	30	92	110
19	r	r	r	280	140	85	32	26	13	31	83	120
20	r	r	r	280	130	83	36	42	16	31	81	110
21	r	r	r	260	130	75	33	53	22	29	97	100
22	r	r	r	300	140	77	29	54	25	33	110	120
23	r	e730	e710	460	140	77	29	45	23	35	99	120
24	r	680	e750	650	140	73	28	41	20	34	90	110
25	r	630	e730	e730	140	68	27	50	19	37	84	120
26	r	580	e730	700	140	65	26	45	20	33	80	140
27	r	540	r	640	140	65	27	41	22	29	76	260
28	r	510	r	580	130	67	33	37	23	27	73	e750
29	r	480	r	530	120	62	33	33	22	27	71	r
30	r	—	r	480	120	61	34	30	18	28	70	r
31	r	—	r	—	110	—	33	29	—	38	—	r
TOTAL				13010	5800	2909	1220	989	568.2	1212	3982	3487
MEAN				500.4	187.1	97.0	39.4	31.9	18.9	39.1	132.7	124.5
MAX				740	410	170	59	54	32	87	540	750
MIN				260	110	61	26	14	9.5	19	46	63
AC-FT				25805	11504	5770	2420	1962	1127	2404	7898	6916

\*Incomplete record (monthly totals were computed when at least 80% of the record was complete for the month); e=estimated value; r=rating curve exceeded.



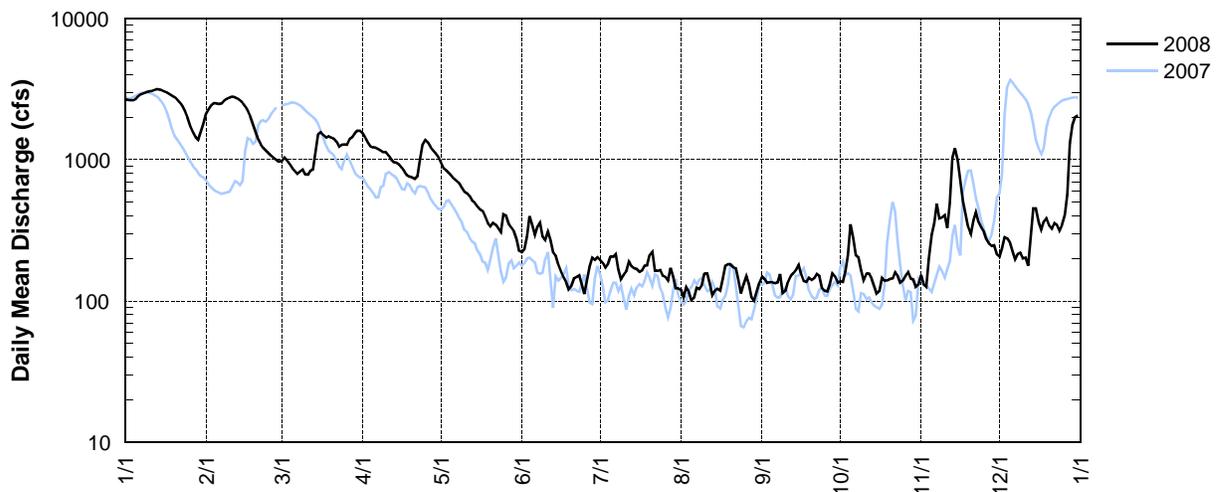
**TRJB – 14206241 – TUALATIN RIVER AT HWY 219 BRIDGE [RM 44.4]**

Latitude: 45 30 01 Longitude: 122 59 24

Source Agency: Jackson Bottom Wetland Education Center

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2697	2113	980	1536	949	222	196	120	149	138	153	205
2	2646	2278	1034	1426	868	233	186	107	143	137	131	237
3	2626	2428	994	1322	844	284	172	125	135	162	126	283
4	2633	2507	940	1242	809	400	183	117	136	212	200	278
5	2692	2502	879	1224	775	349	207	102	136	348	294	258
6	2815	2471	832	1215	731	294	206	106	134	276	355	225
7	2910	2504	796	1193	707	336	214	124	135	210	490	199
8	2957	2615	824	1160	681	360	167	122	156	203	384	216
9	3000	2702	849	1134	634	286	143	130	114	166	391	220
10	3030	2760	786	1133	596	270	153	156	119	141	405	201
11	3060	2783	782	1067	580	309	163	157	138	157	330	203
12	3106	2767	840	998	552	269	189	133	151	157	495	178
13	3148	2718	856	959	511	222	176	111	157	144	1031	284
14	3141	2635	1141	953	495	210	171	119	165	128	1207	452
15	3102	2527	1511	928	468	182	169	122	180	114	981	452
16	3050	2389	1567	877	445	161	161	119	155	118	706	361
17	2992	2221	1485	823	433	147	165	144	139	146	513	321
18	2925	2019	1435	779	395	136	178	178	137	139	415	365
19	2850	1793	1466	759	356	121	179	183	146	140	336	385
20	2766	1569	1437	752	337	128	211	182	141	143	297	345
21	2664	1394	1414	733	358	146	223	173	145	145	371	326
22	2535	1281	1340	764	347	149	163	171	155	161	424	357
23	2381	1208	1235	1003	327	152	163	141	151	151	361	345
24	2198	1160	1276	1279	306	132	167	113	124	135	332	315
25	1977	1108	1284	1375	412	112	152	131	118	140	308	345
26	1716	1061	1272	1319	403	142	148	150	117	152	272	406
27	1556	1023	1404	1226	350	176	140	132	132	161	254	572
28	1445	992	1442	1167	331	202	171	106	157	144	245	1318
29	1385	968	1534	1115	312	196	149	101	150	143	248	1770
30	1556	—	1598	1053	276	204	123	116	135	126	214	2000
31	1802	—	1602	—	228	—	123	136	—	132	—	2061
TOTAL	79358	58495	36833	32510	15816	6528	5310	4124	4250	4969	12267	15479
MEAN	2560	2017	1188	1084	510	218	171	133	142	160	409	499
MAX	3148	2783	1602	1536	949	400	223	183	180	348	1207	2061
MIN	1385	968	782	733	228	112	123	101	114	114	126	178
AC-FT	157407	116024	73058	64484	31370	12948	10533	8179	8430	9857	24332	30703

**TRJB — 14206241 —Tualatin River at Hwy 219 Bridge [RM 44.4]**



**ROOD – 14206295 – TUALATIN RIVER AT ROOD BRIDGE ROAD NEAR HILLSBORO, OREGON [RM 38.44]**

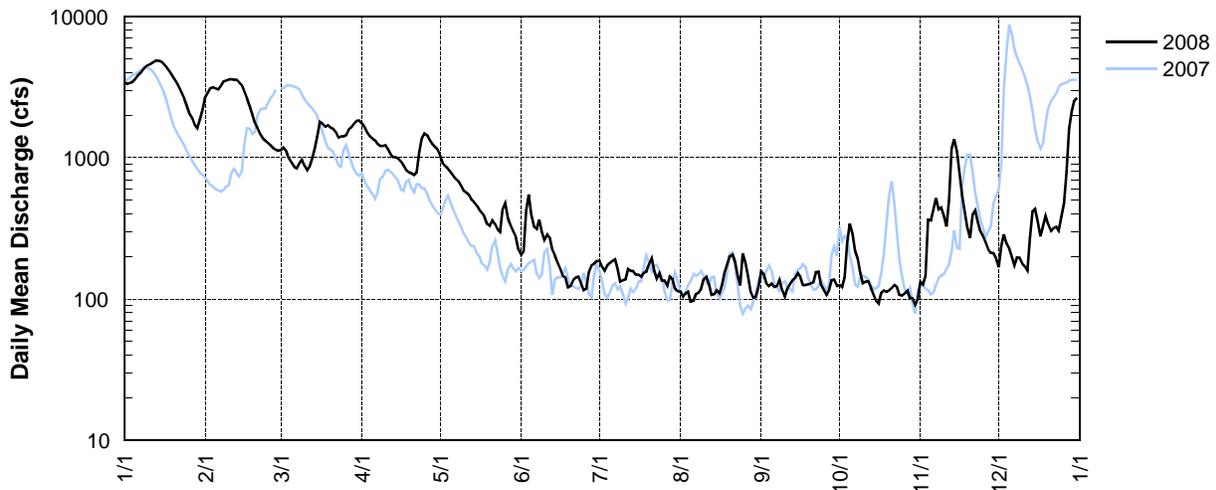
Latitude: 45 29 24 Longitude: 122 57 06

Source Agency: District 18 Watermaster

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	3400	2700	1100	1800	1000	210	190	110	160	130	130	170
2	3300	2900	e1200	1600	910	220	170	100	150	120	130	240
3	3400	3100	e1100	1500	870	420	160	110	130	140	150	290
4	3400	3200	1000	1400	840	550	170	110	120	250	360	250
5	3600	3100	930	e1400	800	400	180	97	130	340	360	230
6	3800	3000	870	e1300	750	320	190	97	120	290	430	200
7	3900	e3200	e840	e1300	710	310	190	110	120	220	520	170
8	4100	e3500	e910	1200	680	360	160	110	140	190	430	200
9	4400	e3500	e970	1200	630	300	130	120	120	150	450	200
10	4500	e3600	e880	1200	590	260	140	140	100	130	380	e180
11	4600	e3600	820	1100	570	290	140	140	120	130	330	e170
12	4700	e3500	870	1100	540	270	160	130	130	130	500	160
13	4800	3500	990	1000	500	220	160	110	140	120	1200	270
14	4900	3400	e1200	1000	490	200	160	110	140	110	1300	420
15	4800	3200	e1400	990	460	180	150	120	150	98	1100	430
16	4600	e2900	e1800	940	430	160	150	110	140	93	790	350
17	4400	e2600	e1700	880	410	150	140	130	130	110	540	280
18	4200	e2300	1700	820	380	140	150	150	130	110	410	330
19	3900	e2100	1700	790	340	120	160	180	130	110	320	390
20	3600	e1800	1600	780	330	120	180	200	130	120	e270	340
21	3400	1600	e1600	750	360	140	190	210	130	120	400	300
22	3100	1500	1500	790	340	140	160	180	160	130	430	320
23	2900	1400	1400	1100	310	140	140	150	160	120	350	320
24	2600	1300	1400	1400	300	130	150	120	130	110	300	300
25	2300	e1300	1400	1500	440	120	130	210	110	110	280	370
26	2000	e1200	1400	1400	480	120	130	180	110	110	250	480
27	1900	e1200	1600	1300	370	160	120	140	120	120	220	800
28	1700	1100	1600	1300	330	170	140	110	140	100	210	1600
29	1600	1100	1700	1200	300	180	140	100	140	100	210	2100
30	1800	—	1800	1200	280	190	120	100	120	91	190	e2500
31	2200	—	e1800	—	230	—	110	120	—	100	—	e2600
TOTAL	107800	72400	40780	35240	15970	6690	4760	4104	3950	4302	12940	16960
MEAN	3477.4	2496.6	1315.5	1174.7	515.2	223.0	153.6	132.4	131.7	138.8	431.3	547.1
MAX	4900	3600	1800	1800	1000	550	190	210	160	340	1300	2600
MIN	1600	1100	820	750	230	120	110	97	100	91	130	160
AC-FT	213818	143603	80886	69897	31676	13269	9441	8140	7835	8533	25666	33640

e=estimated value

**ROOD — 14206295 — Tualatin River at Rood Bridge Road near Hillsboro, Oregon [RM 38.4]**



**RCRR – 14206305 – ROCK CREEK AT NW ROCK CREEK ROAD NEAR BOWERS JUNCTION, OREGON [RM 15.8]**

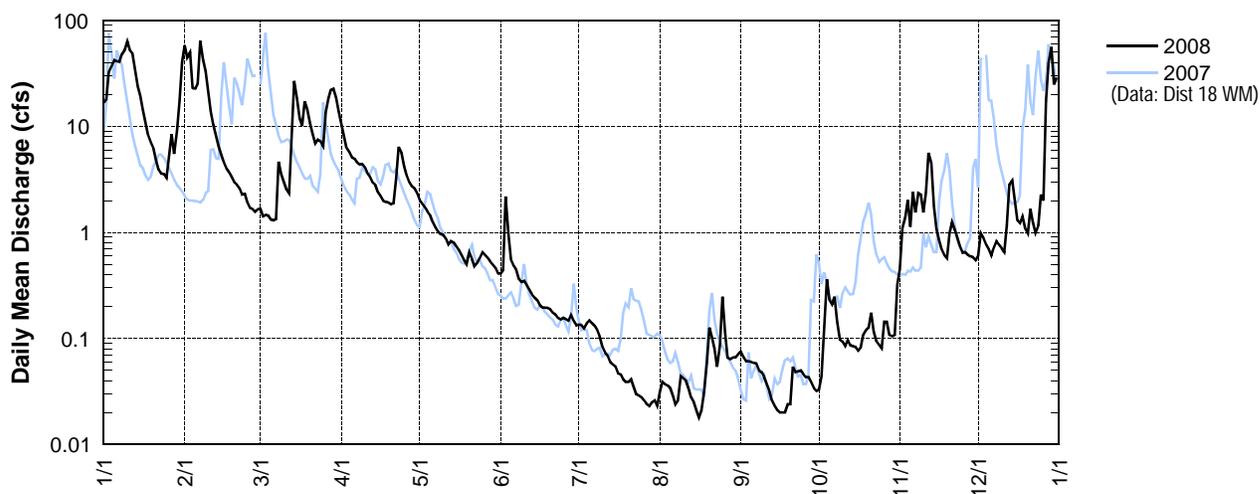
Latitude: 45 37 04 Longitude: 12 53 13

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	17	e58	1.7	11	2.0	0.41	0.13	0.03	0.08	0.03	0.45	0.60
2	18	e45	1.4	8.1	1.9	0.44	0.13	0.04	0.07	0.04	1.1	0.98
3	33	e50	1.5	6.3	1.7	2.2	0.13	0.04	0.06	0.11	1.4	0.89
4	37	e23	1.4	5.7	1.6	0.96	0.14	0.04	0.06	0.36	2.0	0.77
5	42	23	1.3	5.1	1.4	0.55	0.15	0.03	0.06	0.23	1.1	0.69
6	41	25	1.3	5.0	1.2	0.48	0.14	0.03	0.06	0.21	2.4	0.60
7	41	e64	1.3	4.6	1.1	0.45	0.13	0.02	0.06	0.25	1.6	0.72
8	e48	42	4.6	4.3	1.0	0.37	0.12	0.03	0.05	0.15	2.4	0.83
9	53	33	3.6	4.4	0.96	0.34	0.11	0.04	0.05	0.10	2.3	0.76
10	e63	21	3.0	4.1	0.94	0.35	0.08	0.04	0.04	0.09	1.5	0.70
11	53	14	2.5	3.6	0.87	0.32	0.07	0.04	0.04	0.09	2.4	0.65
12	49	10	2.3	3.3	0.77	0.29	0.07	0.03	0.03	0.10	5.6	1.2
13	34	8.0	8.6	3.0	0.83	0.26	0.06	0.03	0.03	0.09	4.5	2.8
14	24	6.4	27	2.8	0.81	0.24	0.06	0.03	0.02	0.08	1.8	3.1
15	19	5.4	18	2.4	0.74	0.23	0.05	0.02	0.02	0.08	1.1	2.1
16	14	4.6	12	2.2	0.68	0.21	0.05	0.02	0.02	0.08	0.85	1.3
17	11	4.0	10	2.0	0.61	0.20	0.05	0.02	0.02	0.08	0.69	1.2
18	8.3	3.7	17	1.9	0.55	0.19	0.04	0.03	0.02	0.11	0.62	1.4
19	7.0	3.3	14	1.9	0.50	0.19	0.04	0.06	0.02	0.12	0.57	1.1
20	6.2	3.0	11	1.8	0.65	0.19	0.04	0.13	0.02	0.13	0.98	0.97
21	4.8	2.8	8.5	1.9	0.56	0.17	0.04	0.10	0.05	0.18	1.3	1.7
22	3.9	2.6	6.9	3.2	0.48	0.17	0.04	0.08	0.05	0.12	1.1	1.2
23	3.6	2.3	7.5	6.4	0.52	0.16	0.03	0.05	0.05	0.10	0.90	0.99
24	e3.5	2.3	7.3	5.6	0.57	0.15	0.03	0.09	0.05	0.09	0.74	1.2
25	e3.3	1.9	6.4	4.2	0.65	0.16	0.03	0.25	0.05	0.08	0.64	2.3
26	e5.2	1.7	13	3.5	0.62	0.15	0.03	0.12	0.04	0.14	0.65	2.0
27	e8.5	1.7	18	3.0	0.58	0.15	0.02	0.07	0.04	0.14	0.62	17
28	e5.5	1.6	22	2.7	0.53	0.17	0.02	0.06	0.04	0.11	0.60	40
29	e9.0	1.7	23	2.6	0.50	0.15	0.03	0.07	0.03	0.11	0.58	e56
30	e17	—	19	2.3	0.46	0.13	0.03	0.07	0.03	0.11	0.55	25
31	e41	—	14	—	0.41	—	0.02	0.07	—	0.32	—	29
TOTAL	723.8	465	289.1	118.9	26.69	10.43	2.11	1.78	1.26	4.03	43.04	199.75
MEAN	23.3	16.1	9.3	4.0	0.87	0.35	0.068	0.057	0.042	0.13	1.4	6.4
MAX	63	64	27	11	2.0	2.2	0.15	0.25	0.08	0.36	5.6	56
MIN	3.3	1.6	1.3	1.8	0.41	0.13	0.02	0.02	0.02	0.03	0.45	0.60
AC-FT	1436	922	573	236	53	21	4.2	3.5	2.5	8.0	85	396

e=estimated value

**RCRR — 14206305 — Rock Creek at NW Rock Creek Road near Bowers Junction, Oregon [RM 15.8]**



**RCWU – 14206338 – ROCK CREEK AT WEST UNION ROAD NEAR BETHANY, OREGON [RM 9.0]**

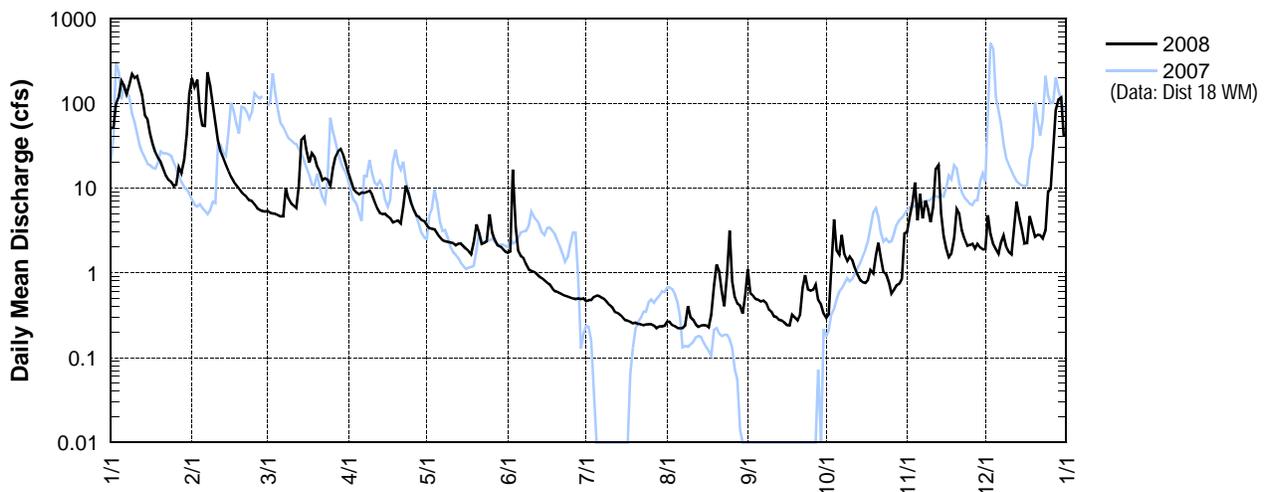
Latitude: 45 33 34 Longitude: 122 52 30

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	51	197	5.4	15	e3.6	e1.7	e0.47	e0.27	e1.1	e0.29	e3.0	e1.9
2	52	155	5.1	12	e3.4	e1.8	e0.47	e0.26	e0.57	e0.32	e4.5	e4.8
3	100	190	5.0	9.7	e3.3	e17	e0.48	e0.24	e0.53	e1.3	e6.7	e2.9
4	122	82	4.9	8.9	e3.2	e3.5	e0.52	e0.24	e0.49	e4.3	e12	e2.1
5	181	54	4.8	8.4	e2.9	e1.8	e0.54	e0.22	e0.48	e1.8	e4.2	e1.9
6	158	54	4.6	8.9	e2.6	e1.6	e0.53	e0.22	e0.46	e1.6	e8.5	e1.7
7	127	231	4.6	8.8	e2.4	e1.5	e0.51	e0.22	e0.47	e2.8	e4.4	e2.3
8	161	157	9.8	9.0	e2.4	e1.3	e0.49	e0.24	e0.44	e1.7	e7.1	e2.7
9	219	93	7.5	9.3	e2.3	e1.1	e0.46	e0.40	e0.37	e1.4	e5.6	e2.0
10	198	57	6.5	8.3	e2.3	e1.1	e0.42	e0.30	e0.35	e1.6	e4.0	e1.7
11	208	36	6.2	6.8	e2.2	e1.0	e0.39	e0.28	e0.30	e1.4	e6.0	e1.6
12	161	27	5.8	5.7	e2.1	e0.97	e0.35	e0.25	e0.30	e1.1	e17	e3.4
13	123	22	11	5.1	e2.2	e0.91	e0.34	e0.23	e0.28	e0.95	e19	e6.9
14	71	18	37	4.9	e2.2	e0.87	e0.32	e0.24	e0.27	e0.82	e5.0	e4.4
15	64	16	40	5.0	e2.1	e0.81	e0.30	e0.24	e0.26	e0.77	e2.7	e3.2
16	43	13	26	4.6	e1.9	e0.77	e0.28	e0.24	e0.24	e0.76	e1.9	e2.2
17	33	12	20	4.4	e1.8	e0.73	e0.27	e0.23	e0.24	e0.82	e1.5	e2.2
18	26	11	26	3.9	e1.7	e0.66	e0.27	e0.32	e0.32	e1.1	e1.7	e4.6
19	23	9.9	23	4.1	e2.3	e0.61	e0.25	e0.71	e0.30	e0.98	e2.6	e3.4
20	20	9.0	18	4.1	e3.7	e0.60	e0.26	e1.2	e0.28	e1.6	e5.6	e2.7
21	17	8.4	15	3.8	e2.9	e0.58	e0.25	e1.0	e0.32	e2.3	e4.9	e2.8
22	14	7.9	12	6.0	e2.2	e0.56	e0.25	e0.61	e0.66	e1.5	e3.2	e2.8
23	13	7.2	13	11	e2.2	e0.54	e0.24	e0.40	e0.94	e1.0	e2.5	e2.6
24	12	7.0	13	8.5	e2.4	e0.52	e0.24	e0.98	e0.64	e0.95	e2.1	e3.2
25	10	6.4	11	6.6	e4.9	e0.51	e0.25	e3.1	e0.62	e0.77	e2.1	9.1
26	11	5.8	17	5.5	e3.0	e0.50	e0.25	e0.79	e0.63	e0.57	e2.2	9.7
27	17	5.6	24	4.8	e2.4	e0.49	e0.24	e0.51	e0.74	e0.63	e1.9	31
28	15	5.4	27	4.6	e2.1	e0.50	e0.22	e0.43	e0.48	e0.71	e2.2	83
29	21	5.3	29	4.2	e2.0	e0.49	e0.23	e0.41	e0.42	e0.75	e2.0	111
30	43	—	24	e4.1	e1.9	e0.50	e0.23	e0.33	e0.33	e0.86	e1.9	117
31	129	—	19	—	e1.8	—	e0.24	e0.55	—	e2.9	—	41
TOTAL	2443	1502.9	475.2	206	78.4	45.52	10.56	15.66	13.83	40.35	148	471.8
MEAN	78.8	51.8	15.3	6.9	2.5	1.5	0.34	0.51	0.46	1.3	4.9	15.2
MAX	219	231	40	15	4.9	17	0.54	3.1	1.1	4.3	19	117
MIN	10	5.3	4.6	3.8	1.7	0.49	0.22	0.22	0.24	0.29	1.5	1.6
AC-FT	4846	2981	943	409	156	90	21	31	27	80	294	936

e=estimated value

**RCWU — 14206338 — Rock Creek at West Union Road near Bethany, Oregon [RM 9.0]**



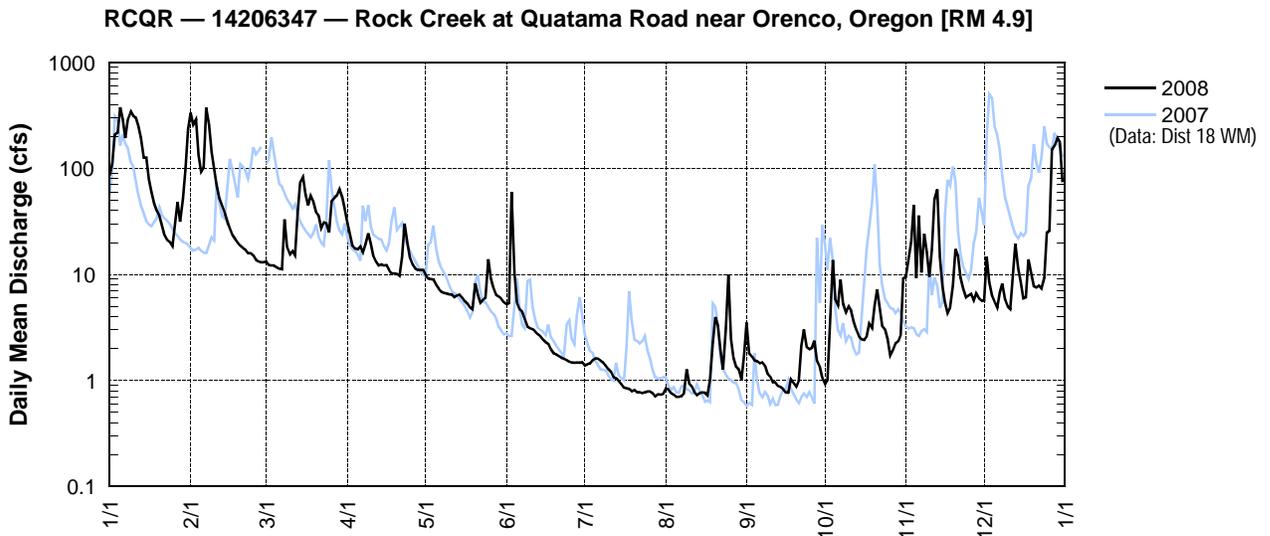
**RCQR – 14206347 – ROCK CREEK AT QUATAMA ROAD NEAR ORENCO, OREGON [RM 4.9]**

Latitude: 45 31 25 Longitude: 122 54 34

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	85	335	13	31	9.8	5.2	1.4	0.84	3.5	0.93	9.5	5.6
2	111	259	12	24	9.1	5.4	1.4	0.83	1.8	1.0	14	15
3	209	291	12	19	9.0	60	1.4	0.76	e1.7	4.2	20	8.5
4	218	133	12	18	9.0	10	1.6	0.73	e1.5	14	45	6.3
5	375	93	12	17	8.0	5.4	1.6	0.70	e1.5	5.7	9.2	5.5
6	289	102	11	18	7.4	4.7	1.6	0.70	e1.5	5.1	36	4.9
7	193	373	11	16	6.9	4.4	1.5	0.71	e1.5	8.9	10	6.7
8	292	257	33	19	6.7	3.8	1.5	0.75	e1.4	5.3	24	8.2
9	344	143	18	24	6.6	3.2	1.4	1.3	e1.2	4.4	16	5.7
10	312	97	16	19	6.5	3.1	1.3	0.94	e1.1	5.0	9.5	5.0
11	301	68	17	15	6.4	3.1	1.2	0.88	e0.96	4.5	17	4.7
12	250	52	15	13	6.1	2.9	1.1	0.78	e0.96	3.6	51	9.9
13	193	44	37	12	6.3	2.7	1.1	0.73	e0.89	3.0	63	20
14	126	38	74	12	6.5	2.6	0.99	0.76	e0.87	2.6	15	11
15	126	32	83	12	6.0	2.4	0.92	0.77	e0.82	2.4	7.8	8.5
16	79	27	57	12	5.6	2.3	0.86	0.76	e0.77	2.4	5.5	6.0
17	60	24	45	11	5.3	2.2	0.84	0.72	e0.76	2.6	4.3	6.1
18	47	21	55	10	4.9	2.0	0.83	1.0	e1.0	3.4	4.9	14
19	40	20	49	10	4.7	1.8	0.79	2.3	e0.95	3.1	7.9	10
20	36	19	39	10	8.2	1.8	0.81	4.0	e0.88	5.1	17	7.8
21	29	18	36	9.7	6.4	1.7	0.77	3.3	1.0	7.2	15	7.5
22	23	17	28	14	5.4	1.6	0.77	1.9	2.1	4.7	9.3	7.9
23	21	16	31	30	5.8	1.6	0.76	1.3	3.0	3.3	7.4	7.4
24	20	16	31	20	6.0	1.6	0.77	3.1	2.0	3.0	6.1	9.2
25	18	15	25	14	14	1.5	0.78	10	2.0	2.4	6.3	25
26	29	14	49	12	9.2	1.5	0.78	2.5	2.0	1.7	6.5	26
27	48	13	52	11	7.4	1.5	0.76	1.6	2.4	1.9	5.7	151
28	31	13	55	11	6.4	1.5	0.71	1.3	1.5	2.2	6.6	164
29	52	13	64	11	6.2	1.5	0.74	1.3	1.3	2.3	5.9	193
30	99	—	54	11	5.9	1.5	0.73	1.0	1.1	2.7	5.6	174
31	233	—	42	—	5.4	—	0.75	1.7	—	9.2	—	74
TOTAL	4289	2563	1088	465.7	217.1	144.5	32.46	49.96	43.96	127.83	461	1008.4
MEAN	138.4	88.4	35.1	15.6	7.0	4.8	1.0	1.6	1.5	4.1	15.4	32.5
MAX	375	373	83	31	14	60	1.6	10	3.5	14	63	193
MIN	18	13	11	9.7	4.7	1.5	0.71	0.70	0.76	0.93	4.3	4.7
AC-FT	8507	5084	2158	924	431	287	64	99	87	254	914	2000

e=estimated value



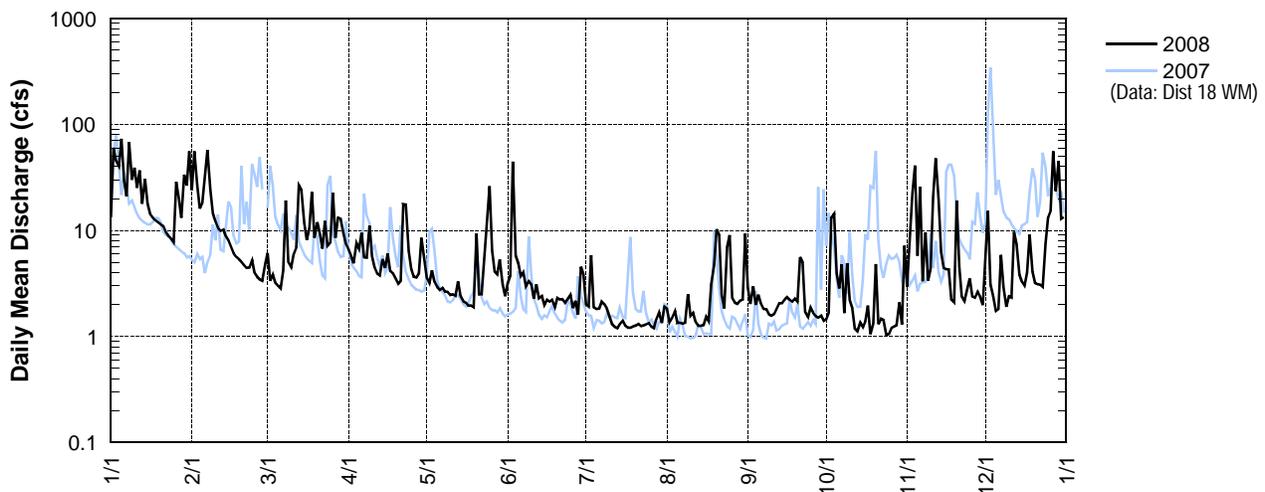
**BCCH – 14206360 – BEAVERTON CREEK AT CEDAR HILLS BLVD AT BEAVERTON, OREGON [RM 7.45]**

Latitude: 45 49 31 Longitude: 122 81 05

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	13	24	6.1	6.6	3.6	3.2	2.0	1.8	2.9	1.5	3.0	6.2
2	60	56	3.4	5.8	3.2	3.8	1.9	1.4	2.0	1.7	7.9	15
3	45	27	3.9	4.9	4.2	44	5.8	1.5	3.0	13	23	3.1
4	40	16	3.2	7.6	3.3	5.8	1.9	1.7	2.0	14	41	2.4
5	73	18	3.0	6.6	2.9	5.0	1.8	1.3	2.5	4.0	5.7	1.7
6	30	33	2.8	9.5	2.7	3.7	1.8	1.4	2.0	2.8	26	1.8
7	21	57	4.2	5.6	2.9	4.0	2.1	1.3	1.8	4.8	3.3	5.9
8	68	25	19	5.5	2.6	3.0	2.0	1.4	1.8	1.7	9.6	2.9
9	30	14	5.0	11	2.6	3.3	1.8	2.5	1.6	4.9	3.4	1.9
10	39	12	4.5	5.7	2.5	3.1	1.5	1.6	1.6	2.2	4.3	2.4
11	25	11	6.0	4.4	2.5	2.3	1.3	1.7	1.6	1.9	21	2.3
12	37	9.9	6.9	3.9	2.4	3.1	1.2	1.4	1.8	1.2	48	9.7
13	18	10	26	3.8	3.3	2.3	1.2	1.3	2.1	1.1	20	7.4
14	31	8.8	24	5.4	2.4	2.4	1.3	1.3	2.1	1.3	6.2	3.8
15	18	8.0	12	4.4	2.1	2.0	1.4	1.3	2.2	1.2	4.5	3.3
16	14	7.0	8.1	6.1	2.1	2.2	1.3	1.5	2.4	1.4	4.3	3.0
17	13	6.1	10	4.1	1.9	2.1	1.2	1.4	2.2	2.0	4.3	4.0
18	12	5.6	23	3.9	2.0	2.2	1.2	3.1	2.1	1.1	2.2	9.1
19	12	5.3	8.5	3.5	1.9	1.9	1.2	4.7	2.3	1.3	2.1	4.1
20	11	5.1	12	3.1	9.3	2.3	1.3	10	2.1	4.8	19	3.2
21	11	4.7	9.4	3.3	2.5	2.2	1.3	9.1	5.6	1.3	4.6	3.1
22	9.7	4.4	6.8	18	2.5	2.2	1.3	2.5	5.0	1.5	2.4	3.1
23	8.9	4.4	12	17	4.8	2.1	1.3	1.8	1.7	1.4	2.1	2.9
24	8.3	5.2	7.2	6.4	11	2.3	1.3	7.0	1.5	1.0	2.8	7.5
25	7.7	4.0	7.7	4.3	26	2.5	1.3	9.0	1.9	1.1	3.5	13
26	29	3.6	23	3.6	6.5	1.9	1.2	2.3	1.7	1.2	2.4	16
27	20	3.4	8.5	3.6	4.1	2.2	1.2	2.1	1.6	1.2	2.3	56
28	13	3.4	13	3.9	3.9	1.6	1.5	2.0	1.5	1.3	2.6	24
29	34	4.7	13	8.5	5.3	4.6	1.7	2.2	1.6	2.1	2.4	45
30	26	—	9.4	5.3	3.1	3.9	1.3	2.2	1.4	1.3	2.0	13
31	56	—	7.4	—	2.4	—	1.9	9.4	—	7.2	—	13
TOTAL	833.6	396.6	309	185.3	132.5	127.2	50.5	93.2	65.6	88.5	285.9	289.8
MEAN	27.0	13.7	10.0	6.2	4.3	4.2	1.6	3.0	2.2	2.9	9.5	9.3
MAX	73	57	26	18	26	44	5.8	10	5.6	14	48	56
MIN	7.7	3.4	2.8	3.1	1.9	1.6	1.2	1.3	1.4	1.0	2.0	1.7
AC-FT	1653	787	613	368	263	252	100	185	130	176	567	575

**BCCH — 14206360 — Beaverton Creek at Cedar Hills Blvd at Beaverton, Oregon [RM 7.45]**



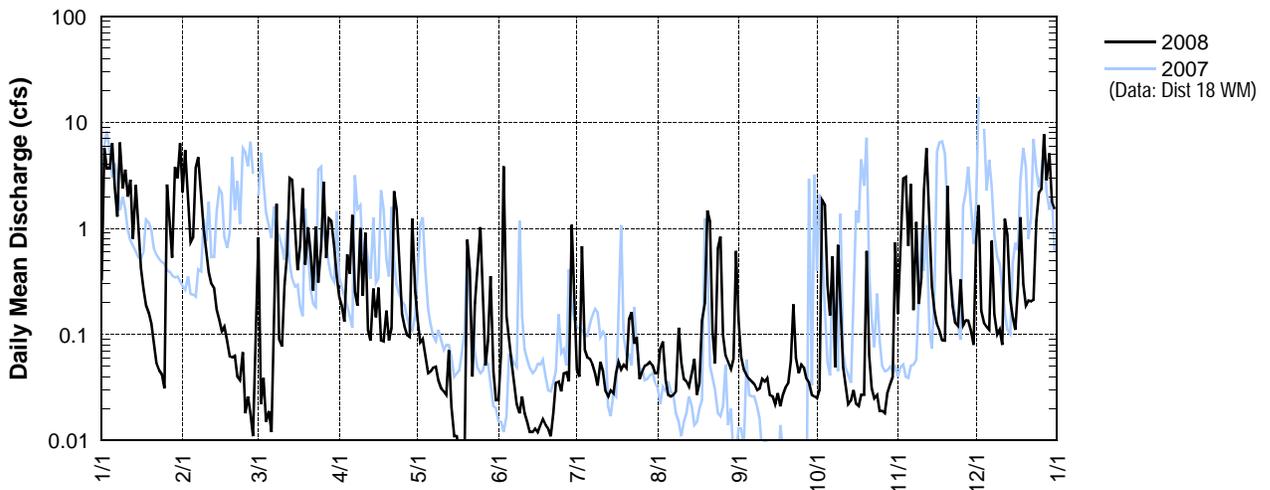
**ECMR – 14206365 – ERICKSON CREEK AT MENLO DRIVE AT BEAVERTON, OREGON [RM 0.76]**

Latitude: 45 29 14 Longitude: 122 58 54

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.32	2.2	0.82	0.22	0.14	0.02	0.05	0.04	0.13	0.03	0.16	0.77
2	5.7	5.5	0.02	0.19	0.08	0.07	0.04	0.08	0.06	0.03	0.76	1.6
3	3.7	1.8	0.04	0.13	0.09	3.8	0.68	0.09	0.05	1.8	2.9	0.17
4	3.7	0.74	0.02	0.57	0.06	0.15	0.07	0.04	0.04	1.7	3.1	0.13
5	6.4	0.83	0.02	0.37	0.04	0.09	0.06	0.03	0.04	0.29	0.68	0.12
6	2.4	3.7	0.01	1.3	0.05	0.06	0.06	0.03	0.04	0.15	2.6	0.11
7	1.3	4.7	0.31	0.25	0.05	0.04	0.05	0.03	0.03	0.54	0.17	0.77
8	6.5	2.2	1.7	0.19	0.05	0.02	0.04	0.03	0.03	0.05	1.2	0.16
9	2.4	0.99	0.09	1.0	0.04	0.02	0.03	0.12	0.03	0.70	0.19	0.10
10	3.6	0.61	0.08	0.23	0.03	0.03	0.06	0.06	0.04	0.16	0.34	0.11
11	2.0	0.39	0.29	0.91	0.03	0.02	0.05	0.04	0.04	0.05	2.3	0.08
12	2.9	0.30	0.57	0.11	0.03	0.02	0.03	0.04	0.04	0.03	5.7	1.2
13	0.80	0.27	3.0	0.09	0.07	0.01	0.03	0.03	0.03	0.02	1.4	0.88
14	2.6	0.17	2.9	0.27	0.02	0.01	0.03	0.04	0.03	0.02	0.29	0.21
15	0.93	0.14	0.90	0.15	0.01	0.01	0.03	0.06	0.02	0.03	0.17	0.15
16	0.42	0.11	0.40	0.28	0.01	0.01	0.04	0.03	0.03	0.02	0.12	0.11
17	0.27	0.12	0.69	0.09	0.01	0.01	0.06	0.04	0.02	0.02	0.11	0.27
18	0.19	0.09	2.4	0.09	0.01	0.02	0.05	0.14	0.03	0.03	0.09	1.3
19	0.16	0.06	0.46	0.17	0.01	0.01	0.05	0.20	0.03	0.03	0.09	0.30
20	0.13	0.06	1.0	0.09	0.78	0.01	0.05	1.5	0.04	0.61	2.5	0.19
21	0.08	0.06	0.58	0.11	0.40	0.01	0.14	1.2	0.06	0.06	0.39	0.21
22	0.05	0.04	0.26	2.2	0.04	0.02	0.16	0.11	0.19	0.03	0.19	0.20
23	0.05	0.04	1.0	1.5	0.20	0.04	0.08	0.05	0.06	0.03	0.13	0.21
24	0.04	0.07	0.31	0.43	0.39	0.04	0.10	0.65	0.04	0.03	0.12	1.2
25	0.03	0.02	0.67	0.16	1.0	0.03	0.04	0.84	0.05	0.02	0.33	2.2
26	2.6	0.03	2.8	0.12	0.24	0.04	0.05	0.10	0.05	0.02	0.12	2.4
27	1.3	0.02	0.52	0.10	0.05	0.04	0.05	0.06	0.04	0.02	0.14	7.7
28	0.53	0.01	1.2	0.09	0.09	0.04	0.05	0.06	0.04	0.03	0.14	2.8
29	3.8	0.08	1.2	1.2	0.36	1.1	0.06	0.05	0.03	0.03	0.11	5.1
30	3.0	—	0.67	0.26	0.05	0.28	0.05	0.06	0.03	0.04	0.08	1.8
31	6.4	—	0.36	—	0.02	—	0.04	0.61	—	0.74	—	1.5
TOTAL	64.3	25.35	25.29	12.87	4.45	6.07	2.38	6.46	1.39	7.36	26.62	34.05
MEAN	2.1	0.87	0.81	0.43	0.14	0.20	0.076	0.20	0.045	0.24	0.89	1.1
MAX	6.5	5.5	3.0	2.2	1.0	3.8	0.68	1.5	0.19	1.8	5.7	7.7
MIN	0.03	0.01	0.01	0.09	0.01	0.01	0.03	0.03	0.02	0.02	0.08	0.08
AC-FT	128	50	50	26	8.8	12	4.7	13	2.8	15	53	68

**ECMR — 14206365 — Erickson Creek at Menlo Drive at Beaverton, Oregon [RM 0.76]**



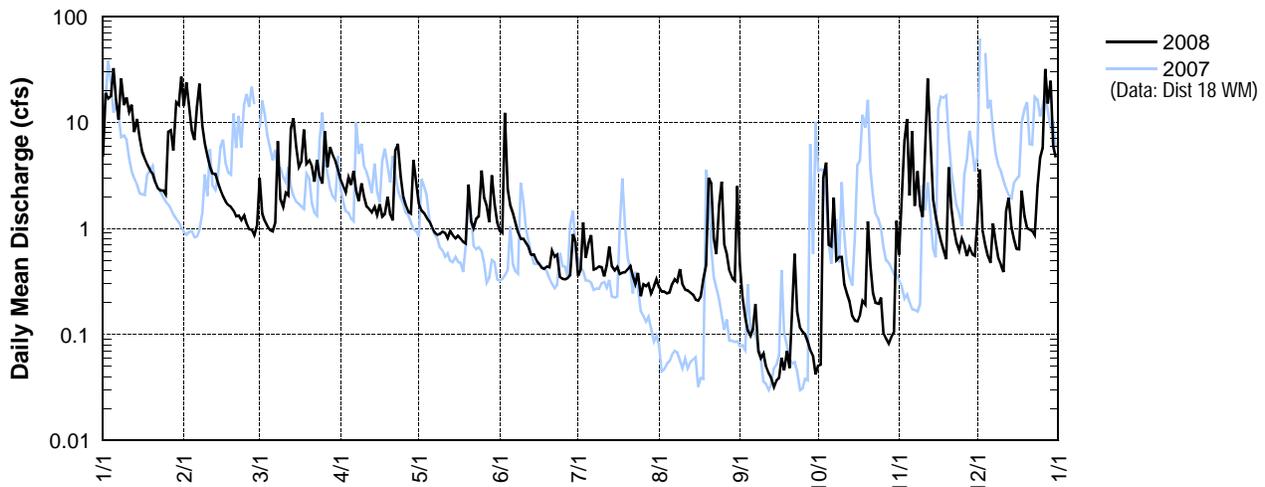
**JCDV – 14206372 – JOHNSON CREEK AT DAVIS ROAD NEAR BEAVERTON, OREGON [RM 1.3]**

Latitude:45 28 30 Longitude:122 49 52

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	4.7	14	3.0	2.9	1.7	0.95	0.36	0.28	0.46	0.05	0.56	1.2
2	19	24	1.4	2.5	1.5	0.90	0.41	0.25	0.23	0.05	1.9	3.6
3	17	14	1.2	2.2	1.4	12	1.1	0.26	0.15	3.0	6.8	0.97
4	18	8.3	1.1	3.0	1.3	2.4	0.53	0.24	0.11	4.2	11	0.69
5	33	6.8	0.97	2.6	1.2	1.7	0.73	0.25	0.10	0.70	2.0	0.55
6	16	14	0.94	3.5	1.0	1.4	0.86	0.30	0.11	0.68	8.3	0.48
7	11	23	1.1	2.3	0.91	1.1	0.41	0.33	0.19	2.0	1.6	1.1
8	26	9.3	6.6	1.8	0.87	0.92	0.42	0.31	0.07	0.50	3.5	0.75
9	15	6.3	1.9	2.7	0.88	0.80	0.44	0.41	0.06	0.54	1.6	0.52
10	17	4.8	1.6	2.0	0.94	0.80	0.43	0.30	0.07	0.54	1.3	0.45
11	13	3.8	2.2	1.6	0.91	0.73	0.35	0.26	0.05	0.30	5.1	0.39
12	15	3.3	2.0	1.5	0.81	0.67	0.45	0.26	0.04	0.24	26	1.4
13	8.1	3.3	8.7	1.4	0.94	0.56	0.68	0.25	0.04	0.21	5.6	1.9
14	11	2.7	11	1.6	0.87	0.57	0.44	0.24	0.03	0.15	1.9	1.0
15	7.2	2.3	5.8	1.3	0.81	0.50	0.40	0.21	0.04	0.13	1.3	0.78
16	5.3	2.0	3.8	1.7	0.85	0.47	0.43	0.21	0.04	0.13	0.98	0.64
17	4.5	1.8	4.3	1.3	0.80	0.43	0.37	0.23	0.06	0.15	0.77	0.63
18	4.0	1.7	8.6	1.4	0.75	0.42	0.38	0.33	0.05	0.21	0.64	2.3
19	3.5	1.6	4.1	2.0	0.72	0.44	0.38	0.45	0.07	0.19	0.51	1.3
20	3.3	1.5	4.4	1.4	2.6	0.43	0.41	3.0	0.05	1.2	3.8	1.0
21	2.7	1.3	3.9	1.2	1.2	0.62	0.44	2.7	0.20	0.45	1.6	0.98
22	2.4	1.3	2.8	5.5	1.0	0.54	0.35	0.81	0.58	0.25	1.00	0.95
23	2.3	1.2	4.5	6.3	1.2	0.57	0.30	0.57	0.16	0.20	0.74	0.86
24	2.3	1.3	3.1	3.1	1.3	0.35	0.38	1.7	0.12	0.19	0.62	2.5
25	2.1	1.1	2.6	2.0	3.5	0.33	0.23	2.8	0.11	0.22	0.80	4.6
26	8.2	0.98	8.2	1.6	1.9	0.33	0.30	0.71	0.10	0.10	0.69	5.7
27	8.4	0.97	3.8	1.4	1.6	0.34	0.29	0.57	0.09	0.09	0.55	32
28	5.4	0.86	5.8	1.4	1.2	0.36	0.30	0.40	0.07	0.08	0.66	15
29	16	1.1	4.9	4.4	3.2	0.88	0.25	0.34	0.06	0.10	0.57	25
30	15	—	4.3	2.6	1.7	0.74	0.28	0.32	0.04	0.11	0.55	6.0
31	27	—	3.6	—	1.1	—	0.33	2.5	—	1.2	—	4.7
TOTAL	343.4	158.61	122.21	70.2	40.66	33.25	13.43	21.79	3.55	18.16	92.94	119.94
MEAN	11.0	5.5	3.9	2.3	1.3	1.1	0.43	0.70	0.12	0.58	3.1	3.9
MAX	33	24	11	6.3	3.5	12	1.1	3.0	0.58	4.2	26	32
MIN	2.1	0.86	0.94	1.2	0.72	0.33	0.23	0.21	0.03	0.05	0.51	0.39
AC-FT	681	315	242	139	81	66	27	43	7.0	36	184	238

**JCDV — 14206372 — Johnson Creek at Davis Road near Beaverton, Oregon [RM 1.3]**



**CMMB – 14206395 – CEDAR MILL CREEK AT MURRAY BLVD NEAR BEAVERTON, OREGON [RM 1.64]**

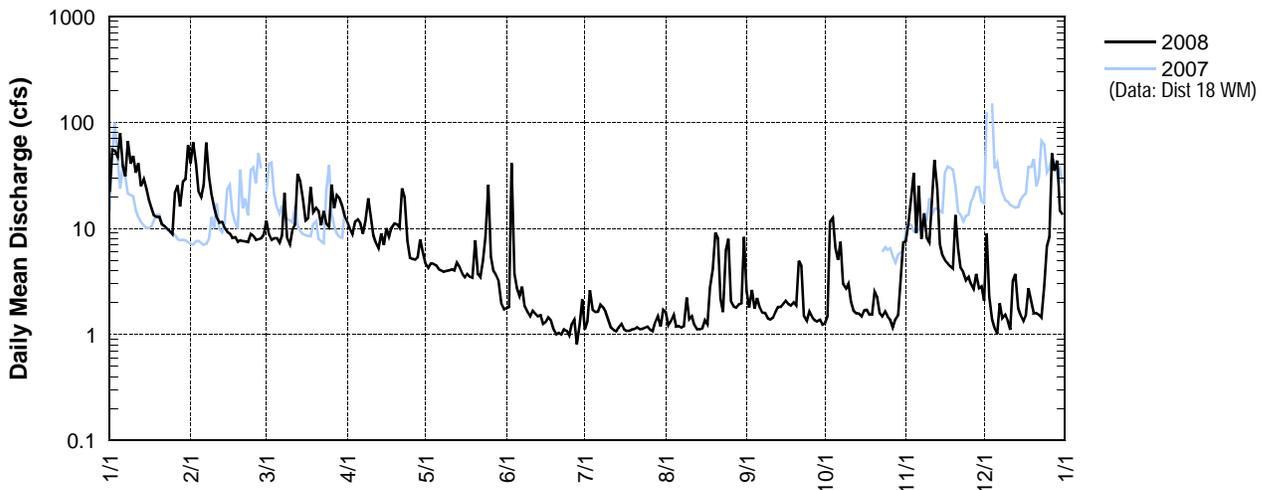
Latitude:45 30 37 Longitude: 122 49 18

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR8	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	22	41	12	12	4.6	1.8	1.1	e1.6	e2.6	e1.3	7.6	2.1
2	56	65	8.8	9.9	4.2	1.8	1.3	e1.2	e1.8	e1.5	11	8.9
3	54	41	7.8	8.7	4.7	41	2.6	e1.3	e2.6	e12	19	2.3
4	47	22	8.1	12	4.6	3.8	e1.7	e1.5	e1.8	13	33	1.4
5	79	20	8.1	12	4.5	2.7	e1.6	e1.2	e2.2	6.6	9.0	1.1
6	39	25	7.3	11	4.1	2.3	e1.6	e1.2	e1.8	5.0	25	1.0
7	31	64	8.6	8.9	4.0	2.8	e1.9	e1.2	e1.6	7.5	8.0	2.0
8	67	30	21	12	3.9	1.8	e1.8	e1.2	e1.6	3.0	14	1.4
9	41	21	8.2	19	4.0	1.6	e1.6	e2.2	e1.4	2.7	8.1	1.5
10	48	16	7.0	13	4.0	1.5	e1.4	e1.4	e1.4	3.0	7.3	1.4
11	34	13	9.8	8.6	4.1	1.7	e1.2	e1.5	e1.4	2.0	18	1.1
12	41	11	11	7.3	4.0	1.6	e1.1	e1.2	e1.6	1.7	44	3.2
13	25	12	33	6.4	4.7	1.5	e1.1	e1.1	e1.8	1.6	23	3.7
14	29	10	28	8.9	4.3	1.5	e1.2	e1.1	e1.8	1.6	7.1	1.8
15	24	9.3	19	7.0	3.7	1.3	e1.3	e1.1	e2.0	1.5	5.5	1.5
16	19	8.9	12	10	3.5	1.3	e1.1	e1.4	e2.1	1.7	5.0	1.3
17	16	8.1	13	8.4	3.7	1.4	e1.1	e1.2	e1.9	1.7	4.7	1.5
18	13	8.2	24	10	3.5	1.4	e1.1	e2.8	e1.9	1.5	4.4	2.7
19	13	7.5	14	11	3.4	1.1	e1.1	e4.1	e2.0	1.5	4.2	2.1
20	13	7.7	16	11	7.7	1.0	e1.1	e9.1	e1.9	2.5	13	1.6
21	11	7.6	15	10	3.7	1.0	e1.2	e8.1	e4.9	2.2	6.6	1.6
22	11	7.5	11	24	3.5	1.0	e1.1	e2.2	e4.4	1.6	4.2	1.5
23	10.0	7.4	15	20	4.9	1.1	e1.1	e1.6	e1.5	1.5	3.9	1.4
24	9.4	8.8	11	7.6	8.4	1.1	e1.2	e6.2	e1.3	1.6	3.2	2.9
25	8.8	8.5	10	5.3	26	0.97	e1.2	e8.0	e1.6	1.5	3.5	6.7
26	22	7.8	26	5.2	5.4	1.3	e1.1	e2.0	e1.5	1.4	3.0	8.3
27	26	7.9	16	5.1	4.0	1.4	e1.1	e1.8	e1.4	1.2	2.7	51
28	16	8.1	21	5.3	3.6	0.81	e1.3	e1.8	e1.3	1.4	3.7	35
29	28	8.8	19	7.9	3.2	1.3	e1.5	e1.9	e1.4	1.5	2.7	43
30	29	—	16	5.8	1.9	2.1	e1.2	e2.0	e1.2	3.2	2.8	15
31	61	—	13	—	1.7	—	e1.7	e8.3	—	7.4	—	14
TOTAL	943.2	513.1	449.7	303.3	151.5	86.98	41.7	82.5	57.7	97.4	307.2	224
MEAN	30.4	17.7	14.5	10.1	4.9	2.9	1.3	2.7	1.9	3.1	10.3	7.2
MAX	79	65	33	24	26	41	2.6	9.1	4.9	13	44	51
MIN	8.8	7.4	7.0	5.1	1.7	0.81	1.1	1.1	1.2	1.2	2.7	1.0
AC-FT	1871	1018	892	602	300	173	83	164	114	193	609	444

e=estimated value

**CMMB — 14206395 — Cedar Mill Creek at Murray Boulevard near Beaverton, Oregon [RM 1.64]**



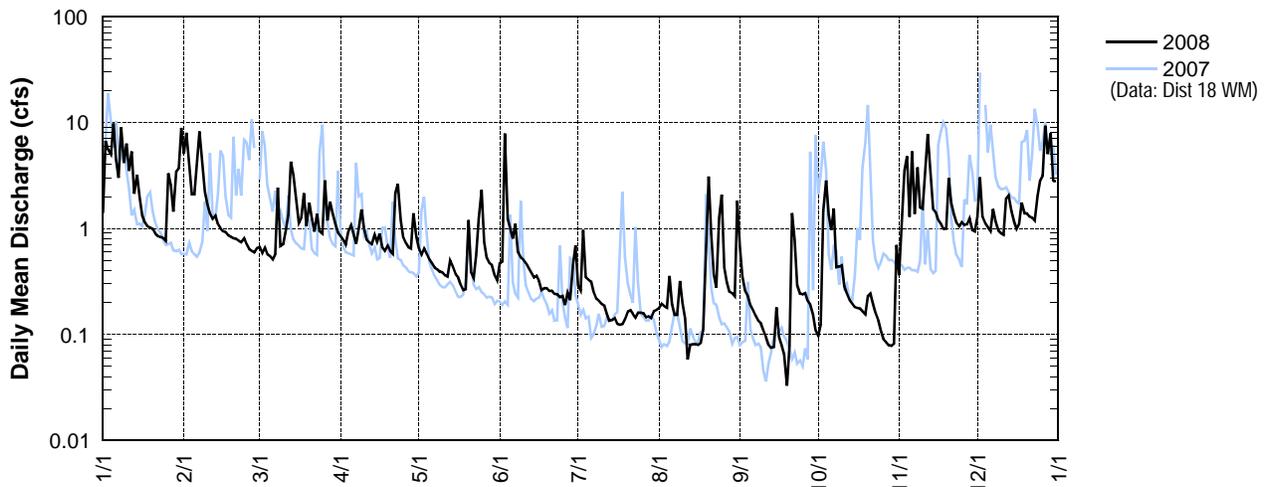
**WC143 – 14206410 – WILLOW CREEK AT NW 143RD AVE NEAR BEAVERTON, OREGON [RM 3.5]**

Latitude: 45 32 12 Longitude: 122 49 24

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.4	5.1	0.67	0.85	0.65	0.47	0.29	0.18	0.68	0.10	0.36	1.3
2	6.7	8.0	0.59	0.78	0.57	0.49	0.26	0.19	0.35	0.12	0.94	3.0
3	5.5	4.0	0.66	0.70	0.65	7.8	0.96	0.19	0.26	1.5	3.5	1.3
4	5.0	2.1	0.57	0.95	0.58	1.2	0.34	0.18	0.23	2.8	4.8	1.1
5	9.8	2.1	0.55	1.1	0.51	1.00	0.33	0.36	0.19	1.3	1.3	1.0
6	4.5	4.3	0.51	0.88	0.47	0.80	0.31	0.19	0.17	0.96	5.3	0.94
7	3.0	8.2	0.57	0.72	0.43	1.1	0.25	0.15	0.15	1.5	1.4	1.5
8	9.0	3.9	2.4	0.99	0.41	0.60	0.22	0.15	0.13	0.43	3.8	1.2
9	4.1	2.2	0.69	1.5	0.39	0.53	0.21	0.32	0.13	0.44	1.6	0.95
10	6.3	1.7	0.71	0.98	0.39	0.51	0.20	0.20	0.11	0.45	1.5	0.90
11	3.5	1.4	0.95	0.79	0.36	0.47	0.19	0.14	0.09	0.29	3.7	0.87
12	5.3	1.2	1.4	0.74	0.35	0.42	0.16	0.06	0.08	0.24	7.8	1.9
13	2.1	1.3	4.3	0.71	0.50	0.39	0.14	0.08	0.08	0.21	3.5	2.1
14	3.2	1.1	3.2	0.87	0.44	0.34	0.14	0.08	0.08	0.20	1.5	1.4
15	2.0	1.00	1.8	0.75	0.37	0.36	0.14	0.08	0.18	0.18	1.4	1.2
16	1.3	0.94	1.1	0.89	0.35	0.32	0.13	0.08	0.10	0.18	1.2	0.99
17	1.1	0.93	1.3	0.67	0.29	0.26	0.12	0.08	0.08	0.18	1.1	1.1
18	1.0	0.86	2.1	0.62	0.26	0.27	0.13	0.11	0.07	0.17	0.99	1.8
19	1.0	0.84	1.1	0.69	0.27	0.27	0.14	0.89	0.03	0.16	0.99	1.4
20	0.99	0.81	1.8	0.61	1.2	0.26	0.16	3.1	0.08	0.23	3.0	1.4
21	0.89	0.80	1.2	0.57	0.38	0.26	0.17	0.89	1.4	0.24	1.7	1.3
22	0.84	0.77	0.94	2.1	0.34	0.24	0.16	0.37	0.78	0.19	1.4	1.3
23	0.83	0.74	1.4	2.6	0.56	0.24	0.14	0.28	0.29	0.16	1.1	1.2
24	0.81	0.81	0.94	1.2	1.2	0.23	0.16	1.3	0.24	0.14	1.0	2.0
25	0.77	0.71	0.89	0.82	2.3	0.23	0.16	2.1	0.24	0.11	1.1	2.8
26	3.3	0.64	2.8	0.73	0.75	0.19	0.16	0.43	0.25	0.09	1.1	3.1
27	2.5	0.62	1.2	0.66	0.52	0.25	0.14	0.31	0.21	0.09	1.1	9.3
28	1.4	0.60	1.8	0.65	0.47	0.21	0.15	0.25	0.19	0.08	1.2	5.0
29	3.4	0.66	1.4	1.4	0.45	0.45	0.14	0.25	0.15	0.08	0.97	7.9
30	3.7	—	1.1	0.84	0.36	0.69	0.17	0.23	0.11	0.08	0.94	2.8
31	8.8	—	0.91	—	0.32	—	0.17	1.8	—	0.70	—	2.8
TOTAL	58.33	41.55	28.36	17.09	20.85	6.54	15.02	7.13	13.6	61.29	66.85	
MEAN	3.4	2.0	1.3	0.95	0.55	0.70	0.21	0.48	0.24	0.44	2.0	2.2
MAX	9.8	8.2	4.3	2.6	2.3	7.8	0.96	3.1	1.4	2.8	7.8	9.3
MIN	0.77	0.60	0.51	0.57	0.26	0.19	0.12	0.06	0.03	0.08	0.36	0.87
AC-FT	206	116	82	56	34	41	13	30	14	27	122	133

**WC143 — 14206410 — Willow Creek at 143rd Avenue near Beaverton, Oregon [RM 3.5]**



**WCHP – 14206413 – WILLOW CREEK AT HERITAGE PARKWAY NEAR BEAVERTON, OREGON [RM 0.75]**

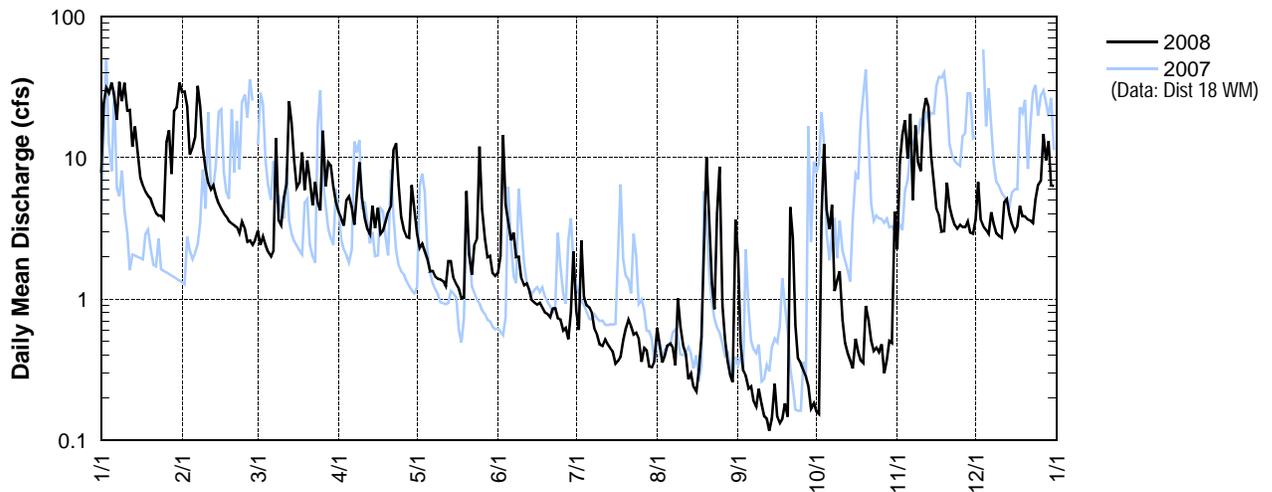
Latitude: 45 31 12 Longitude: 122 51 35

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7.8	e29	3.0	4.1	2.9	1.5	0.82	0.63	2.0	0.16	2.2	e3.7
2	e24	e29	2.4	3.7	2.3	2.0	0.61	0.47	0.48	0.15	9.2	e6.7
3	31	23	2.8	3.3	2.5	e14	2.6	0.36	0.31	3.8	14	e3.6
4	29	11	2.4	5.0	2.2	4.7	1.0	0.40	0.29	13	e18	e3.3
5	e34	12	2.2	5.3	1.9	3.5	0.90	e0.47	0.23	4.3	9.8	e3.1
6	27	14	2.0	4.5	1.6	2.6	0.87	0.48	0.24	3.1	e20	e2.9
7	19	e32	2.2	3.4	1.6	3.0	0.80	0.45	0.19	4.6	5.0	e4.1
8	e34	23	14	5.8	1.4	2.0	0.61	0.34	0.17	1.1	17	e3.4
9	25	12	3.6	9.3	1.4	2.0	0.56	1.0	0.23	1.3	9.3	e2.9
10	34	8.3	3.3	5.2	1.4	1.4	0.48	0.64	e0.18	1.6	8.0	e2.8
11	21	6.6	5.2	3.7	1.3	1.3	0.47	0.46	e0.15	0.72	21	e2.7
12	e22	5.9	6.5	3.1	1.2	1.3	0.52	0.41	0.14	0.49	e27	e4.9
13	12	6.4	25	2.9	1.9	1.2	0.48	0.27	0.12	0.42	23	e5.1
14	17	5.4	18	4.6	1.9	0.98	0.45	0.30	e0.14	0.37	10	e4.0
15	11	4.7	9.5	3.2	1.4	0.94	0.43	0.24	e0.25	0.32	6.5	e3.4
16	7.2	4.3	6.2	4.4	1.3	0.92	0.35	0.22	0.15	0.52	4.3	e3.0
17	6.3	4.0	6.7	2.9	1.2	0.94	0.37	0.31	0.13	0.42	3.9	e3.3
18	5.7	3.8	11	3.0	1.0	0.87	0.39	0.54	0.14	0.37	3.0	e4.6
19	5.4	3.5	5.9	3.5	1.0	0.80	0.51	2.1	0.18	0.35	e3.0	e3.8
20	5.1	3.4	9.6	4.1	5.8	0.79	0.61	10	0.15	0.89	e6.6	e3.9
21	4.5	3.3	7.0	4.6	2.1	0.74	0.71	3.0	4.5	0.70	e4.5	e3.7
22	4.0	3.2	4.6	12	1.5	0.86	0.64	1.3	2.7	0.51	e3.8	e3.6
23	3.9	2.9	6.7	13	2.4	0.86	0.56	0.85	0.66	0.43	e3.3	e3.5
24	3.9	3.5	4.8	6.4	2.7	0.73	0.58	4.1	0.38	0.45	e3.1	e5.1
25	3.7	3.1	4.2	3.8	12	0.72	0.52	8.6	0.35	0.42	e3.4	e6.4
26	13	2.5	15	3.0	4.3	0.60	0.36	0.90	0.31	0.48	e3.2	e6.9
27	16	2.6	6.3	2.8	2.7	0.62	0.45	0.52	0.28	0.30	e3.2	e15
28	7.7	2.4	9.3	2.7	2.0	0.52	0.43	0.37	0.24	0.37	e3.6	e9.6
29	22	2.6	8.8	6.4	2.0	0.81	0.33	0.29	0.17	0.51	e3.0	e13
30	23	—	6.2	4.4	1.5	2.2	0.33	0.26	0.18	0.49	e2.9	e6.4
31	e34	—	4.9	—	1.5	—	0.36	3.7	—	4.2	—	e6.3
TOTAL	513.2	267.4	219.3	144.1	71.9	55.4	19.1	43.98	15.64	46.84	254.8	154.7
MEAN	16.5	9.2	7.1	4.8	2.3	1.9	0.62	1.4	0.52	1.5	8.5	5.0
MAX	34	32	25	13	12	14	2.6	10	4.5	13	27	15
MIN	3.7	2.4	2.0	2.7	1.0	0.52	0.33	0.22	0.12	0.15	2.2	2.7
AC-FT	1018	530	435	286	143	110	38	87	31	93	505	307

e=estimated value

**WCHP — 14206413 — Willow Creek at Heritage Parkway near Beaverton, Oregon [RM 0.75]**



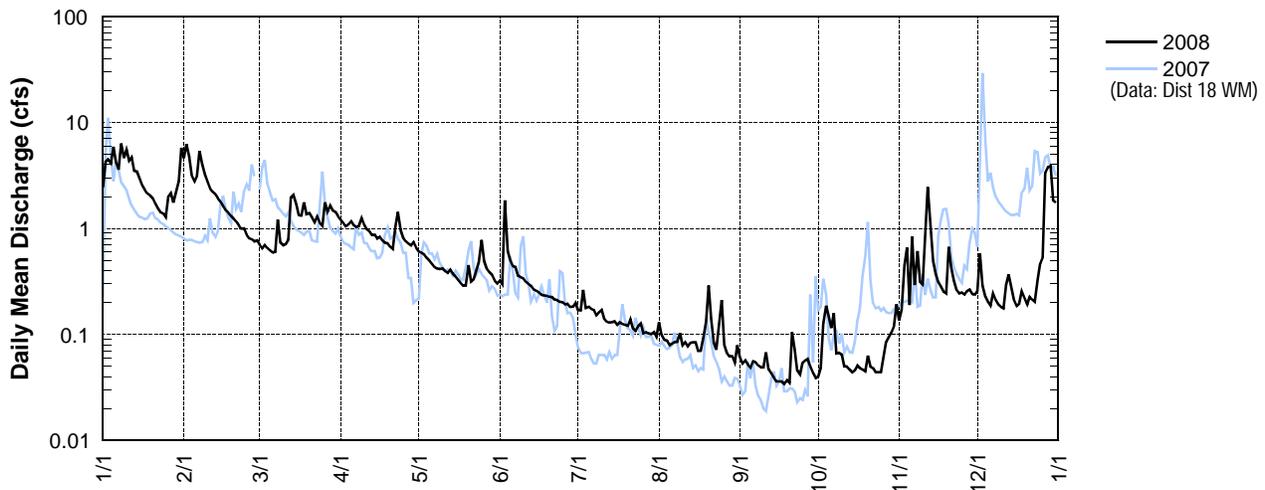
**BCSR – 14206419 – BRONSON CREEK AT SALTZMAN ROAD NEAR ORENCO, OREGON [RM 5.1]**

Latitude: 45 33 19 Longitude: 122 48 25

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2.4	4.6	0.70	1.2	0.60	0.32	0.17	0.13	0.06	0.04	0.14	0.26
2	4.2	6.2	0.65	1.1	0.59	0.30	0.17	0.10	0.05	0.05	0.17	0.59
3	4.5	4.7	0.70	1.0	0.57	1.8	0.26	0.09	0.06	0.13	0.45	0.29
4	4.1	3.1	0.65	1.1	0.53	0.61	0.18	0.09	0.05	0.19	0.66	0.23
5	5.9	2.8	0.62	1.2	0.50	0.50	0.18	0.08	0.05	0.15	0.19	0.20
6	4.1	3.1	0.59	1.1	0.46	0.44	0.17	0.08	0.06	0.12	0.84	0.19
7	3.6	5.4	0.60	1.0	0.43	0.43	0.17	0.09	0.06	0.16	0.29	0.24
8	6.3	4.0	1.2	1.1	0.42	0.36	0.15	0.09	0.05	0.07	0.61	0.21
9	4.6	3.2	0.74	1.2	0.41	0.35	0.16	0.10	0.05	0.07	0.31	0.19
10	5.5	2.8	0.69	1.1	0.42	0.34	0.17	0.08	0.05	0.07	0.30	0.18
11	4.3	2.4	0.71	0.98	0.40	0.31	0.14	0.08	0.07	0.05	0.74	0.18
12	4.7	2.2	0.78	0.94	0.38	0.30	0.13	0.08	0.05	0.05	2.5	0.29
13	3.5	2.1	2.0	0.87	0.41	0.29	0.13	0.08	0.04	0.05	1.1	0.37
14	3.4	1.9	2.1	0.87	0.38	0.27	0.13	0.08	0.04	0.04	0.49	0.27
15	2.9	1.8	1.7	0.80	0.35	0.26	0.13	0.08	0.04	0.05	0.37	0.21
16	2.5	1.6	1.3	0.83	0.33	0.25	0.12	0.07	0.04	0.05	0.31	0.19
17	2.3	1.5	1.3	0.78	0.31	0.24	0.13	0.07	0.04	0.05	0.28	0.19
18	2.1	1.4	1.8	0.74	0.29	0.23	0.13	0.09	0.03	0.05	0.25	0.26
19	2.0	1.3	1.4	0.72	0.29	0.23	0.12	0.13	0.04	0.05	0.24	0.22
20	1.9	1.2	1.4	0.67	0.45	0.23	0.12	0.29	0.04	0.06	0.67	0.19
21	1.7	1.2	1.3	0.64	0.32	0.23	0.14	0.14	0.10	0.05	0.42	0.23
22	1.5	1.1	1.1	1.0	0.33	0.21	0.11	0.08	0.07	0.05	0.32	0.21
23	1.4	0.99	1.3	1.4	0.40	0.21	0.11	0.07	0.05	0.04	0.27	0.20
24	1.4	1.00	1.1	0.96	0.48	0.20	0.12	0.13	0.04	0.04	0.24	0.33
25	1.3	0.87	1.1	0.81	0.78	0.20	0.13	0.21	0.05	0.04	0.25	0.47
26	2.0	0.81	1.8	0.75	0.49	0.19	0.10	0.08	0.06	0.06	0.24	0.54
27	2.2	0.79	1.4	0.72	0.42	0.19	0.10	0.07	0.06	0.09	0.26	3.4
28	1.7	0.75	1.6	0.69	0.39	0.18	0.10	0.06	0.05	0.09	0.27	3.8
29	2.2	0.77	1.5	0.74	0.37	0.18	0.10	0.06	0.04	0.11	0.24	3.9
30	2.8	—	1.4	0.65	0.32	0.20	0.11	0.05	0.04	0.12	0.24	1.8
31	5.8	—	1.3	—	0.30	—	0.10	0.08	—	0.19	—	1.8
TOTAL	98.8	65.58	36.53	27.66	13.12	10.05	4.28	3.01	1.53	2.43	13.66	21.63
MEAN	3.2	2.3	1.2	0.92	0.42	0.34	0.14	0.098	0.050	0.078	0.45	0.69
MAX	6.3	6.2	2.1	1.4	0.78	1.8	0.26	0.29	0.10	0.19	2.5	3.9
MIN	1.3	0.75	0.59	0.64	0.29	0.18	0.10	0.05	0.03	0.04	0.14	0.18
AC-FT	196	130	72	55	26	20	8.5	6.0	3.0	4.8	27	43

**BCSR — 14206419 — Bronson Creek at Saltzman Road near Orenco, Oregon [RM 5.1]**



**BCBR – 14206423 – BRONSON CREEK AT BRONSON ROAD NEAR ORENCO, OREGON [RM 2.1]**

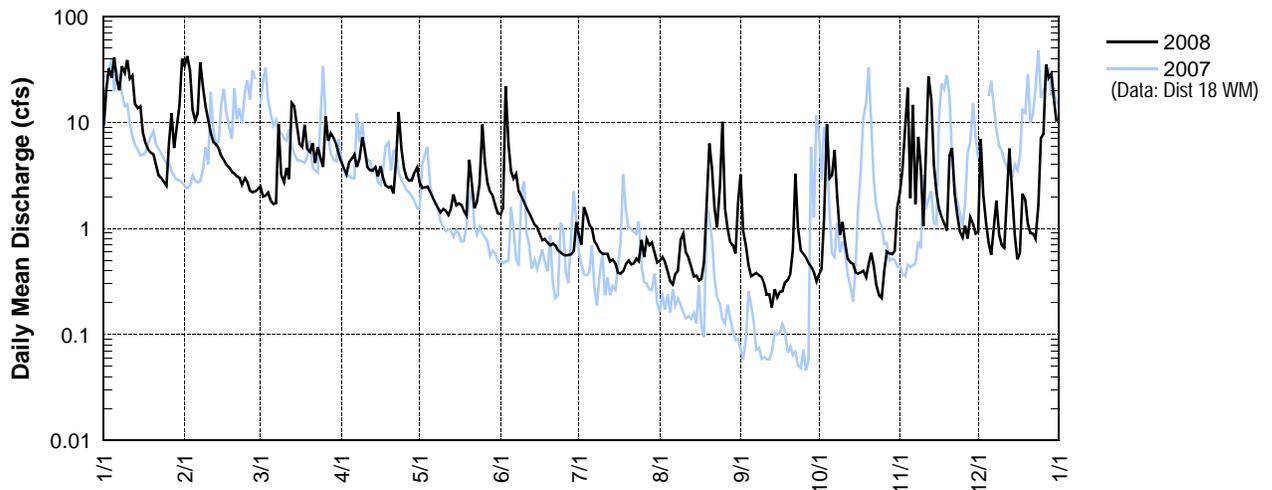
Latitude: 45 32 18 Longitude: 122 51 15

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	9.3	34	2.5	4.2	2.7	1.4	0.87	0.49	3.2	0.37	2.2	0.93
2	21	e42	2.0	3.7	2.4	1.6	0.70	0.54	0.95	0.41	3.5	7.0
3	32	30	2.0	3.2	2.4	e22	1.6	0.49	0.68	1.2	9.5	2.1
4	26	13	2.2	4.2	2.5	6.3	1.3	0.39	0.45	9.6	21	1.1
5	e41	10	1.8	4.6	2.2	3.5	1.1	0.32	0.35	3.0	1.9	0.73
6	25	12	1.7	4.9	2.0	2.9	1.0	0.30	0.37	3.2	15	0.56
7	20	e37	1.7	3.8	1.7	3.3	0.76	0.37	0.38	5.5	1.7	1.0
8	e34	21	9.6	4.5	1.6	2.2	0.69	0.40	0.36	2.0	7.3	1.8
9	29	14	3.2	7.2	1.4	2.0	0.61	0.79	0.35	0.87	3.6	0.87
10	39	10	2.7	5.5	1.5	1.8	0.58	0.90	0.30	1.1	1.0	0.69
11	26	7.9	3.7	3.8	1.5	1.5	0.58	0.59	0.24	0.74	4.9	0.66
12	28	6.6	2.9	3.5	1.3	1.4	0.58	0.53	0.24	0.52	e27	1.7
13	15	6.1	15	3.5	1.5	1.2	0.49	0.44	0.18	0.48	e16	5.7
14	14	5.7	14	3.8	2.1	1.1	0.51	0.35	0.27	0.46	4.0	2.0
15	14	4.8	9.3	3.1	1.6	1.0	0.47	0.36	0.23	0.38	2.2	0.86
16	8.0	4.4	6.2	3.8	1.7	0.88	0.38	0.32	0.25	0.38	1.5	0.51
17	6.4	4.0	5.8	3.0	1.7	0.77	0.38	0.34	0.25	0.39	1.3	0.59
18	5.6	3.7	9.5	2.5	1.5	0.80	0.40	0.48	0.31	0.40	1.1	2.1
19	5.2	3.4	5.6	2.4	1.3	0.73	0.46	1.5	0.33	0.34	0.95	1.8
20	5.0	3.3	5.2	2.5	4.4	0.69	0.50	6.3	0.38	0.46	4.8	1.1
21	4.0	3.1	6.4	2.1	2.6	0.72	0.46	3.7	0.63	0.59	5.7	0.90
22	3.2	3.0	4.2	4.4	1.6	0.69	0.47	1.6	3.3	0.44	2.1	0.89
23	3.0	2.6	5.9	12	1.8	0.62	0.52	1.0	1.0	0.29	1.4	0.79
24	2.7	3.0	4.7	5.6	2.6	0.59	0.49	2.5	0.62	0.23	0.92	1.7
25	2.5	2.7	3.8	3.7	9.6	0.56	0.78	10	0.58	0.22	0.82	7.1
26	6.4	2.3	11	3.0	4.2	0.55	0.53	1.5	0.53	0.39	1.1	7.8
27	12	2.2	6.7	2.8	2.7	0.56	0.79	1.0	0.47	0.60	0.80	35
28	5.7	2.2	7.9	2.8	2.2	0.57	0.69	0.75	0.43	0.58	1.3	26
29	9.6	2.3	7.1	3.3	2.0	0.61	0.74	0.70	0.38	0.57	1.1	e29
30	15	—	6.2	3.8	1.6	1.1	0.59	0.58	0.32	0.62	0.90	16
31	40	—	5.1	—	1.4	—	0.48	1.7	—	1.6	—	10
TOTAL	507.6	296.3	175.6	121.2	71.3	63.64	20.5	41.23	18.33	37.93	146.59	168.98
MEAN	16.4	10.3	5.7	4.1	2.3	2.1	0.66	1.3	0.61	1.2	4.9	5.5
MAX	41	42	15	12	9.6	22	1.6	10	3.3	9.6	27	35
MIN	2.5	2.2	1.7	2.1	1.3	0.55	0.38	0.30	0.18	0.22	0.80	0.51
AC-FT	1007	588	348	240	141	126	41	82	36	75	291	335

e=estimated value

**BCBR — 14206423 — Bronson Creek at Bronson Road near Orenco, Oregon [RM 2.1]**



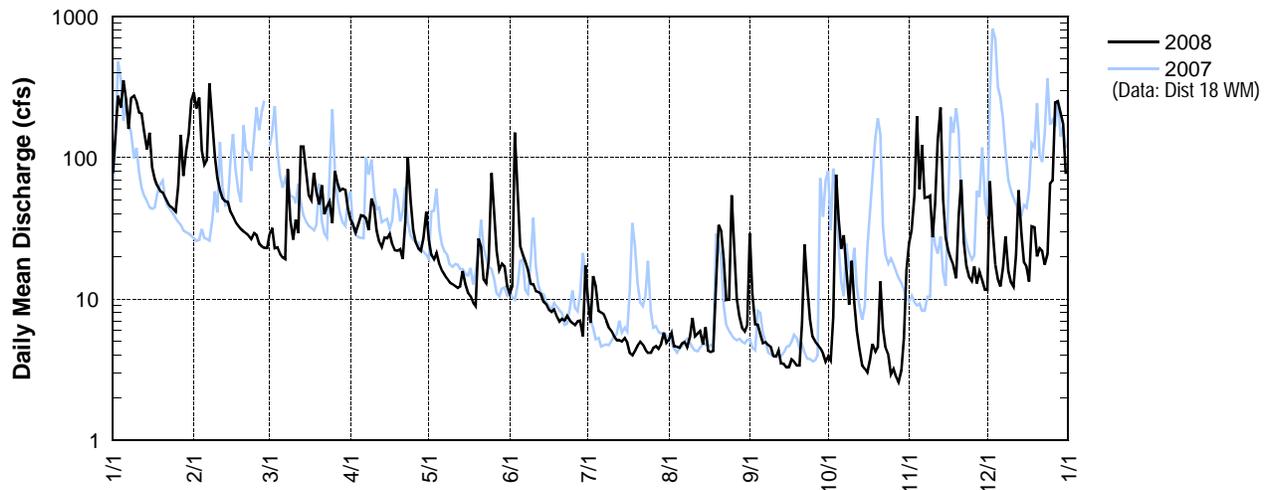
**BVTS – 14206435 – BEAVERTON CREEK AT NE GUSTON COURT NEAR ORENCO, OREGON [RM 1.2]**

Latitude: 45 31 15 Longitude: 122 53 59

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	78	289	29	36	26	11	9.7	5.2	29	4.0	25	12
2	146	223	32	33	21	12	6.8	5.8	11	3.7	31	68
3	274	266	23	30	19	150	15	4.6	6.6	7.4	54	32
4	226	113	23	34	21	65	12	4.6	6.6	76	197	17
5	354	90	21	39	18	24	8.3	4.5	5.6	37	60	14
6	260	97	20	39	16	21	8.1	4.9	4.9	23	123	12
7	160	336	19	37	15	18	7.8	5.0	5.0	28	52	17
8	264	189	83	31	14	16	7.1	4.6	4.7	17	52	28
9	274	103	37	51	13	13	6.3	5.4	4.6	9.1	54	16
10	250	72	26	45	13	13	5.9	7.4	3.9	19	27	13
11	209	59	37	30	12	11	5.4	5.4	3.9	9.5	48	12
12	205	52	29	25	12	11	5.1	5.7	4.4	6.0	132	21
13	153	49	120	23	12	11	5.1	5.9	3.5	4.4	227	59
14	114	48	120	27	16	9.5	5.0	4.8	3.5	3.4	51	29
15	150	41	79	27	13	9.2	5.3	6.3	3.3	3.2	27	18
16	86	38	54	29	11	8.4	4.9	4.3	3.3	3.0	22	17
17	71	35	50	24	10	8.1	4.1	4.2	3.7	3.7	19	13
18	63	33	78	22	9.5	8.4	4.0	4.3	3.6	4.8	17	33
19	58	31	57	22	8.9	7.5	4.3	11	3.4	4.3	14	32
20	57	30	47	23	27	6.9	4.7	34	3.4	4.6	39	20
21	52	29	64	19	23	7.3	5.0	30	6.8	13	70	23
22	48	28	40	35	14	7.1	4.8	19	24	6.2	25	22
23	45	27	45	101	13	7.6	4.4	9.8	13	4.5	17	18
24	43	29	49	49	19	7.0	4.2	9.9	7.2	4.0	14	21
25	42	28	35	31	78	6.8	4.2	54	5.4	3.0	13	66
26	63	25	80	25	40	6.5	4.5	21	5.0	3.2	17	69
27	145	24	66	23	22	7.0	4.7	10	4.8	2.8	13	246
28	74	23	59	22	16	7.0	4.5	7.6	4.5	2.6	16	251
29	112	23	60	27	18	5.5	4.8	6.2	4.1	3.1	14	205
30	147	—	59	42	17	17	5.8	5.9	3.6	5.4	12	173
31	252	—	44	—	12	—	4.9	6.6	—	16	—	77
TOTAL	4475	2430	1585	1001	579.4	512.8	186.7	317.9	196.3	334.9	1482	1654
MEAN	144.4	83.8	51.1	33.4	18.7	17.1	6.0	10.3	6.5	10.8	49.4	53.3
MAX	354	336	120	101	78	150	15	54	29	76	227	251
MIN	42	23	19	19	8.9	5.5	4.0	4.2	3.3	2.6	12	12
AC-FT	8876	4820	3144	1985	1149	1017	370	631	389	664	2940	3281

**BVTS — 14206435 — Beaverton Creek at NE Guston Court near Orenco, Oregon [RM 1.2]**



**DCBR – 14206443 – DAWSON CREEK AT BROOKWOOD ROAD NEAR HILLSBORO, OREGON [RM 0.7]**

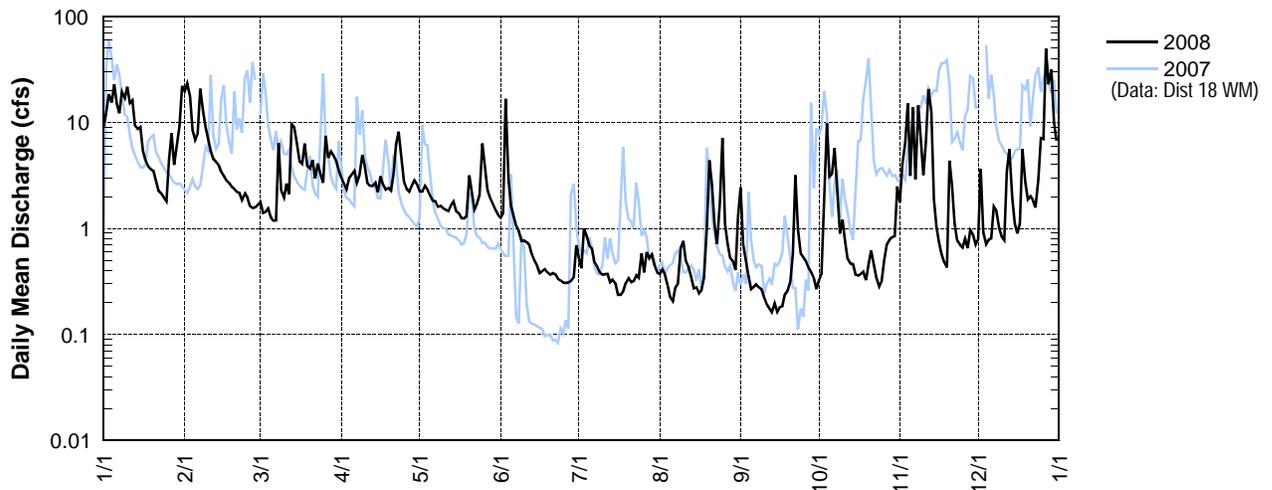
Latitude: 45 31 27 Longitude: 122 56 01

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e9.1	e19	e1.8	e3.0	2.2	1.3	e0.52	e0.37	e2.4	e0.33	1.8	e0.80
2	e13	e23	e1.4	e2.6	2.2	1.4	e0.42	e0.41	e0.71	e0.38	4.0	3.6
3	e19	e18	e1.4	e2.3	2.5	17	e1.0	e0.37	e0.49	e1.3	6.5	0.92
4	e15	e8.4	e1.5	e3.0	2.3	2.9	e0.84	e0.29	e0.35	e9.7	15	0.72
5	e23	e6.9	e1.3	e3.2	2.0	1.6	e0.69	e0.22	e0.27	e3.1	3.1	0.79
6	e15	e7.9	e1.2	e3.5	1.8	1.3	e0.65	e0.21	e0.28	e3.3	14	0.81
7	e12	e21	e1.2	e2.7	1.8	1.1	e0.48	e0.28	e0.30	e5.7	2.9	1.6
8	e19	e13	e6.4	e3.2	1.6	0.95	e0.44	e0.30	e0.28	e2.1	15	1.5
9	e17	e8.9	e2.3	e4.9	1.6	0.76	e0.38	e0.67	e0.27	e0.89	7.4	1.0
10	e22	e6.9	e1.9	e3.8	1.5	0.77	e0.36	e0.76	e0.22	e1.2	3.2	0.83
11	e15	e5.4	e2.6	e2.7	1.5	0.74	e0.37	e0.49	e0.19	e0.76	6.6	0.77
12	e16	e4.5	e2.1	e2.5	1.5	0.70	e0.37	e0.43	e0.17	e0.51	21	3.5
13	e9.4	e4.2	e9.6	e2.5	1.7	0.57	e0.31	e0.36	e0.16	e0.47	13	5.6
14	e8.7	e3.9	e9.1	e2.7	1.8	0.49	e0.33	e0.27	e0.20	e0.46	1.9	2.0
15	e9.0	e3.4	e6.2	e2.2	1.4	0.44	e0.30	e0.28	e0.16	e0.37	1.0	1.1
16	e5.4	e3.1	e4.3	3.1	1.4	0.38	e0.24	e0.25	e0.18	e0.36	0.74	0.89
17	e4.4	e2.8	e4.1	2.6	1.3	e0.40	e0.24	e0.26	e0.18	e0.37	0.57	1.1
18	e3.9	e2.7	e6.3	2.3	1.2	e0.41	e0.25	e0.34	e0.24	e0.39	0.48	5.6
19	e3.6	e2.4	e3.9	2.4	1.3	e0.38	e0.30	e1.0	e0.26	e0.33	0.43	2.8
20	e3.5	e2.4	e3.7	2.3	3.2	e0.36	e0.34	e4.4	e0.31	e0.47	4.4	1.9
21	e2.8	e2.2	e4.4	3.3	2.2	e0.38	e0.31	e2.6	e0.57	e0.62	2.5	2.0
22	e2.3	e2.2	e2.9	6.2	1.5	e0.37	e0.32	e1.1	e3.2	e0.46	1.1	1.8
23	e2.1	e1.9	e4.1	8.2	1.7	e0.33	e0.36	e0.71	e0.99	0.34	e0.77	1.6
24	e1.9	e2.1	e3.3	4.4	2.1	e0.32	e0.34	e1.8	e0.57	0.28	e0.70	2.9
25	e1.8	e1.9	e2.7	2.7	6.3	e0.31	e0.58	e7.1	e0.53	0.32	e0.66	7.1
26	e4.4	e1.6	e7.4	2.4	3.7	e0.30	e0.39	e1.1	e0.49	0.50	e0.80	7.0
27	e7.9	e1.6	e4.6	2.2	2.3	e0.31	e0.60	e0.72	e0.43	0.71	e0.65	50
28	e4.0	e1.6	e5.3	2.5	1.9	e0.32	e0.52	e0.53	e0.39	0.78	e0.96	23
29	e6.4	e1.7	e4.9	2.8	1.7	e0.35	e0.57	e0.49	e0.34	0.83	e0.87	31
30	e9.3	—	e4.3	2.6	1.5	e0.69	e0.44	e0.40	e0.27	0.85	e0.71	10
31	e22	—	e3.5	—	1.4	—	e0.39	e1.3	—	2.5	—	6.7
TOTAL	307.9	184.6	119.7	94.8	62.1	37.63	13.65	29.81	15.4	40.68	132.74	180.93
MEAN	9.9	6.4	3.9	3.2	2.0	1.2	0.44	0.96	0.51	1.3	4.4	5.8
MAX	23	23	9.6	8.2	6.3	17	1.0	7.1	3.2	9.7	21	50
MIN	1.8	1.6	1.2	2.2	1.2	0.30	0.24	0.21	0.16	0.28	0.43	0.72
AC-FT	611	366	237	188	123	75	27	59	31	81	263	359

e=estimated value

**DCBR — 14206443 — Dawson Creek at Brookwood Road near Hillsboro, Oregon [RM 0.7]**



**RCTV – 14206450 – ROCK CREEK AT HWY 8 NEAR HILLSBORO, OREGON [RM 1.2]**

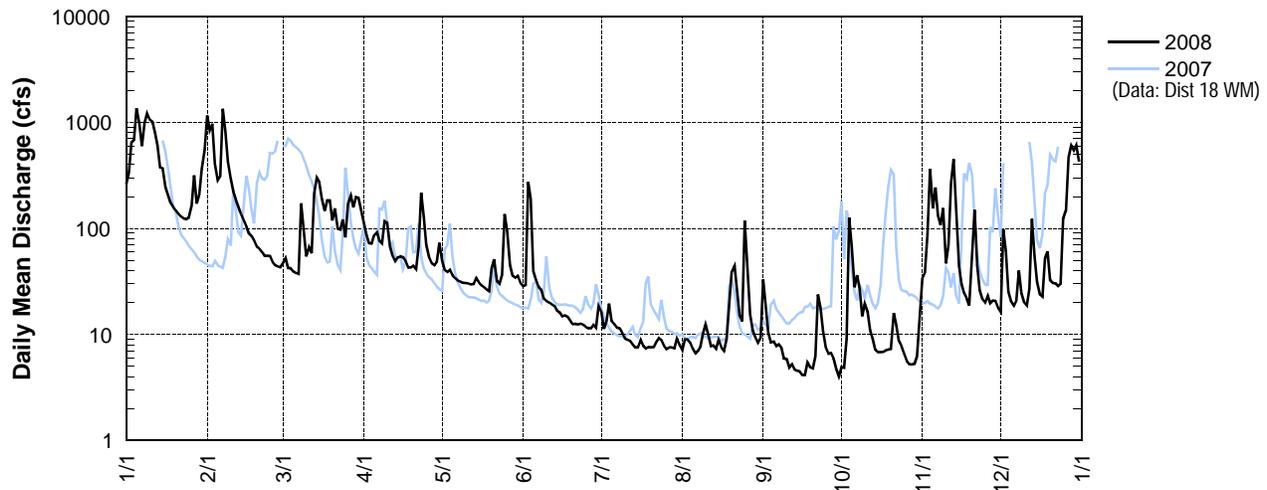
Latitude: 45 30 08 Longitude: 122 56 52

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e263	e1160	47	111	49	29	16	7.1	33	4.9	34	16
2	e334	e848	53	87	41	29	11	9.0	18	4.8	39	98
3	e647	e973	42	72	39	276	13	9.0	10	9.1	89	62
4	e683	e408	42	72	41	190	20	8.4	8.4	126	365	25
5	e1360	e285	39	86	36	40	13	7.4	8.5	68	154	20
6	e971	e313	38	92	34	32	12	6.6	7.7	28	243	19
7	e597	e1340	37	76	32	28	12	7.0	8.1	36	132	21
8	e976	e830	173	72	32	26	11	7.7	7.5	27	108	40
9	e1210	e427	96	117	31	22	10	10	5.9	15	156	24
10	e1060	e293	54	113	30	21	9.2	12	5.9	19	47	20
11	e1010	e223	67	68	30	20	8.9	9.8	4.9	16	70	19
12	e800	e186	58	55	30	19	8.7	7.8	5.2	11	271	27
13	e602	e160	215	49	30	19	8.1	7.9	4.7	9.0	450	123
14	e377	e136	300	53	34	17	7.6	7.3	4.6	7.1	142	55
15	e368	e118	273	54	31	16	7.5	8.9	4.4	6.8	44	31
16	e244	e104	190	53	29	15	8.9	7.5	4.1	6.8	30	24
17	e205	e90	146	49	28	15	7.8	7.0	4.1	6.9	25	23
18	e174	e85	183	43	27	15	7.4	9.0	5.4	7.1	22	52
19	e159	e77	183	43	25	14	7.6	18	4.9	7.2	19	61
20	e148	e67	119	44	42	12	7.5	39	4.8	7.3	49	33
21	e137	64	155	41	51	13	7.6	45	6.2	16	149	31
22	e129	60	99	68	32	12	8.5	27	24	12	45	30
23	e124	55	97	216	30	13	9.2	15	18	8.7	26	29
24	e122	55	121	130	36	12	8.8	13	11	7.8	22	30
25	e126	55	82	70	136	12	7.9	118	7.5	6.6	20	125
26	163	48	170	53	94	11	7.3	36	6.6	5.6	23	149
27	317	45	204	47	45	11	7.6	16	6.7	5.2	20	467
28	171	44	158	45	36	12	7.5	11	5.9	5.2	21	603
29	208	43	197	48	34	12	7.4	9.4	4.8	5.3	21	542
30	366	—	194	73	36	19	9.1	8.4	4.0	6.2	18	617
31	549	—	148	—	31	—	8.0	9.3	—	15	—	427
TOTAL	14600	8592	3980	2200	1232	982	296.1	514.5	254.8	516.6	2854	3843
MEAN	471.1	296.5	128.4	73.4	39.7	32.7	9.6	16.6	8.5	16.7	95.1	124.0
MAX	1360	1340	300	216	136	276	20	118	33	126	450	617
MIN	122	43	37	41	25	11	7.3	6.6	4.0	4.8	18	16
AC-FT	28960	17040	7894	4364	2444	1948	587	1020	505	1025	5661	7622

e=estimated value

**RCTV — 14206450 — Rock Creek at Hwy 8 near Hillsboro, Oregon [RM 1.2]**



**FRMO – 14206500 – TUALATIN RIVER AT FARMINGTON, OREGON [RM 33.3]**

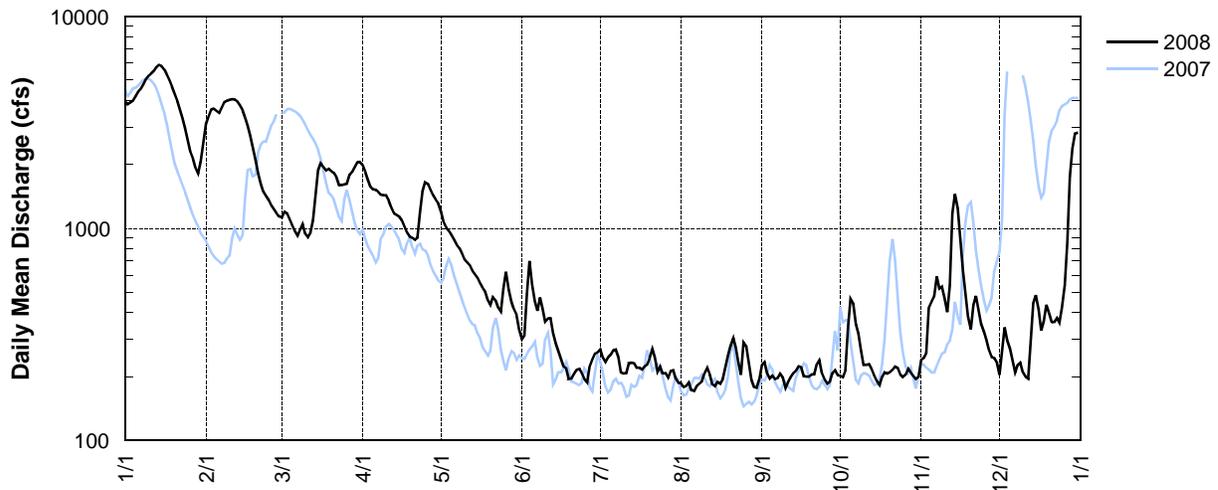
Latitude: 45 26 58 Longitude: 122 57 02

Source Agency: District 18 Watermaster

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e4000	3100	1100	2000	1200	300	270	190	230	200	240	200
2	e3900	3400	1200	1900	1100	310	250	180	230	200	240	260
3	3900	3600	1200	1700	1000	490	230	180	210	210	260	340
4	4000	3700	1100	1600	980	700	250	190	200	340	420	300
5	4200	3600	1000	1500	930	550	250	170	200	460	460	270
6	4400	3500	970	1500	880	450	270	170	200	440	480	240
7	4600	3700	920	1500	840	410	270	180	200	350	590	210
8	4800	3900	990	1400	810	470	250	180	210	320	520	230
9	5100	4000	1100	1400	770	420	210	190	200	270	530	230
10	e5200	4000	950	1400	720	360	210	210	180	230	460	210
11	5400	4100	910	1300	690	380	210	220	190	230	400	200
12	5500	4000	960	1200	670	380	230	210	200	230	540	190
13	e5800	4000	1100	1200	630	320	230	180	210	220	1200	290
14	e5900	3800	1400	1200	610	290	230	180	210	200	1500	440
15	e5800	3600	1900	1100	590	270	220	190	220	190	1200	480
16	5600	3300	2000	1100	550	240	220	190	220	180	910	410
17	5300	3000	2000	1000	520	220	220	190	200	200	640	330
18	5000	2700	1900	950	500	220	220	220	200	210	480	360
19	4700	2400	1900	920	460	190	230	250	200	210	380	440
20	4300	2100	1900	910	440	200	240	280	210	210	330	400
21	4000	1800	1800	880	470	210	270	300	210	220	440	360
22	3600	1600	1700	910	460	220	250	270	230	220	480	360
23	3300	1500	1600	1200	420	220	210	230	240	220	420	380
24	3000	1400	1600	1500	400	210	220	200	210	210	360	360
25	2600	1400	1600	1600	520	190	210	290	190	200	330	420
26	2300	1300	1600	1600	630	190	210	280	180	210	300	540
27	2100	1200	1800	1500	510	230	200	230	190	220	270	860
28	1900	1200	1800	1400	450	240	210	190	210	210	250	1800
29	1800	1100	1900	1400	420	260	210	180	210	200	240	2400
30	2000	—	2000	1300	390	260	200	180	200	190	230	2800
31	e2600	—	2100	—	340	—	190	200	—	200	—	2800
TOTAL	126600	82000	46000	40070	19900	9400	7090	6500	6190	7400	15100	19110
MEAN	4083.87	2827.59	1483.87	1335.67	641.94	313.33	228.71	209.68	206.33	238.71	503.33	616.45
MAX	5900	4100	2100	2000	1200	700	270	300	240	460	1500	2800
MIN	1800	1100	910	880	340	190	190	170	180	180	230	190
AC-FT	251107	162645	91240	79478	39471	18645	14063	12893	12278	14678	29950	37904

e=estimated value

**FRMO — 14206500 — Tualatin River at Farmington, Oregon [RM 33.3]**



**CCSR – 14206750 – CHICKEN CREEK AT ROY ROGERS ROAD NEAR SHERWOOD, OREGON [RM 2.3]**

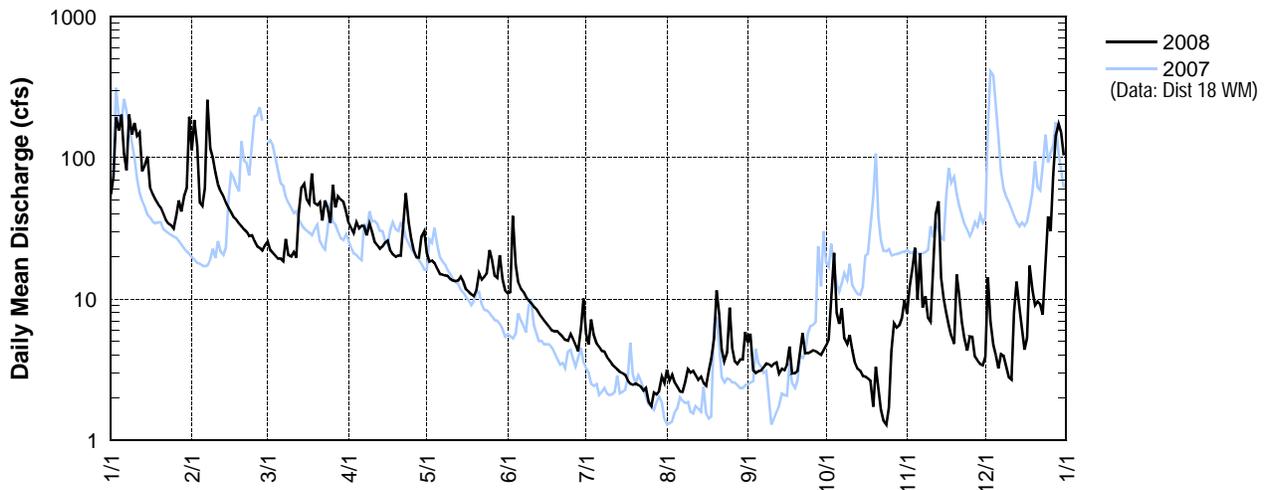
Latitude: 45 22 31 Longitude: 122 51 24

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	55	e113	26	e35	e21	e11	e5.7	3.2	4.9	4.7	7.9	3.9
2	e73	e185	22	e32	e18	e11	e4.8	2.7	5.7	5.2	12	14
3	e194	e121	21	e29	e19	e39	e7.2	2.9	3.1	11	16	6.9
4	e156	e48	20	e35	e18	e18	e5.6	2.5	3.0	21	23	4.7
5	e202	e46	19	e32	e16	e13	e4.9	2.4	3.1	8.0	9.9	4.0
6	e107	e61	19	e33	e15	e12	e4.6	2.2	3.1	6.7	21	3.2
7	e82	e257	18	e33	e15	e11	e4.3	2.2	3.3	8.6	8.7	4.1
8	e202	e116	27	e28	e15	e10	e4.3	2.6	3.5	5.3	10	4.0
9	e146	100	21	e34	e15	e9.8	e3.9	3.2	3.5	4.8	7.3	3.3
10	e176	79	20	e30	e14	e9.4	e3.7	3.0	3.3	5.6	6.9	2.8
11	e143	65	21	e25	e14	e8.8	e3.4	3.1	3.5	4.4	16	2.7
12	e151	58	20	e24	e13	e8.5	e3.3	2.9	3.6	3.6	40	8.1
13	e80	53	41	e23	e14	e7.9	e3.2	2.7	3.0	3.2	e49	13
14	e89	48	61	e24	e14	e7.4	e3.1	2.8	3.2	3.1	14	8.7
15	102	44	e66	e25	e13	e7.0	e3.0	2.6	3.2	2.9	10	6.3
16	61	41	e50	e26	e12	e6.7	e2.9	2.4	3.5	2.8	8.0	4.4
17	55	38	e47	e22	e11	e6.4	e2.7	3.1	4.6	2.7	6.5	5.3
18	51	36	e78	e21	e11	e6.0	e2.5	3.8	3.0	2.6	5.5	17
19	47	34	e48	e20	e10	e5.9	e2.5	5.3	3.0	1.7	4.8	12
20	45	33	e46	e20	e12	e5.9	e2.5	11	3.1	3.3	15	9.1
21	40	31	e49	e20	e15	e5.7	e2.5	7.9	4.3	2.4	11	9.7
22	36	30	e36	e35	e14	e5.4	e2.4	4.4	5.8	1.6	6.9	9.2
23	34	28	e50	e56	e14	e5.2	e2.2	3.6	4.2	1.4	5.3	7.8
24	33	28	e44	e35	e15	e5.1	e2.3	4.2	4.1	1.3	4.3	16
25	32	26	e35	e27	e22	e5.7	1.9	8.7	4.2	1.7	5.4	38
26	39	24	e64	e22	e19	e5.2	1.8	4.5	4.3	4.3	5.4	30
27	50	23	e44	e20	e15	e4.7	2.2	3.6	4.3	6.7	3.9	e75
28	42	22	e53	e20	e14	e4.3	2.1	3.5	4.1	6.3	3.7	e143
29	54	24	e51	e28	e21	e6.2	2.2	3.7	4.0	6.5	3.5	e173
30	61	—	e48	e30	e14	e10	2.8	3.7	4.4	7.4	3.4	e150
31	195	—	e42	—	e12	—	2.5	5.9	—	9.9	—	104
TOTAL	2833	1812	1207	844	465	272.2	103	120.3	113.9	160.7	344.3	893.2
MEAN	91.4	62.5	39.0	28.1	15.0	9.1	3.3	3.9	3.8	5.2	11.5	28.9
MAX	202	257	78	56	22	39	7.2	11	5.8	21	49	173
MIN	32	22	18	20	10	4.3	1.8	2.2	3.0	1.3	3.4	2.7
AC-FT	5619	3594	2394	1674	922	540	204	239	226	319	683	1772

e=estimated value

**CCSR — 14206750 — Chicken Creek at Roy Rogers Road near Sherwood, Oregon [RM 2.3]**



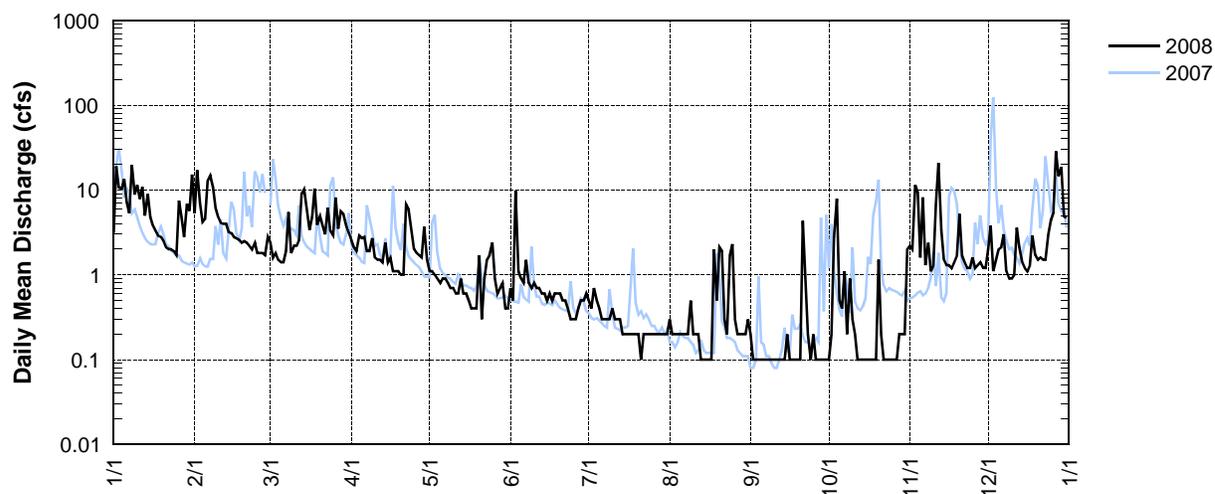
**STATION NUMBER 14206900 FANNO CREEK AT 56TH AVENUE**

LATITUDE: 452917 LONGITUDE: 1224401 DRAINAGE AREA: 2.37

Discharge, Cubic Feet per Second, Calendar Year January to December 2008 Daily Mean Values												
Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1	3.1	5.3	2.4	2.6	1.1	0.70	0.46	0.29	0.20	0.11	2.1	2.0
2	19	17	1.6	2.1	1.1	0.49	0.42	0.22	0.14	0.17	2.4	3.8
3	11	7.0	1.8	1.9	1.0	9.7	0.69	0.21	0.13	2.8	11	1.1
4	10	4.2	1.5	2.9	0.89	1.1	0.46	0.20	0.11	7.9	9.5	e1.0
5	14	4.6	1.4	2.7	0.84	0.94	0.41	0.19	0.11	0.48	1.6	e1.0
6	7.1	12	1.4	2.8	0.88	0.82	0.32	0.21	0.11	0.37	8.2	e1.0
7	5.3	15	1.8	1.9	0.86	1.5	0.31	0.20	0.09	1.1	1.3	e2.0
8	20	11	5.6	1.9	0.81	0.75	0.31	0.19	0.08	0.16	2.4	1.1
9	8.8	6.1	1.8	2.7	0.71	0.72	0.33	0.48	0.09	0.91	1.1	0.95
10	11	4.8	2.2	1.6	0.69	0.77	0.36	0.20	0.08	0.35	1.3	0.93
11	7.8	4.0	2.2	1.5	0.65	0.74	0.27	0.19	0.10	0.17	6.8	1.0
12	11	4.0	2.5	1.5	0.62	0.70	0.30	0.18	0.08	0.14	21	3.6
13	5.0	4.0	9.1	1.4	0.86	0.62	0.25	0.15	0.12	0.13	3.4	2.1
14	8.9	3.2	10	2.4	0.59	0.56	0.17	0.12	0.09	0.12	1.5	1.4
15	4.8	3.1	5.7	1.4	0.60	0.55	0.15	0.12	0.15	0.13	1.3	1.2
16	3.8	2.8	3.4	1.7	0.46	0.60	0.16	0.12	0.07	0.13	1.3	1.1
17	3.3	2.7	4.8	1.1	0.42	0.53	0.18	0.13	0.07	0.13	1.2	1.3
18	2.9	2.6	10	1.0	0.39	0.56	0.18	2.0	0.10	0.11	1.4	2.9
19	2.8	2.4	3.9	1.1	0.36	0.60	0.18	0.56	0.10	0.11	1.7	1.7
20	2.5	2.5	4.9	0.97	1.7	0.58	0.18	2.1	0.11	1.5	5.2	1.5
21	2.1	2.4	3.8	1.0	0.35	0.54	0.14	1.9	4.3	0.16	1.7	1.6
22	2.0	2.2	3.0	6.8	0.88	0.49	0.16	0.30	0.88	0.12	1.4	1.5
23	2.0	2.0	6.2	6.1	1.5	0.37	0.17	0.23	0.16	0.12	1.2	1.5
24	1.9	2.4	3.3	3.3	1.9	0.34	0.22	1.6	0.11	0.13	1.2	2.9
25	1.7	1.8	2.9	2.0	2.4	0.30	0.18	2.3	0.17	0.12	1.6	4.4
26	7.5	1.8	8.2	1.8	0.89	0.30	0.16	0.27	0.14	0.12	1.2	5.3
27	4.8	1.8	3.5	1.7	0.58	0.36	0.18	0.23	0.12	0.13	1.3	29
28	2.8	1.7	5.6	1.6	0.69	0.50	0.19	0.19	0.12	0.16	1.4	15
29	6.9	2.8	5.2	3.7	0.79	0.53	0.21	0.18	0.10	0.16	1.2	18
30	5.7	—	3.8	1.5	0.43	0.55	0.19	0.16	0.09	0.17	1.2	4.8
31	15	—	3.1	—	0.37	—	0.18	0.26	—	2.0	—	4.8
TOTAL	214.5	137.2	126.6	66.67	26.31	27.81	8.07	15.68	8.32	20.41	99.1	121.48
MEAN	6.92	4.73	4.08	2.22	0.85	0.93	0.26	0.51	0.28	0.66	3.30	3.92
MAX	20	17	10	6.8	2.4	9.7	0.69	2.3	4.3	7.9	21	29
MIN	1.7	1.7	1.4	0.97	0.35	0.30	0.14	0.12	0.07	0.11	1.1	0.93
AC-FT	425	272	251	132	52	55	16	31	17	40	197	241

<sup>†</sup> Provisional data—subject to revision; e—estimated value

6900 — 14206900 — Fanno Creek at 56th Avenue [RM 11.9]



**SCRL – 14206905 – SYLVAN CREEK AT RALEIGHWOOD LANE NEAR WEST SLOPE, OREGON [RM 1.0]**

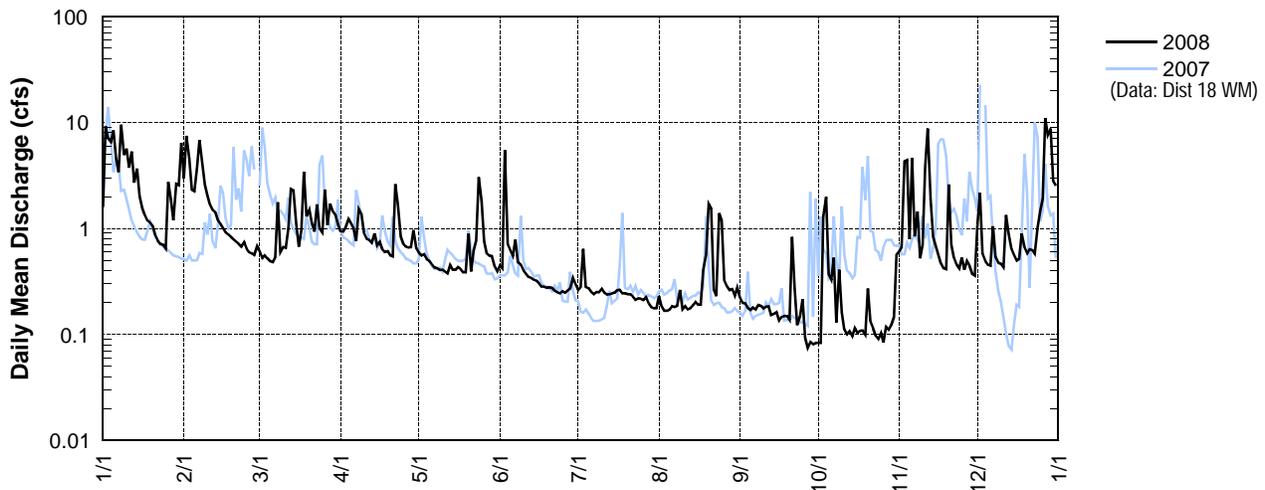
Latitude: 45 29 35 Longitude: 122 44 48

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.6	3.0	0.60	0.94	0.59	0.45	0.26	0.23	0.22	0.08	0.61	1.1
2	9.2	7.4	0.52	0.93	0.56	0.42	0.28	0.18	0.20	0.08	0.66	2.2
3	7.0	4.6	0.56	1.0	0.57	5.5	0.64	0.17	0.20	1.3	4.3	0.58
4	6.5	2.3	0.52	1.2	0.52	0.71	0.28	0.17	0.18	2.0	4.4	0.49
5	8.4	2.2	0.49	1.1	0.49	0.62	0.27	0.17	0.17	0.37	0.79	0.45
6	4.6	3.7	0.48	0.99	0.46	0.55	0.25	0.18	0.18	0.33	4.6	0.45
7	3.4	6.8	0.54	0.76	0.43	0.79	0.24	0.18	0.17	0.53	0.84	1.0
8	9.5	4.0	1.8	1.5	0.42	0.48	0.25	0.19	0.19	0.13	1.4	0.53
9	4.9	2.6	0.60	1.4	0.40	0.45	0.25	0.26	0.19	0.41	0.52	0.47
10	5.7	2.0	0.67	0.89	0.41	0.40	0.27	0.17	0.18	0.16	0.70	0.46
11	3.8	1.7	0.65	0.80	0.39	0.38	0.25	0.18	0.18	0.11	3.8	0.43
12	5.3	1.5	0.99	0.78	0.37	0.35	0.24	0.17	0.18	0.10	8.7	1.3
13	2.7	1.4	2.4	0.73	0.45	0.34	0.24	0.18	0.15	0.11	1.9	0.90
14	3.7	1.2	2.3	0.90	0.41	0.33	0.24	0.19	0.16	0.10	0.83	0.64
15	2.0	1.1	1.1	0.69	0.41	0.32	0.25	0.20	0.16	0.11	0.68	0.56
16	1.6	1.00	0.68	0.75	0.43	0.30	0.26	0.19	0.14	0.10	0.57	0.50
17	1.3	0.92	0.97	0.64	0.41	0.28	0.26	0.19	0.15	0.11	0.47	0.51
18	1.2	0.87	3.4	0.60	0.39	0.28	0.25	0.41	0.15	0.11	0.42	0.89
19	1.1	0.83	1.3	0.61	0.39	0.27	0.24	0.57	0.15	0.10	0.41	0.66
20	1.1	0.78	1.5	0.55	0.89	0.28	0.24	1.7	0.14	0.27	2.6	0.58
21	0.87	0.75	1.1	0.54	0.39	0.27	0.24	1.5	0.83	0.13	0.70	0.64
22	0.76	0.71	0.93	2.6	0.62	0.26	0.23	0.26	0.27	0.12	0.53	0.63
23	0.71	0.67	1.7	1.7	0.77	0.25	0.21	0.23	0.12	0.10	0.46	0.58
24	0.70	0.75	1.00	0.84	3.1	0.24	0.22	1.4	0.15	0.09	0.42	1.0
25	0.64	0.64	0.91	0.72	1.8	0.26	0.22	1.2	0.22	0.10	0.53	1.4
26	2.7	0.59	2.3	0.67	0.75	0.25	0.21	0.32	0.09	e0.08	0.41	1.9
27	1.9	0.58	1.1	0.66	0.58	0.26	0.22	0.28	0.08	e0.12	0.49	11
28	1.2	0.56	1.7	0.67	0.55	0.27	0.20	0.26	0.09	e0.11	0.44	7.6
29	2.6	0.68	1.5	0.96	0.55	0.34	0.18	0.27	0.08	e0.12	0.37	8.7
30	2.6	—	1.4	0.65	0.44	0.30	0.18	0.23	0.08	0.15	0.36	2.8
31	6.4	—	1.1	—	0.39	—	0.18	0.28	—	0.57	—	2.5
TOTAL	55.83	36.81	27.77	19.33	16.2	7.75	12.11	5.45	8.3	43.91	53.45	
MEAN	3.4	1.9	1.2	0.93	0.62	0.54	0.25	0.39	0.18	0.27	1.5	1.7
MAX	9.5	7.4	3.4	2.6	3.1	5.5	0.64	1.7	0.83	2.0	8.7	11
MIN	0.64	0.56	0.48	0.54	0.37	0.24	0.18	0.17	0.08	0.08	0.36	0.43
AC-FT	210	111	73	55	38	32	15	24	11	16	87	106

e=estimated value

**SCRL — 14206905 — Sylvan Creek at Raleighwood Lane near West Slope, Oregon [RM 1.0]**



**ASMP – 14206933 – ASH CREEK AT METZGER PARK AT METZGER, OREGON [RM 1.25]**

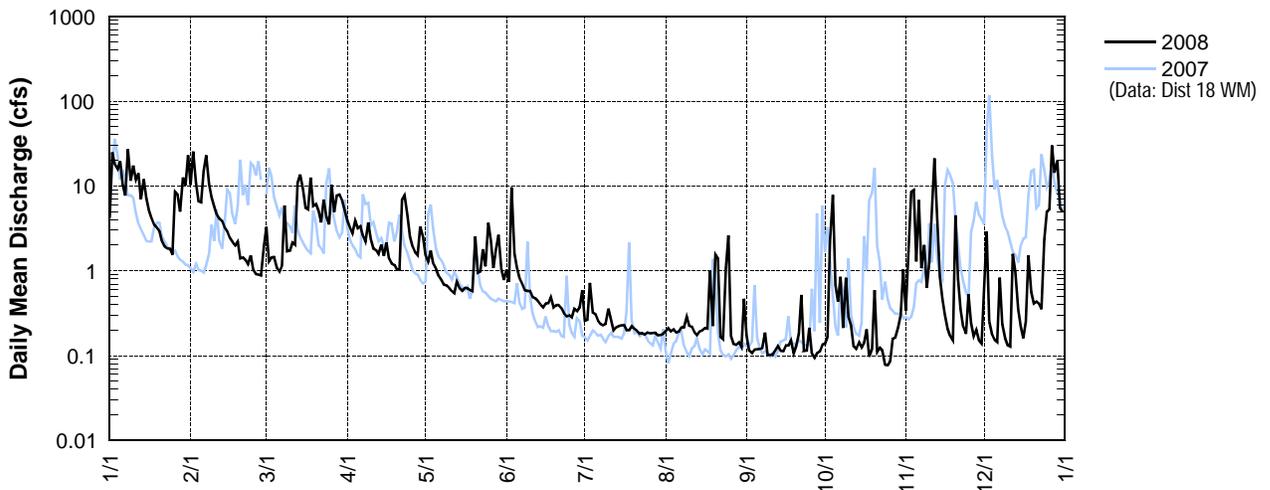
Latitude: 45 27 00 Longitude: 122 45 45

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	4.2	10	3.3	3.9	1.5	1.0	0.26	0.19	0.17	0.14	0.34	0.60
2	25	26	1.3	3.2	1.3	0.74	0.26	0.21	0.11	0.17	1.7	2.9
3	18	11	1.4	2.8	1.7	9.7	0.72	0.20	0.11	2.2	8.5	0.25
4	16	6.6	1.4	3.9	1.2	1.6	0.32	0.20	0.12	7.8	9.0	0.18
5	20	6.4	1.1	3.2	1.0	1.1	0.31	0.19	0.12	e0.68	1.3	0.15
6	10	15	0.99	3.4	0.87	0.82	0.26	0.19	0.12	e0.43	6.8	0.14
7	7.7	23	1.2	2.6	0.78	0.70	0.24	0.22	0.12	e0.85	1.1	0.83
8	27	11	5.9	2.2	0.68	0.59	0.23	0.21	0.19	e0.21	2.0	0.23
9	11	7.3	1.7	3.7	0.67	0.58	0.24	0.29	0.10	e0.83	0.63	0.16
10	17	5.7	1.7	2.4	0.63	0.58	0.36	0.22	0.10	e0.29	1.3	0.13
11	12	4.6	2.2	1.8	0.58	0.49	0.27	0.22	0.10	e0.23	5.9	0.13
12	14	4.1	2.0	1.8	0.54	0.48	0.20	0.19	0.12	e0.13	21	1.6
13	7.0	3.9	11	1.6	0.74	0.44	0.21	0.18	0.13	e0.12	5.0	0.98
14	12	3.2	14	2.0	0.63	0.40	0.22	0.20	0.11	e0.14	0.85	0.35
15	7.2	2.9	9.2	1.5	0.58	0.37	0.23	0.20	0.11	e0.12	0.47	0.22
16	5.2	2.4	5.6	2.2	0.63	0.41	0.23	0.21	0.13	e0.14	0.30	0.16
17	4.2	2.2	5.3	1.4	0.62	0.42	0.20	0.21	0.13	e0.21	0.21	0.25
18	3.5	2.0	13	1.2	0.59	0.49	0.20	1.0	0.15	e0.10	0.17	1.5
19	3.2	2.2	5.8	1.2	0.58	0.37	0.22	0.22	0.11	e0.12	0.15	0.56
20	2.9	1.4	6.1	1.0	2.6	0.40	0.21	1.5	0.13	e0.59	4.5	0.41
21	2.2	1.4	5.1	1.0	0.95	0.39	0.20	1.4	0.18	e0.11	0.81	0.43
22	1.9	1.3	3.7	6.9	0.99	0.36	0.18	0.17	0.52	e0.12	0.35	0.41
23	1.8	1.2	7.0	7.8	1.8	0.32	0.18	0.15	0.11	e0.12	0.22	0.35
24	1.8	1.5	4.4	4.5	1.1	0.29	0.18	1.1	0.11	e0.08	0.18	2.4
25	1.5	1.0	3.5	2.5	3.7	0.30	0.19	2.6	0.21	e0.08	0.53	5.0
26	8.6	0.91	10	1.9	2.3	0.28	0.18	0.17	0.10	e0.09	0.24	5.3
27	8.0	0.90	4.9	1.6	1.1	0.36	0.18	0.14	0.09	0.16	0.17	30
28	5.0	0.88	7.7	1.5	1.8	0.34	0.19	0.13	0.11	0.16	0.20	14
29	13	1.9	8.0	3.3	2.7	0.37	0.17	0.14	0.11	0.22	0.15	20
30	10	—	6.7	2.5	1.0	0.59	0.18	0.13	0.13	0.30	0.14	5.5
31	23	—	5.1	—	0.78	—	0.18	0.47	—	1.1	—	4.9
TOTAL	303.9	161.89	160.29	80.5	36.64	25.28	7.4	12.85	4.15	18.04	74.21	100.02
MEAN	9.8	5.6	5.2	2.7	1.2	0.84	0.24	0.42	0.14	0.58	2.5	3.2
MAX	27	26	14	7.8	3.7	9.7	0.72	2.6	0.52	7.8	21	30
MIN	1.5	0.88	0.99	1.0	0.54	0.28	0.17	0.13	0.09	0.08	0.14	0.13
AC-FT	603	321	318	160	73	50	15	25	8.2	36	147	198

e=estimated value

**ASMP — 14206933 — Ash Creek at Metzger Park at Metzger, Oregon [RM 1.25]**



**SC121 – 14206938 – SUMMER CREEK AT SW 121ST AVENUE NEAR TIGARD, OREGON [RM 1.0]**

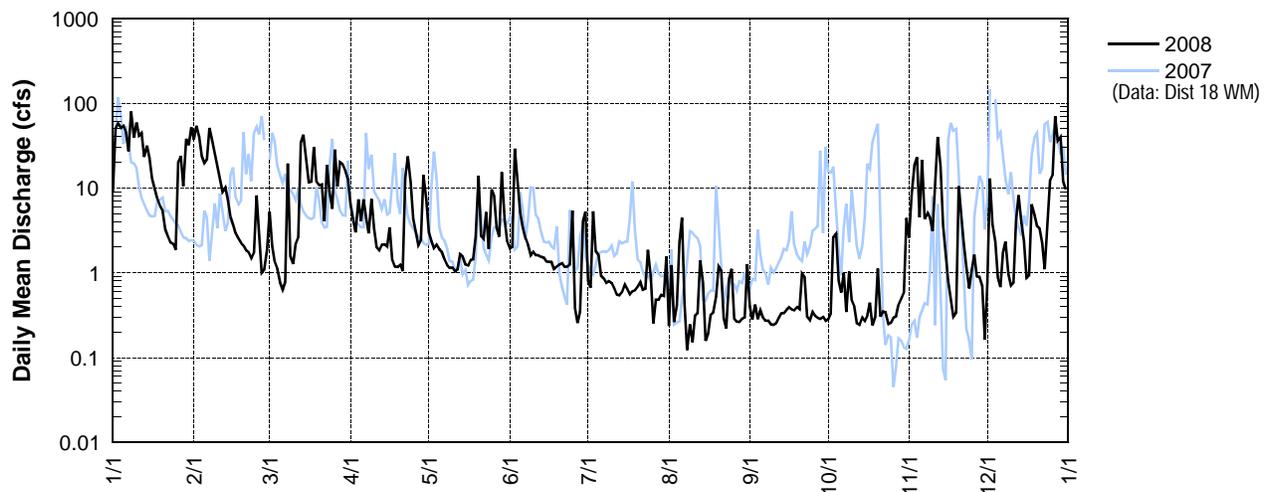
Latitude: 45 26 06 Longitude: 122 47 55

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	9.0	37	5.3	6.5	3.0	1.9	0.81	0.24	e0.40	e0.28	e2.6	0.76
2	e51	e54	2.1	4.3	2.4	2.0	0.67	1.2	e0.28	e0.33	8.2	13
3	e57	40	1.4	3.0	2.0	e29	5.3	0.26	e0.42	e2.6	19	3.8
4	51	24	1.1	7.4	2.1	12	1.8	0.41	e0.28	e2.9	e23	2.3
5	e54	20	0.77	4.1	1.9	5.1	1.6	2.3	e0.36	e0.81	4.5	0.88
6	45	e22	0.63	7.4	1.7	e3.4	0.92	4.4	e0.30	e0.58	21	0.68
7	27	e51	0.78	4.5	1.4	e2.6	0.86	0.43	e0.27	e1.0	4.3	1.7
8	e80	36	19	2.9	1.2	2.2	0.76	0.12	e0.27	e0.35	5.1	2.3
9	39	25	1.6	7.4	1.1	1.6	0.80	0.25	e0.25	e1.0	4.4	0.97
10	59	18	1.3	3.4	1.1	1.8	0.76	0.15	e0.24	e0.47	3.1	0.71
11	42	13	2.2	2.0	1.0	1.6	0.66	0.31	e0.25	e0.40	13	0.77
12	e45	9.1	2.7	1.8	1.1	1.6	0.55	0.34	e0.29	e0.26	e40	4.1
13	23	10	34	2.1	1.6	1.5	0.54	1.4	e0.33	e0.25	18	8.2
14	e31	7.3	42	2.2	1.6	1.5	0.59	0.77	e0.34	e0.30	3.6	3.9
15	22	4.6	21	2.0	1.3	1.4	0.73	0.16	e0.36	e0.27	1.7	2.4
16	13	3.7	12	3.4	1.2	1.3	0.64	0.19	e0.39	e0.32	0.80	0.88
17	9.8	2.9	12	1.4	1.4	1.3	0.56	0.32	e0.37	e0.45	0.51	0.93
18	7.5	2.5	30	1.2	1.4	1.1	0.61	e0.34	e0.36	e0.24	0.31	6.4
19	6.1	2.3	12	1.2	2.7	1.2	0.62	e0.52	e0.39	e0.30	0.34	4.8
20	5.3	2.1	11	1.2	14	1.3	0.69	e1.2	e0.37	e1.1	11	3.5
21	3.3	1.8	11	1.1	2.7	1.3	0.78	e1.1	e0.99	e0.30	5.1	3.3
22	2.7	1.7	4.1	13	2.5	1.2	0.64	e0.29	e0.89	e0.35	2.2	2.3
23	2.3	1.5	19	24	5.2	1.2	0.65	e0.22	e0.31	e0.34	1.2	1.1
24	2.2	1.7	9.1	12	1.9	1.3	1.9	e0.85	e0.28	e0.25	0.66	4.2
25	1.9	8.2	5.7	4.3	9.6	5.4	0.89	e1.1	e0.34	e0.26	1.1	13
26	20	2.9	28	3.0	8.1	0.38	0.25	e0.29	e0.31	e0.30	1.6	14
27	24	1.0	10	2.1	3.4	0.26	0.48	e0.27	e0.29	e0.31	0.91	e70
28	11	1.1	20	2.5	2.7	0.35	0.48	e0.26	e0.29	0.42	0.89	36
29	38	1.9	19	14	15	4.0	0.55	e0.29	e0.30	0.51	0.70	e40
30	32	—	16	7.3	4.3	5.2	0.53	e0.30	e0.27	0.60	0.16	12
31	e52	—	13	—	2.3	—	1.6	e1.3	—	4.4	—	9.6
TOTAL	866.1	406.3	367.78	152.7	102.9	95.99	29.22	21.58	10.79	22.25	198.98	268.48
MEAN	27.9	14.0	11.9	5.1	3.3	3.2	0.94	0.70	0.36	0.72	6.6	8.7
MAX	80	54	42	24	15	29	5.3	4.4	0.99	4.4	40	70
MIN	1.9	1.0	0.63	1.1	1.0	0.26	0.25	0.12	0.24	0.24	0.16	0.68
AC-FT	1718	806	729	303	204	190	58	43	21	44	395	533

e=estimated value

**SC121 — 14206938 — Summer Creek at SW 121st Avenue near Tigard, Oregon [RM 1.0]**



UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY – OREGON WATER SCIENCE CENTER

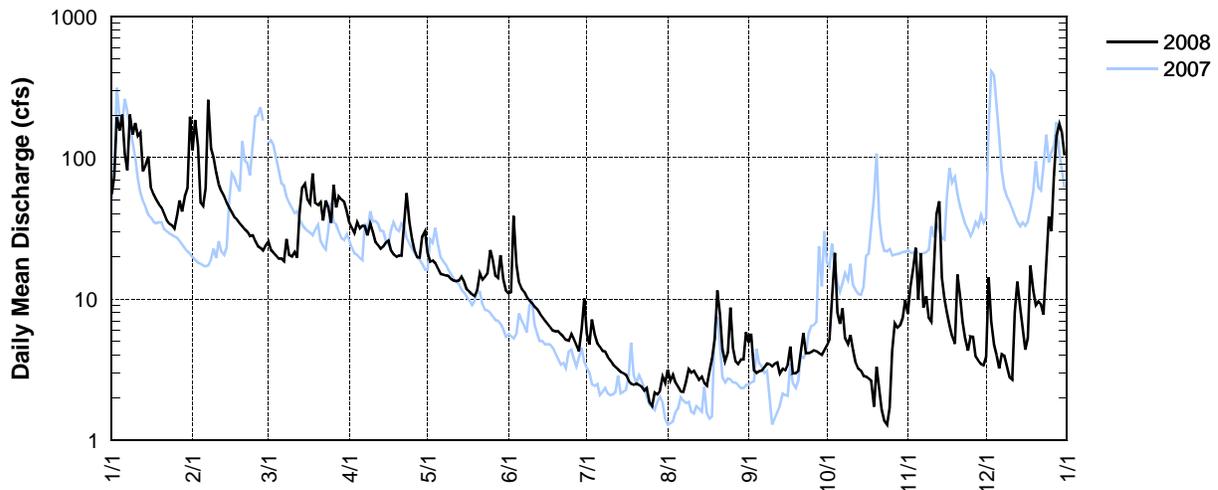
**STATION NUMBER 14206950 FANNO CREEK AT DURHAM**

LATITUDE: 452413 LONGITUDE: 1224513 DRAINAGE AREA: 31.50

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	63	138	37	38	24	13	8.8	5.0	15	2.6	13	8.9
2	189	225	27	33	19	14	6.3	3.9	6.4	5.6	25	58
3	242	171	20	29	20	123	15	5.0	4.9	20	58	17
4	189	77	20	40	19	33	9.7	4.0	4.4	127	181	12
5	249	67	17	34	16	20	7.6	4.2	3.8	20	32	9.5
6	141	88	16	37	14	17	7.0	7.5	3.5	14	103	8.5
7	109	304	16	37	14	16	6.3	3.8	3.3	22	28	13
8	245	126	74	29	14	14	6.5	2.9	3.1	10	26	17
9	163	90	26	41	14	12	5.7	3.7	3.1	10	23	9.7
10	182	64	21	33	13	12	5.2	4.0	2.7	15	14	8.5
11	161	51	26	25	12	11	4.7	3.4	2.6	7.2	59	8.2
12	164	43	22	23	12	10	4.5	3.5	2.6	5.4	187	20
13	95	41	119	21	13	9.4	4.4	3.0	2.5	4.9	211	36
14	106	37	156	23	15	8.5	4.2	3.9	2.7	4.0	32	17
15	115	31	93	26	11	7.8	4.3	2.9	3.6	3.6	20	12
16	65	28	60	28	11	7.2	4.3	2.5	3.2	3.4	15	9.7
17	55	26	54	21	9.9	6.7	3.6	2.5	3.5	3.5	13	10
18	49	24	127	19	9.3	6.1	3.4	12	3.3	3.8	11	31
19	44	23	57	18	8.9	6.1	3.5	11	2.9	3.8	9.5	23
20	42	22	54	19	35	6.4	4.0	33	2.6	9.2	66	16
21	35	21	60	19	19	6.0	4.1	29	10	11	e35	16
22	30	20	36	51	16	5.6	4.1	11	21	6.0	17	15
23	28	19	64	115	21	5.2	3.8	6.3	8.0	4.4	13	14
24	27	22	53	52	20	5.2	4.4	8.7	4.6	4.0	11	27
25	25	21	35	33	40	6.9	4.8	44	3.7	3.7	15	88
26	71	21	101	24	34	6.0	3.8	9.8	4.2	3.4	15	78
27	128	17	55	20	20	5.0	3.3	6.0	3.5	2.9	10	330
28	57	16	76	20	19	4.1	4.4	5.0	3.0	2.8	11	248
29	126	19	70	38	38	9.8	4.2	4.6	3.0	3.2	9.5	241
30	121	—	66	45	19	25	4.7	4.0	2.8	2.9	8.0	117
31	243	—	52	—	14	—	5.2	12	—	13	—	81
TOTAL	3559	1852	1710	991	564.1	432.0	165.8	262.1	143.5	352.3	1271.0	1600.0
MEAN	115	63.9	55.2	33.0	18.2	14.4	5.35	8.45	4.78	11.4	42.4	51.6
MAX	249	304	156	115	40	123	15	44	21	127	211	330
MIN	25	16	16	18	8.9	4.1	3.3	2.5	2.5	2.6	8.0	8.2
AC-FT	7060	3670	3390	1970	1120	857	329	520	285	699	2520	3170

e=estimated value

**FANO — 14206950 — Fanno Creek at Durham Road near Tigard, Oregon [RM 1.2]**



**HCTP – 14206958 – HEDGES CREEK AT TUALATIN PARK AT TUALATIN, OREGON [RM 0.3]**

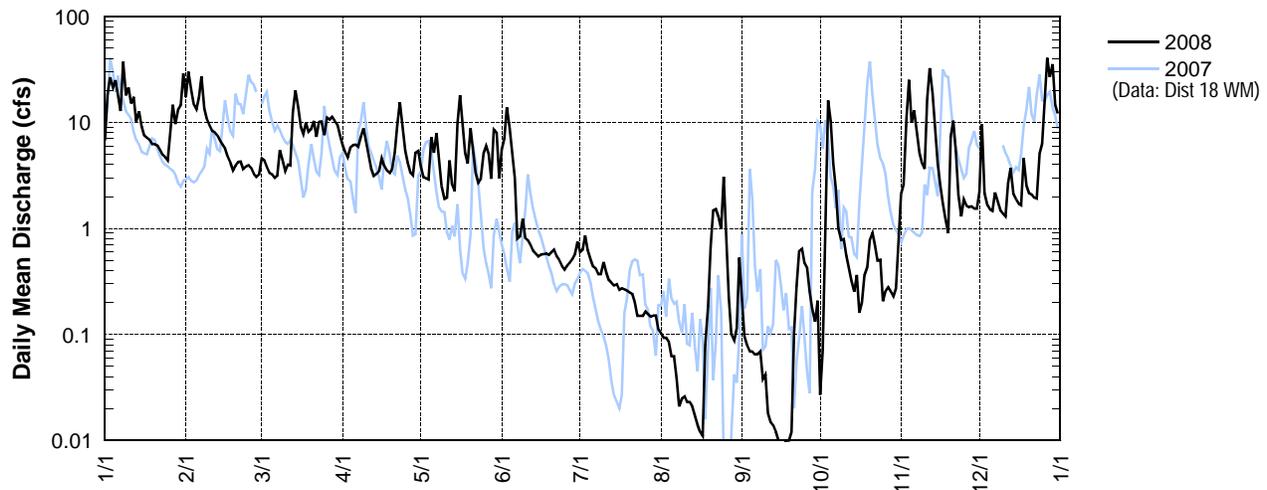
Latitude: 45 23 08 Longitude:122 45 37

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.7	e17	4.6	6.1	3.8	5.5	e0.60	e0.10	e0.20	0.03	2.1	e2.2
2	18	e30	4.4	5.2	3.0	7.0	e0.63	e0.09	e0.10	0.07	2.6	e9.6
3	27	e20	3.8	4.7	3.0	14	e0.86	e0.09	e0.08	0.64	11	e2.2
4	21	e15	3.3	5.8	2.9	8.7	e0.62	e0.08	e0.07	16	25	e1.7
5	e25	e13	3.2	6.1	7.2	4.9	e0.51	e0.06	e0.07	10	9.9	e1.5
6	e18	e17	3.0	6.2	5.2	3.0	e0.44	e0.06	e0.07	4.1	13	e1.5
7	e13	e27	3.2	5.8	7.9	0.80	e0.42	e0.04	e0.07	2.4	8.2	e2.2
8	e37	e13	5.5	7.2	4.5	0.84	e0.37	e0.02	e0.07	1.00	5.1	e1.8
9	e18	e11	4.5	8.8	2.5	1.2	e0.37	0.03	e0.04	0.78	4.1	e1.5
10	e21	e9.4	3.5	6.5	1.9	0.81	e0.48	0.03	e0.04	0.79	3.7	e1.4
11	e15	e8.3	4.0	4.9	2.0	e0.77	e0.38	0.02	e0.02	0.55	17	e1.3
12	e17	e8.1	3.9	3.7	4.4	e0.70	e0.33	0.02	0.02	0.42	e32	e2.7
13	e10	7.5	13	3.1	2.6	e0.62	e0.31	0.02	0.01	0.32	e19	e3.7
14	e13	6.7	20	3.3	2.2	e0.58	e0.29	0.02	0.01	0.25	e8.2	e2.1
15	e9.2	6.1	14	3.5	9.8	e0.54	e0.30	0.01	0.01	0.36	e4.1	e1.9
16	e7.5	5.7	9.1	4.6	18	e0.57	e0.26	0.01	0.01	0.16	e2.6	e1.7
17	e7.2	4.8	7.8	3.9	9.0	e0.57	e0.27	0.01	0.01	0.20	e1.7	e1.7
18	e6.9	4.2	9.8	3.5	5.1	e0.58	e0.27	0.08	0.01	0.36	e1.2	e4.6
19	6.3	3.5	8.2	3.3	4.1	e0.56	e0.26	0.18	0.01	0.43	0.90	e2.5
20	6.2	3.9	8.7	3.7	8.8	e0.59	e0.25	0.67	0.01	0.79	7.4	e2.2
21	6.0	4.2	10	5.2	e5.4	e0.63	e0.24	1.5	0.10	0.91	10	e2.1
22	5.5	4.3	7.3	9.5	e3.3	e0.55	e0.20	1.5	0.29	0.69	5.3	e1.9
23	5.0	3.6	10	15	2.7	e0.50	e0.15	1.3	0.61	0.50	2.1	e1.9
24	4.7	3.8	10	8.5	2.9	e0.44	e0.15	1.00	0.64	0.50	1.3	e5.1
25	4.4	4.0	7.5	5.4	5.1	e0.41	e0.15	e3.1	0.47	0.21	1.9	e6.3
26	8.2	3.7	11	4.1	6.0	e0.45	e0.16	e1.0	0.42	0.26	e1.6	e16
27	15	3.3	11	3.4	5.0	e0.47	e0.16	e0.23	0.25	0.28	e1.6	e40
28	9.7	3.1	11	3.2	2.9	e0.51	e0.15	e0.10	0.17	0.25	e1.6	e27
29	13	3.2	10	5.2	8.6	e0.58	e0.15	e0.09	0.13	0.23	e1.5	e35
30	15	—	9.5	5.4	8.0	e0.75	e0.15	e0.11	0.21	0.27	e1.5	e15
31	29	—	7.6	—	3.0	—	e0.11	e0.53	—	0.84	—	e12
TOTAL	418.5	264.4	242.4	164.8	160.8	58.12	9.99	12.1	4.22	44.59	207.2	212.3
MEAN	13.5	9.1	7.8	5.5	5.2	1.9	0.32	0.39	0.14	1.5	6.9	6.8
MAX	37	30	20	15	18	14	0.86	3.1	0.64	16	32	40
MIN	4.4	3.1	3.0	3.1	1.9	0.41	0.11	0.01	0.01	0.03	0.90	1.3
AC-FT	830	524	481	327	319	115	20	24	8.4	88	411	421

e=estimated value

**HCTP — 14206958 — Hedges Creek at Tualatin Park at Tualatin, Oregon [RM 0.3]**



**TRT – 14206956 (formerly 14206960) – TUALATIN RIVER AT TUALATIN, OREGON [RM 8.9]**

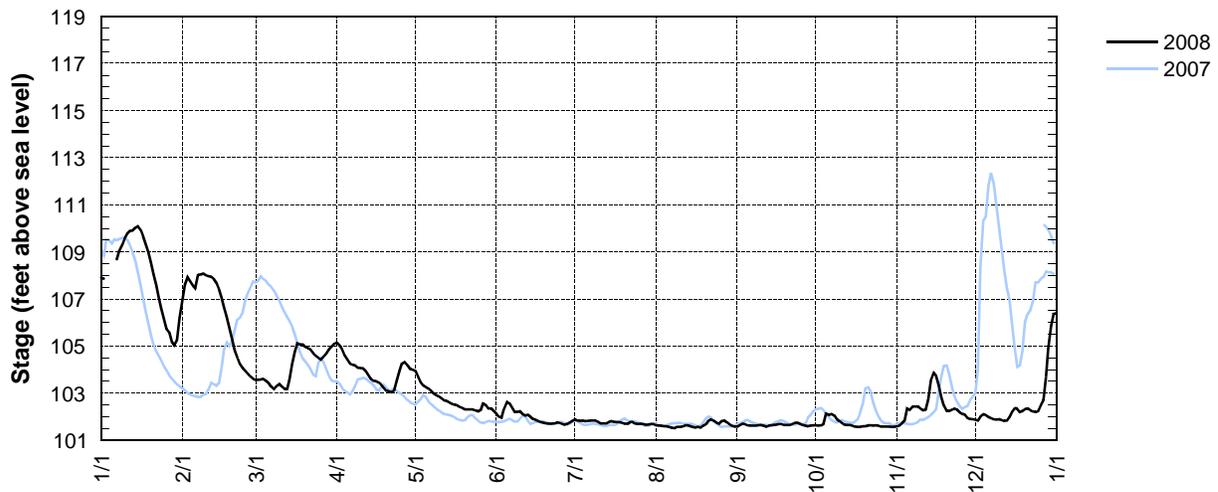
Latitude: 45 23 14 Longitude: 122 45 46

Source Agency: District 18 Watermaster

Day	Daily Elevation in Feet above Mean Sea Level for 2008*											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	107.9	107.0	103.6	105.0	103.7	102.0	101.8	101.6	101.6	101.6	101.6	101.8
2	107.9	107.6	103.6	104.9	103.5	102.0	101.8	101.6	101.7	101.6	101.7	102.0
3		107.9	103.6	104.6	103.3	102.3	101.8	101.6	101.7	101.7	101.8	102.1
4	108.2	107.7	103.5	104.4	103.3	102.6	101.8	101.6	101.6	102.1	102.3	102.1
5		107.6	103.4	104.3	103.2	102.6	101.8	101.6	101.6	102.1	102.3	102.0
6		107.5	103.3	104.2	103.1	102.4	101.8	101.5	101.6	102.1	102.4	101.9
7	108.7	108.0	103.2	104.2	103.0	102.2	101.8	101.5	101.6	102.0	102.4	101.9
8	109.1	108.0	103.3	104.1	102.9	102.2	101.8	101.6	101.6	101.9	102.4	101.9
9	109.3	108.1	103.4	104.1	102.9	102.2	101.8	101.6	101.6	101.8	102.3	101.9
10	109.6	108.0	103.3	104.0	102.8	102.1	101.7	101.6	101.6	101.7	102.3	101.9
11	109.8	108.0	103.2	103.9	102.7	102.0	101.7	101.6	101.6	101.7	102.3	101.8
12	109.9	107.9	103.2	103.8	102.7	102.1	101.7	101.6	101.6	101.7	102.7	101.8
13	109.9	107.8	103.6	103.6	102.6	102.0	101.8	101.6	101.6	101.6	103.6	102.0
14	110.0	107.7	104.2	103.5	102.5	101.9	101.8	101.6	101.7	101.6	103.9	102.2
15	110.1	107.4	104.8	103.5	102.5	101.9	101.8	101.5	101.7	101.6	103.8	102.4
16	109.9	107.1	105.1	103.5	102.5	101.8	101.8	101.6	101.7	101.6	103.3	102.3
17	109.7	106.7	105.1	103.3	102.4	101.8	101.8	101.5	101.7	101.6	102.8	102.2
18	109.4	106.2	105.1	103.2	102.4	101.7	101.7	101.6	101.6	101.6	102.5	102.2
19	109.0	105.8	105.0	103.1	102.3	101.7	101.7	101.7	101.6	101.6	102.2	102.3
20	108.5	105.3	104.9	103.1	102.3	101.7	101.7	101.8	101.6	101.6	102.2	102.3
21	108.1	104.8	104.9	103.0	102.3	101.7	101.8	101.9	101.7	101.6	102.3	102.3
22	107.6	104.5	104.7	103.1	102.3	101.7	101.8	101.8	101.7	101.6	102.3	102.2
23	107.1	104.2	104.6	103.6	102.3	101.7	101.7	101.8	101.7	101.6	102.3	102.2
24	106.6	104.1	104.5	104.0	102.2	101.7	101.7	101.7	101.7	101.6	102.2	102.2
25	106.2	104.0	104.4	104.3	102.3	101.7	101.7	101.8	101.7	101.6	102.1	102.5
26	105.7	103.8	104.6	104.3	102.6	101.7	101.7	101.8	101.6	101.6	102.1	102.7
27	105.6	103.7	104.7	104.2	102.5	101.7	101.7	101.8	101.6	101.6	102.0	103.7
28	105.2	103.6	104.9	104.0	102.3	101.7	101.7	101.7	101.6	101.6	101.9	104.9
29	105.0	103.6	105.0	104.0	102.3	101.8	101.7	101.6	101.6	101.6	101.9	105.9
30	105.3	—	105.1	103.9	102.2	101.9	101.7	101.6	101.6	101.6	101.9	106.4
31	106.2	—	105.1	—	102.1	—	101.6	101.6	—	101.6	—	106.4
MEAN	108.0	106.3	104.2	103.9	102.6	102.0	101.7	101.6	101.6	101.7	102.4	102.7
MAX	110.1	108.1	105.1	105.0	103.7	102.6	101.8	101.9	101.7	102.1	103.9	106.4
MIN	105.0	103.6	103.2	103.0	102.1	101.7	101.6	101.5	101.6	101.6	101.6	101.8

\*Preliminary data—subject to revision

**TRT — 14206956 (formerly 14206960) — Tualatin River at Tualatin, Oregon [RM 8.9]**



**STATION NUMBER: 14207500 TUALATIN RIVER AT WEST LINN, OREG.**

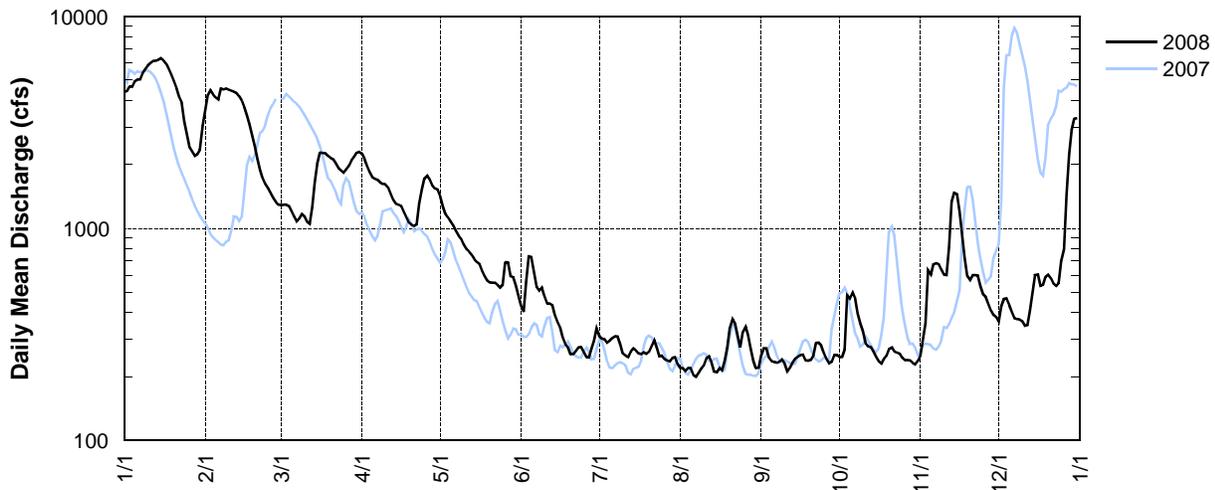
LATITUDE: 452103 LONGITUDE: 1224030 DRAINAGE AREA: 706.00 DATUM: 85.61

**Discharge, Cubic Feet per Second, Calendar Year January to December 2008 Daily Mean Values**

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1	4410	3630	1290	2250	1420	431	310	220	252	247	252	364
2	4440	4240	1290	2130	1280	404	301	219	272	248	299	429
3	e4660	4480	1300	1970	1170	562	300	213	272	268	355	464
4	e4650	4300	1280	1840	1130	737	290	219	247	482	633	468
5	4930	4140	1210	1750	1080	733	295	220	237	468	607	436
6	e5040	4040	1140	1720	1030	613	305	204	235	499	679	404
7	e5040	4550	1080	1700	974	530	311	200	233	468	686	378
8	e5390	4530	1110	1650	928	510	309	208	235	397	679	373
9	e5600	4570	1170	1620	897	526	286	218	240	357	640	372
10	5840	4500	1140	1610	842	479	258	225	230	330	603	366
11	6020	4460	1070	1560	798	441	251	245	212	288	601	348
12	6150	4420	1050	1460	779	443	248	250	220	278	811	350
13	6180	4360	1250	1360	753	435	263	233	233	276	1330	410
14	6240	4210	1650	1310	721	389	272	211	242	262	1470	500
15	6350	4000	2020	1300	696	363	266	210	249	248	1450	602
16	6200	3710	2270	1280	678	339	257	219	252	236	1200	606
17	5990	3410	2270	1200	632	305	255	215	254	230	935	537
18	5670	3100	2260	1130	597	284	261	235	238	243	726	541
19	5330	2770	2200	1070	568	276	256	272	238	251	599	590
20	4980	2430	2150	1040	555	255	261	336	240	269	570	606
21	4570	2130	2120	1030	553	255	280	372	252	275	603	581
22	4170	1890	2030	1050	553	265	298	355	288	263	602	549
23	e3700	1730	1930	1310	541	275	275	313	290	260	600	535
24	e3200	1620	1880	1520	526	276	249	275	282	257	538	551
25	e2800	1550	1830	1710	540	262	251	324	257	246	490	700
26	e2400	1470	1890	1770	692	247	242	344	242	239	476	795
27	e2300	1390	1970	1700	691	246	238	314	231	240	439	1440
28	e2200	1340	2090	1590	597	271	236	271	235	239	410	2220
29	e2200	1290	2170	1540	589	295	245	239	252	233	391	2910
30	2350	—	2270	1530	540	339	247	219	253	229	382	3300
31	3040	—	2300	—	486	—	230	220	—	237	—	3300
TOTAL	142040	94260	52680	45700	23836	11786	8346	7818	7413	9063	20056	26025
MEAN	4582	3250	1699	1523	769	393	269	252	247	292	669	840
MAX	6350	4570	2300	2250	1420	737	311	372	290	499	1470	3300
MIN	2200	1290	1050	1030	486	246	230	200	212	229	252	348
AC-FT	281700	187000	104500	90650	47280	23380	16550	15510	14700	17980	39780	51620

<sup>†</sup> Provisional data—subject to revision; e=estimated value

**WSLO — 14207500 —Tualatin River at West Linn, Oregon [RM 1.75]**

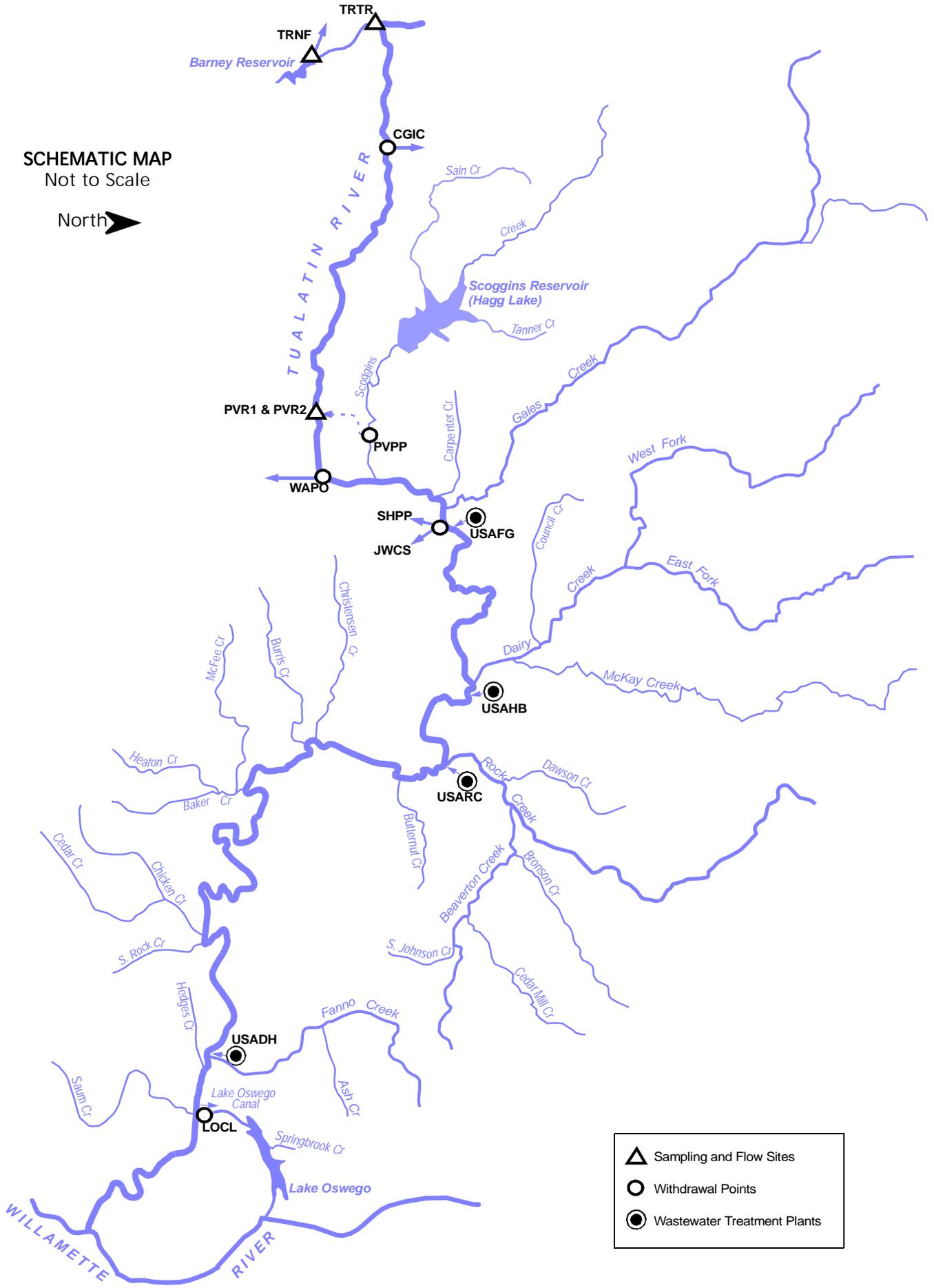


# Appendix B

## Selected Releases and Withdrawals

The following information is for selected water releases to and withdrawals from the Tualatin River and its tributaries. It is not a comprehensive listing of releases and withdrawals. Some of the data represent daily mean flows and some represent instantaneous measurements. All streamflow measurements are in Appendix A.

SELECTED RELEASES AND WITHDRAWALS — LOCATIONS



**SELECTED RELEASE AND WITHDRAWAL SITES — ALPHABETICAL LISTING BY SITE CODE**

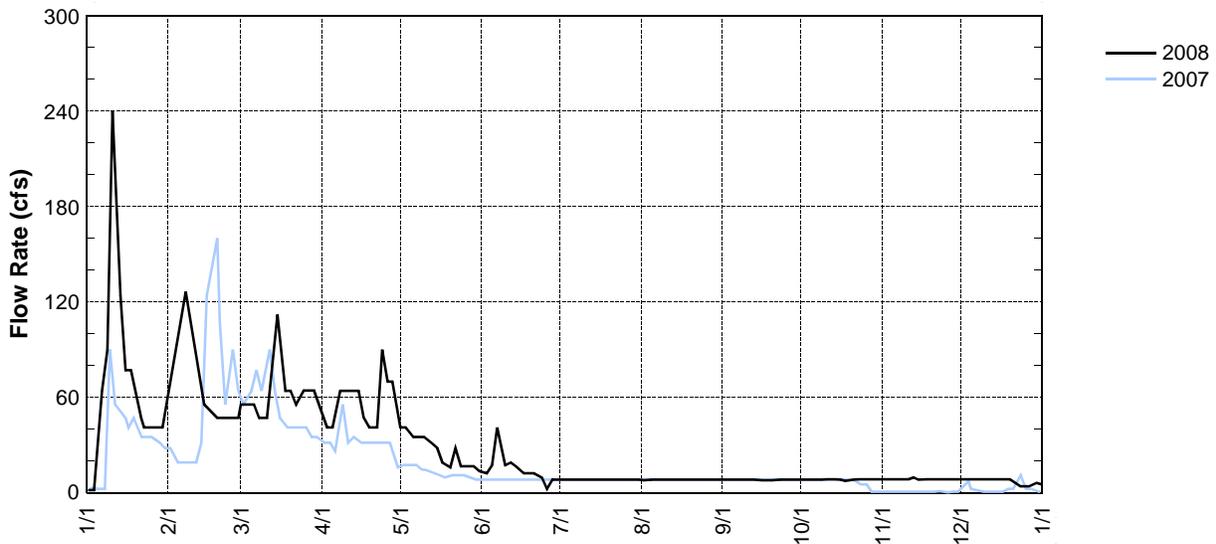
<b>SITE CODE</b>	<b>SITE NAME</b>	<b>RIVER MILE</b>	<b>PAGE</b>
CGIC	City of Hillsboro Withdrawal at Cherry Grove	73.3	B-6
JWCS	Joint Water Commission Withdrawal at Springhill Pump Plant	56.1	B-10
LOCL	Lake Oswego Corp. Canal Diversion	6.7	B-15
PVPP	TVID Withdrawal at Patton Valley Pump Plant	1.71	B-7
PVR1	TVID—Patton Valley River Turnout #1 Release	63.13	B-7
PVR2	TVID—Patton Valley River Turnout #2 Release	64.26	B-7
SHPP	TVID—Withdrawal at Springhill Pump Plant	56.1	B-9
TRNF	Barney Reservoir Measured Flow to North Fork Trask River	—	B-4
TRTR	Barney Reservoir Release to Tualatin River	78.0	B-5
USADH	CWS Durham WWTP Release	9.33	B-14
USAFG	CWS Forest Grove WWTP Release	55.2	B-11
USAHB	CWS Hillsboro WWTP Release	43.8	B-12
USARC	CWS Rock Creek WWTP Release	38.08	B-13
WAPO	Wapato Canal Diversion	62.0	B-8

**TRNF – BARNEY RESERVOIR MEASURED FLOW TO NORTH FORK TRASK RIVER**

Source Agency: Joint Water Commission

Day	2008 — Instantaneous Measured Flow Rate in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1								8.0		8.2		8.4
2	1.7			41.0	41.0	12.3	8.2		8.2			
3			55.5				8.2		8.2	8.2	8.4	8.4
4	1.7			41.0		17.5		8.2				
5			55.5		35.0				8.2		8.4	8.4
6						41.0		8.2		8.2		
7	64.0		47.0	64.0	35.0		8.2				8.4	
8		126.4						8.2	8.2	8.2		8.4
9	90.0			64.0	35.0	17.5	8.2					
10			47.0						8.2	8.4	8.4	8.4
11	240.0	95.8		64.0		19.0	8.2	8.2				
12					31.0				8.2		9.5	8.4
13		77.0				16.5		8.2		8.4		
14	124.0		112.0	64.0	28.0		8.2				8.2	
15		55.5						8.2	8.0	8.2		8.4
16	77.0			47.0	19.0	12.3	8.2					
17			64.0						8.0	7.3	8.4	8.4
18	77.0			41.0		12.3	8.2	8.2				
19			64.0		16.0				8.0		8.4	8.4
20		47.0				12.3		8.2		8.2		
21			55.5	41.0	28.0		8.2				8.4	
22	47.0	47.0						8.2	8.2	8.4		
23	41.0			90.0	16.5	9.5	8.2					4.0
24			64.1						8.2	8.4	8.4	
25	41.0	47.0		70.0		2.4	8.2	8.2				
26			64.1						8.2		8.4	4.0
27				70.0		8.2		8.2		8.4		
28	41.0	47.0	64.1		16.5		8.2				8.4	
29		55.5						8.2	8.2	8.4		6.2
30	41.0	—		41.0	13.5	8.2	8.2					
31		—		—		—			8.4		—	5.1

**TRNF – Barney Reservoir Measured Flow to North Fork Trask River**

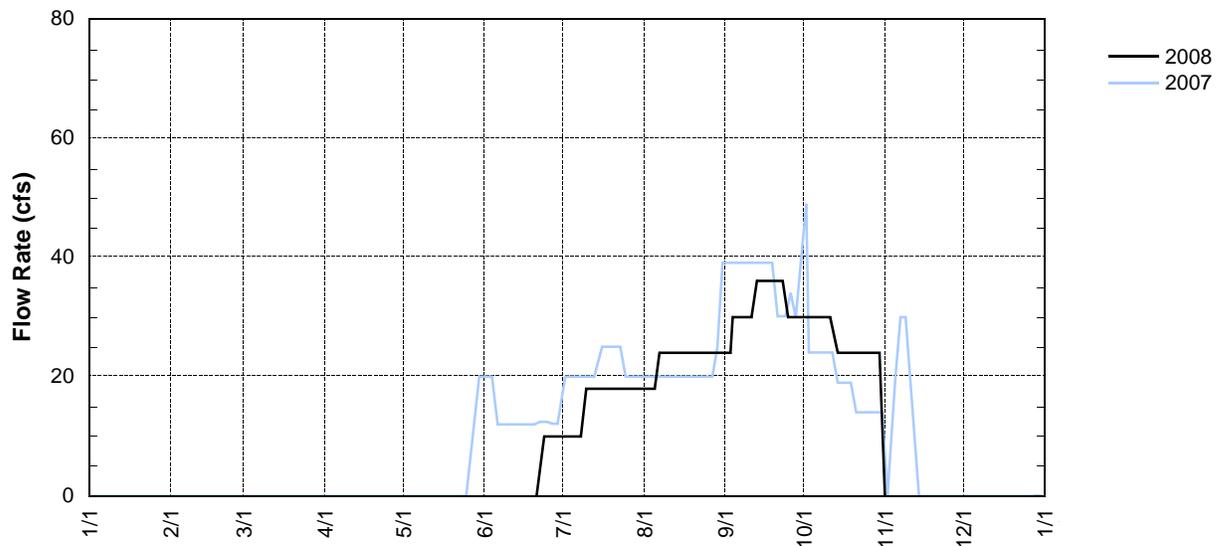


**TRTR — BARNEY RESERVOIR RELEASE TO TUALATIN RIVER [RM 78.0]**

Source Agency: Joint Water Commission

Day	2008 — Instantaneous Measured Flow Rate in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1								18.0		30.0		0.0
2	0.0			0.0	0.0	0.0	10.0		24.0			
3			0.0				10.0		30.0	30.0	0.0	0.0
4	0.0			0.0		0.0		18.0				
5			0.0		0.0				30.0		0.0	0.0
6						0.0		24.0		30.0		
7	0.0		0.0	0.0	0.0		10.0				0.0	
8		0.0						24.0	30.0	30.0		0.0
9	0.0			0.0	0.0	0.0	18.0					
10			0.0						30.0	30.0	0.0	0.0
11	0.0	0.0		0.0		0.0	18.0	24.0				
12					0.0				36.0		0.0	0.0
13		0.0				0.0		24.0		24.0		
14	0.0		0.0	0.0	0.0		18.0				0.0	
15		0.0						24.0	36.0	24.0		0.0
16	0.0			0.0	0.0	0.0	18.0					
17			0.0						36.0	24.0	0.0	0.0
18	0.0			0.0		0.0	18.0	24.0				
19			0.0		0.0				36.0		0.0	0.0
20		0.0				0.0		24.0		24.0		
21			0.0	0.0	0.0		18.0				0.0	
22	0.0	0.0						24.0	36.0	24.0		
23	0.0			0.0	0.0	10.0	18.0					0.0
24			0.0						30.0	24.0	0.0	
25	0.0	0.0		0.0		10.0	18.0	24.0				
26			0.0						30.0		0.0	0.0
27				0.0		10.0		24.0		24.0		
28	0.0	0.0	0.0		0.0		18.0				0.0	
29		0.0						24.0	30.0	24.0		0.0
30	0.0	—		0.0	0.0	10.0	18.0					
31		—	0.0							0.0		0.0

**TRTR – Barney Reservoir Measured Flow to Tualatin River [RM 78.0]**

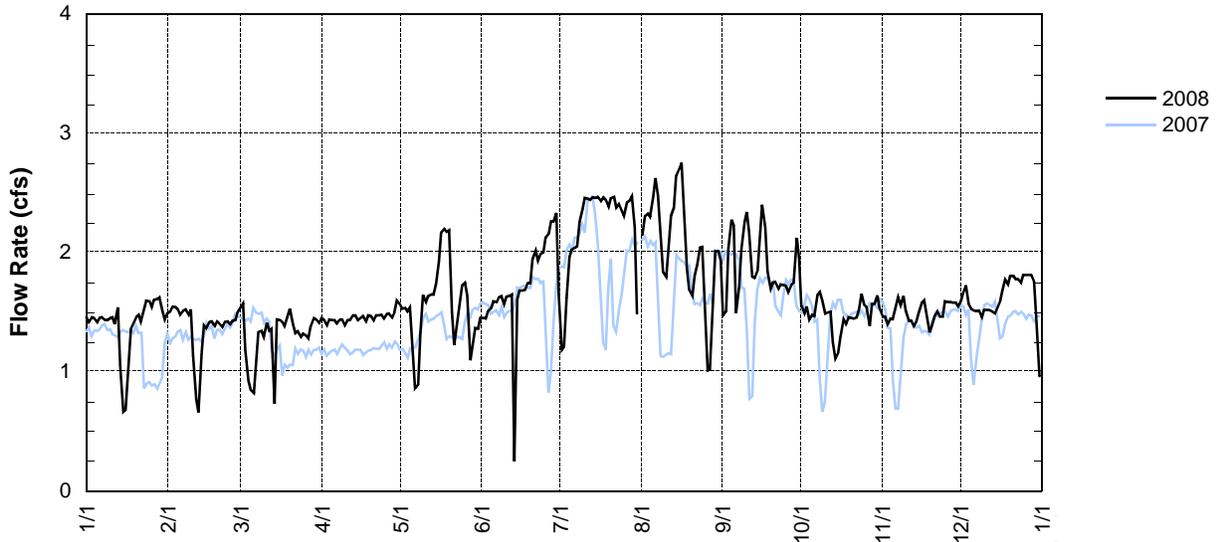


**CGIC — CITY OF HILLSBORO WITHDRAWAL AT CHERRY GROVE [RM 73.3]**

Source Agency: Joint Water Commission

Day	2008 — Calculated Average Flow Rate in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.46	1.49	1.57	1.44	1.53	1.45	1.19	2.15	1.47	1.56	1.46	1.60
2	1.41	1.51	1.19	1.39	1.53	1.45	1.21	2.31	1.51	1.49	1.46	1.67
3	1.46	1.55	0.92	1.43	1.51	1.51	1.62	2.33	2.04	1.55	1.40	1.73
4	1.45	1.54	0.85	1.43	1.54	1.53	1.96	2.30	2.27	1.44	1.45	1.57
5	1.42	1.52	0.82	1.43	1.19	1.59	2.03	2.47	2.23	1.48	1.44	1.53
6	1.45	1.48	1.09	1.41	0.86	1.58	2.04	2.62	1.49	1.47	1.55	1.51
7	1.45	1.51	1.34	1.43	0.90	1.62	2.05	2.48	1.72	1.64	1.62	1.51
8	1.43	1.52	1.34	1.44	1.33	1.63	2.26	2.13	2.03	1.67	1.56	1.51
9	1.43	1.48	1.29	1.39	1.65	1.57	2.36	1.83	2.26	1.60	1.64	1.46
10	1.45	1.52	1.41	1.43	1.58	1.63	2.46	1.79	2.34	1.49	1.51	1.52
11	1.45	1.14	1.35	1.43	1.64	1.63	2.45	2.03	2.17	1.50	1.43	1.52
12	1.40	0.77	1.36	1.47	1.65	1.65	2.44	2.31	1.79	1.50	1.43	1.52
13	1.54	0.66	0.73	1.47	1.64	0.25	2.46	2.38	1.79	1.25	1.38	1.51
14	1.06	1.16	1.44	1.43	1.74	1.61	2.46	2.64	1.85	1.11	1.43	1.49
15	0.67	1.39	1.43	1.45	1.92	1.68	2.46	2.71	2.11	1.16	1.50	1.53
16	0.68	1.36	1.42	1.47	2.17	1.68	2.43	2.75	2.40	1.30	1.58	1.60
17	0.96	1.42	1.38	1.42	2.20	1.68	2.46	2.38	2.21	1.44	1.60	1.68
18	1.36	1.42	1.47	1.47	2.17	1.74	2.44	1.86	1.84	1.40	1.47	1.77
19	1.41	1.39	1.53	1.47	2.19	1.74	2.38	1.68	1.69	1.46	1.33	1.73
20	1.46	1.42	1.40	1.43	1.50	1.94	2.46	1.63	1.75	1.45	1.39	1.80
21	1.48	1.41	1.32	1.47	1.23	2.01	2.47	1.80	1.75	1.45	1.47	1.80
22	1.42	1.38	1.34	1.47	1.43	1.93	2.38	1.90	1.70	1.45	1.51	1.77
23	1.52	1.42	1.30	1.48	1.56	1.99	2.41	2.04	1.73	1.52	1.46	1.77
24	1.59	1.42	1.32	1.45	1.73	2.00	2.35	2.05	1.72	1.65	1.46	1.75
25	1.59	1.40	1.31	1.48	1.75	2.13	2.31	1.46	1.72	1.56	1.59	1.81
26	1.54	1.43	1.28	1.49	1.64	2.16	2.42	1.01	1.67	1.54	1.58	1.81
27	1.60	1.43	1.38	1.46	1.10	2.26	2.43	1.02	1.73	1.38	1.58	1.81
28	1.61	1.50	1.45	1.50	1.22	2.26	2.47	1.60	1.75	1.57	1.58	1.81
29	1.62	1.58	1.44	1.60	1.37	2.33	2.21	2.01	2.12	1.57	1.58	1.75
30	1.51	—	1.41	1.57	1.36	1.66	1.49	2.01	1.96	1.64	1.55	1.45
31	1.44	—	1.45	—	1.45	—	1.99	1.93	—	1.53	—	0.96

**CGIC – City of Hillsboro Withdrawal at Cherry Grove [RM 73.3]**

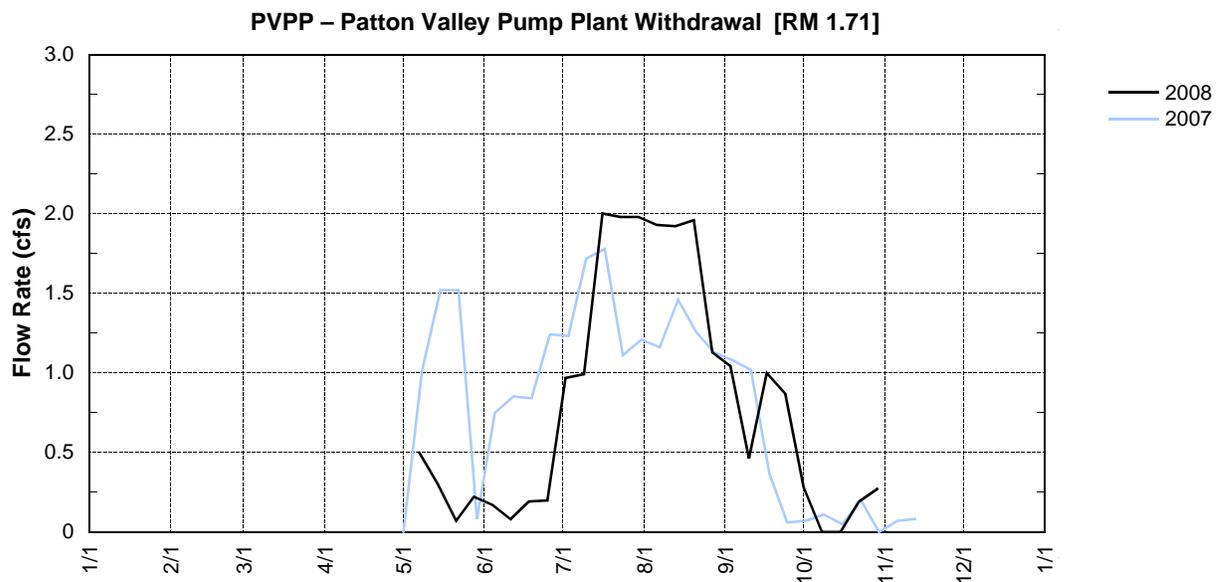


## PATTON VALLEY PUMP PLANTS AND TURNOUTS

Source Agency: District 18 Watermaster

2008 — Calculated Average Flow Rate in Cubic Feet per Second*			
Date	PVPP — [RM 1.71] Patton Valley Pump Plant	PVR1 — [RM 63.13] Patton Valley River Turnout #1	PVR2 — [RM 64.26] Patton Valley River Turnout #2
5/6/2008	0.50	0.0	0.0
5/13/2008	0.30	0.0	0.0
5/20/2008	0.07	0.0	0.0
5/27/2008	0.22	0.0	0.0
6/3/2008	0.17	0.0	0.0
6/10/2008	0.08	0.0	0.0
6/17/2008	0.19	0.0	0.0
6/24/2008	0.20	0.0	0.0
7/1/2008	0.97	0.0	0.0
7/8/2008	0.99	0.0	0.0
7/15/2008	2.00	0.0	0.0
7/22/2008	1.98	0.0	0.0
7/29/2008	1.98	0.0	0.0
8/5/2008	1.93	0.0	0.0
8/12/2008	1.92	0.0	0.0
8/19/2008	1.96	0.0	0.0
8/26/2008	1.13	0.0	0.0
9/2/2008	1.04	0.0	0.0
9/9/2008	0.46	0.0	0.0
9/16/2008	1.00	0.0	0.0
9/23/2008	0.87	0.0	0.0
9/30/2008	0.28	0.0	0.0
10/7/2008	0.00	0.0	0.0
10/14/2008	0.00	0.0	0.0
10/21/2008	0.19	0.0	0.0
10/28/2008	0.27	0.0	0.0

\*Preliminary data—subject to revision

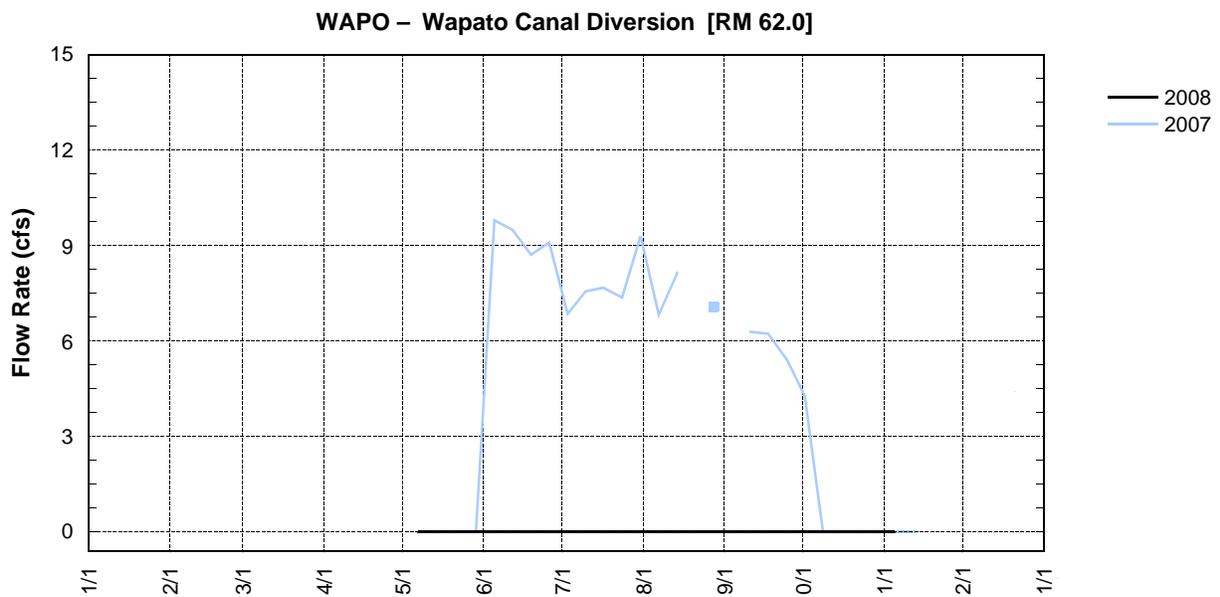


**WAPO – WAPATO CANAL DIVERSION [RM 62.0]**

Source Agency: District 18 Watermaster

Date	Instantaneous Measured Flow Rate in Cubic Feet per Second*
5/6/2008	0.0
5/13/2008	0.0
5/20/2008	0.0
5/27/2008	0.0
6/3/2008	0.0
6/10/2008	0.0
6/17/2008	0.0
6/24/2008	0.0
7/1/2008	0.0
7/8/2008	0.0
7/15/2008	0.0
7/22/2008	0.0
7/29/2008	0.0
8/5/2008	0.0
8/12/2008	0.0
8/19/2008	0.0
8/26/2008	0.0
9/2/2008	0.0
9/9/2008	0.0
9/16/2008	0.0
9/23/2008	0.0
9/30/2008	0.0
10/7/2008	0.0
10/14/2008	0.0
10/21/2008	0.0
10/28/2008	0.0
11/4/2008	0.0

\*Preliminary data—subject to revision

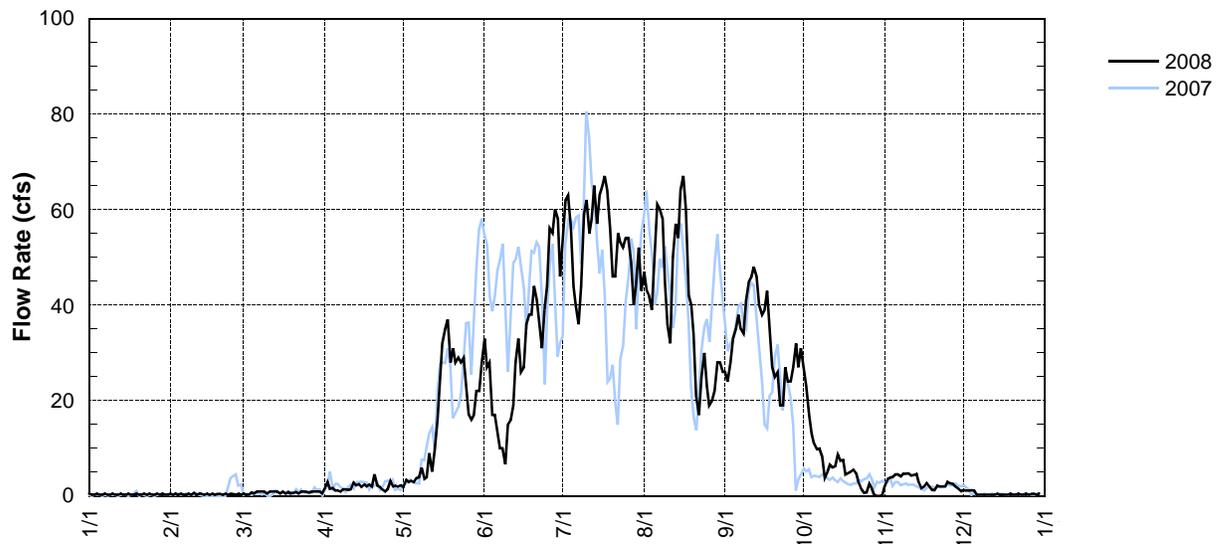


### SHPP – TVID WITHDRAWAL AT SPRINGHILL PUMP PLANT [RM 56.1]

Source Agency: US Geological Survey, Oregon Water Science Center

Day	2008 — Mean Daily Water Withdrawal in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.53	0.52	0.3	3.0	3.4	27.0	62.0	43.0	24.0	23.0	3.6	1.10
2	0.27	0.27	0.3	1.5	2.9	28.0	63.0	42.0	28.0	17.0	3.8	1.10
3	0.27	0.54	0.7	1.6	3.2	17.0	56.0	39.0	33.0	13.0	3.9	1.20
4	0.53	0.27	0.6	1.1	2.9	17.0	44.0	50.0	35.0	11.0	4.5	1.10
5	0.26	0.54	0.9	1.2	3.7	13.0	40.0	61.0	38.0	9.8	4.5	0.29
6	0.27	0.27	0.9	0.9	3.9	10.0	36.0	60.0	35.0	10.0	4.1	0.29
7	0.53	0.27	0.9	1.4	5.9	10.0	44.0	58.0	34.0	8.3	4.6	0.29
8	0.26	0.54	0.9	1.4	3.6	6.6	59.0	45.0	41.0	3.8	4.6	0.29
9	0.27	0.27	0.6	1.3	4.0	15.0	62.0	36.0	45.0	5.2	4.7	0.29
10	0.53	0.64	0.9	1.4	9.0	16.0	55.0	32.0	46.0	6.5	4.3	0.29
11	0.26	0.27	1.0	2.8	5.1	19.0	58.0	50.0	48.0	6.0	4.4	0.29
12	0.26	0.55	0.9	2.3	9.5	28.0	65.0	57.0	46.0	6.3	4.6	0.29
13	0.53	0.42	0.9	2.5	16.0	33.0	57.0	54.0	40.0	8.6	2.8	0.58
14	0.27	0.27	0.6	1.9	24.0	26.0	63.0	64.0	38.0	7.4	1.6	0.29
15	0.27	0.54	0.9	2.4	32.0	27.0	65.0	67.0	39.0	7.5	2.0	0.29
16	0.53	0.27	0.6	2.0	35.0	36.0	67.0	60.0	43.0	4.5	2.7	0.29
17	0.27	0.54	0.9	2.4	37.0	38.0	64.0	42.0	36.0	4.8	2.0	0.29
18	0.27	0.27	0.6	1.9	28.0	38.0	56.0	40.0	27.0	5.1	1.3	0.58
19	0.53	0.37	0.6	4.5	31.0	44.0	46.0	34.0	25.0	5.5	1.2	0.29
20	0.27	0.45	0.8	2.2	28.0	41.0	46.0	21.0	26.0	4.7	2.1	0.29
21	0.27	0.27	0.6	1.9	29.0	36.0	55.0	17.0	19.0	2.8	2.0	0.58
22	0.54	0.55	0.9	1.4	28.0	31.0	53.0	25.0	19.0	1.5	2.0	0.29
23	0.27	0.27	0.9	1.0	29.0	39.0	52.0	30.0	27.0	0.6	2.0	0.29
24	0.54	0.46	0.8	1.4	23.0	44.0	54.0	23.0	24.0	0.8	3.0	0.58
25	0.27	0.36	0.7	3.1	17.0	56.0	54.0	19.0	24.0	2.5	2.6	0.29
26	0.27	0.28	0.9	2.0	16.0	55.0	49.0	20.0	27.0	1.5	2.5	0.43
27	0.55	0.55	0.9	2.2	17.0	60.0	40.0	22.0	32.0	0.3	1.9	0.44
28	0.27	0.28	0.9	2.0	22.0	58.0	44.0	28.0	27.0	0.0	1.5	0.29
29	0.55	0.55	0.9	2.3	22.0	46.0	52.0	28.0	31.0	0.0	1.0	0.57
30	0.27	—	0.6	1.8	28.0	53.0	43.0	26.0	27.0	0.2	1.3	0.28
31	0.30	—	1.5	—	33.0	—	47.0	26.0	—	2.3	—	0.52

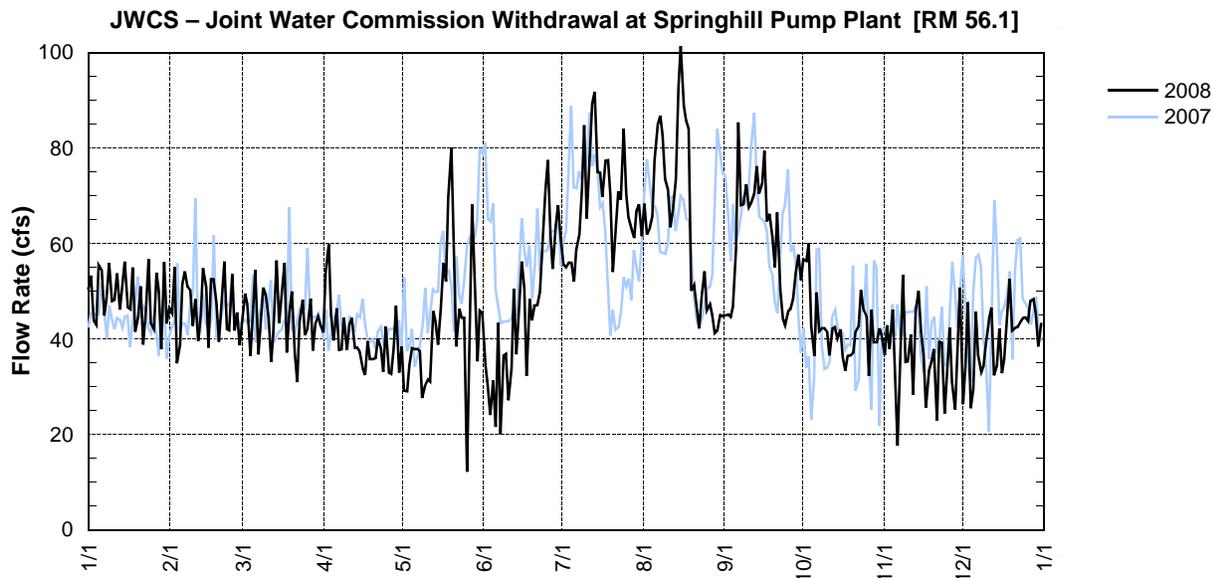
**SHPP – Tualatin Valley Irrigation District Withdrawal at Springhill Pump Plant [RM 56.1]**



**JWCS – JOINT WATER COMMISSION WITHDRAWAL AT SPRINGHILL PUMP PLANT [RM 56.1]**

Source Agency: Joint Water Commission

Day	2008 — Calculated Average Flow Rate in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	50.6	46.5	49.5	54.1	29.2	34.5	55.6	68.4	44.9	56.7	36.7	26.4
2	53.3	45.3	47.3	59.9	29.0	30.3	55.1	61.9	45.2	56.4	42.9	34.3
3	43.8	55.0	36.4	45.0	34.5	24.2	56.0	63.3	44.6	60.0	38.0	47.7
4	42.9	34.8	45.8	39.7	38.1	31.4	55.9	65.8	46.7	42.7	46.2	25.5
5	55.5	38.9	54.4	46.4	37.9	21.6	52.0	77.5	59.1	36.4	30.3	29.5
6	54.3	51.5	36.8	37.7	38.0	43.4	58.7	84.8	85.5	49.7	17.6	45.6
7	44.9	54.2	43.7	37.9	37.4	20.0	61.9	86.8	68.0	41.6	32.9	36.6
8	48.6	51.0	50.7	44.5	27.6	36.5	71.5	82.9	68.2	42.3	53.4	33.1
9	56.0	50.2	49.2	37.7	30.5	37.0	84.8	73.5	72.4	42.2	35.1	34.4
10	48.0	42.7	44.5	43.2	31.6	27.2	65.3	71.3	67.7	41.5	35.2	39.2
11	48.3	48.3	35.1	44.4	31.0	34.1	76.7	63.4	68.5	36.6	41.0	44.3
12	53.8	39.6	41.6	38.2	45.8	50.6	89.2	67.4	70.4	42.3	28.3	46.6
13	46.2	45.2	56.5	38.3	43.7	36.9	91.7	73.5	76.3	42.5	45.9	32.4
14	51.5	54.8	43.3	37.3	38.8	46.9	75.1	92.6	70.4	40.1	50.1	34.4
15	56.2	50.8	48.7	33.7	46.7	56.2	74.9	101.5	72.6	42.0	41.5	42.2
16	46.6	38.1	56.0	32.5	56.0	50.6	69.8	88.9	79.5	36.2	36.5	32.8
17	46.2	52.6	37.1	39.6	52.0	32.3	77.3	85.7	64.6	33.4	25.6	35.8
18	55.0	52.5	45.5	35.8	69.7	48.3	77.4	84.0	66.3	36.4	33.4	45.7
19	41.5	47.7	50.0	35.8	80.1	43.9	70.4	50.1	61.5	36.6	35.4	52.7
20	44.5	39.5	37.2	36.0	61.1	47.0	54.0	51.4	55.0	37.2	38.0	41.7
21	51.0	47.0	31.0	40.1	38.4	47.1	63.8	46.6	66.5	41.5	22.8	42.4
22	38.8	56.2	43.5	37.9	46.4	49.8	70.9	42.3	50.3	42.7	39.5	42.5
23	46.5	42.1	48.3	33.1	44.4	58.3	69.2	49.6	44.3	50.2	39.2	43.5
24	56.8	41.9	40.9	42.7	44.5	71.0	84.0	54.1	42.9	46.3	24.3	44.5
25	43.2	53.6	42.2	33.0	12.2	77.5	70.5	46.1	45.8	44.7	33.0	44.6
26	42.0	41.8	48.5	32.8	50.6	62.1	65.5	47.4	46.3	32.2	42.4	43.8
27	54.0	45.6	37.6	38.3	68.1	54.7	63.0	45.1	48.3	46.2	30.9	48.0
28	50.2	38.7	43.4	47.0	58.1	63.9	61.1	41.2	53.6	39.3	25.3	48.4
29	37.8	49.3	44.8	33.0	35.2	68.0	66.8	41.8	57.7	39.3	36.3	45.4
30	56.1	—	42.6	38.5	46.0	61.3	68.2	45.1	52.2	42.3	50.8	38.4
31	43.2	—	41.4	—	45.4	—	61.6	44.8	—	40.9	—	43.2

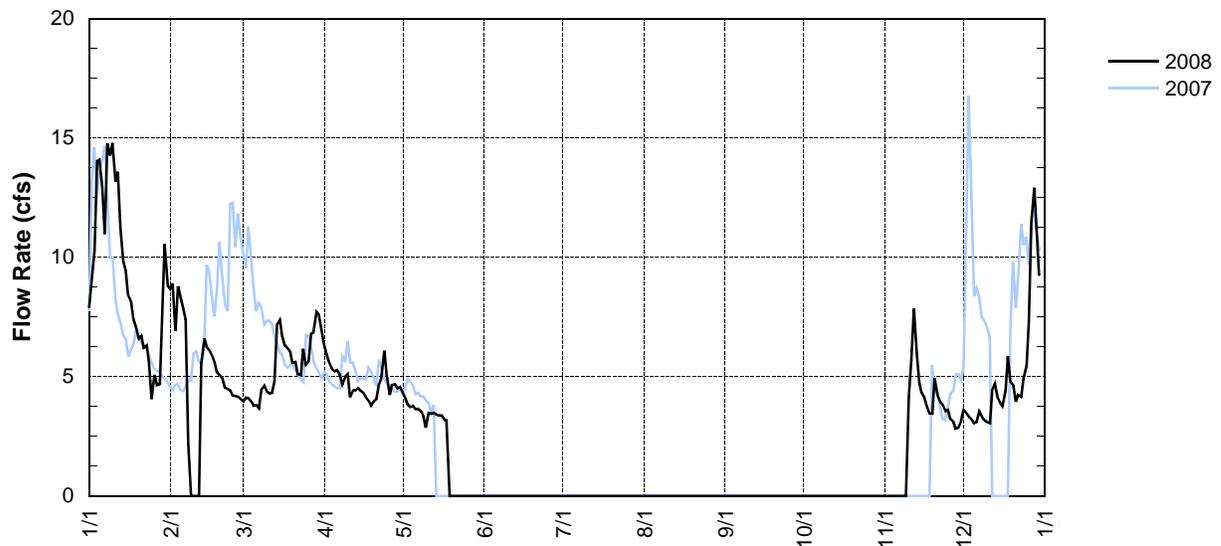


**USAFG – CLEAN WATER SERVICES FOREST GROVE WASTEWATER TREATMENT PLANT DISCHARGE [RM 55.2]**

Source Agency: Clean Water Services

Day	2008 — Mean Daily Water Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7.9	8.7	4.1	5.9	4.1	0.0	0.0	0.0	0.0	0.0	0.0	3.6
2	9.0	8.9	4.1	5.6	3.8	0.0	0.0	0.0	0.0	0.0	0.0	3.5
3	10.3	6.9	4.0	5.3	3.7	0.0	0.0	0.0	0.0	0.0	0.0	3.3
4	14.0	8.8	3.8	5.2	3.8	0.0	0.0	0.0	0.0	0.0	0.0	3.2
5	14.1	8.4	3.8	5.3	3.6	0.0	0.0	0.0	0.0	0.0	0.0	3.1
6	13.0	7.8	3.7	5.1	3.6	0.0	0.0	0.0	0.0	0.0	0.0	3.1
7	11.0	7.4	4.5	4.7	3.5	0.0	0.0	0.0	0.0	0.0	0.0	3.5
8	14.8	2.2	4.6	5.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	3.3
9	14.3	0.0	4.4	5.1	2.9	0.0	0.0	0.0	0.0	0.0	0.0	3.2
10	14.8	0.0	4.3	4.1	3.5	0.0	0.0	0.0	0.0	0.0	4.2	3.1
11	13.2	0.0	4.3	4.4	3.5	0.0	0.0	0.0	0.0	0.0	5.7	3.0
12	13.6	0.0	4.8	4.4	3.5	0.0	0.0	0.0	0.0	0.0	7.9	4.5
13	11.3	5.6	7.2	4.5	3.4	0.0	0.0	0.0	0.0	0.0	6.0	4.7
14	9.9	6.6	7.4	4.4	3.4	0.0	0.0	0.0	0.0	0.0	4.7	4.1
15	9.4	6.3	6.7	4.3	3.4	0.0	0.0	0.0	0.0	0.0	4.3	3.9
16	8.4	6.1	6.3	4.2	3.2	0.0	0.0	0.0	0.0	0.0	4.1	3.8
17	8.1	5.9	6.2	4.0	3.2	0.0	0.0	0.0	0.0	0.0	3.7	4.4
18	7.4	5.6	6.1	3.8	0.0	0.0	0.0	0.0	0.0	0.0	3.4	5.9
19	7.1	5.2	5.6	3.9	0.0	0.0	0.0	0.0	0.0	0.0	3.5	4.8
20	6.6	5.1	5.6	4.1	0.0	0.0	0.0	0.0	0.0	0.0	5.0	4.6
21	6.7	5.0	5.1	4.7	0.0	0.0	0.0	0.0	0.0	0.0	4.2	4.0
22	6.2	4.5	5.1	4.9	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.2
23	6.3	4.5	6.2	6.1	0.0	0.0	0.0	0.0	0.0	0.0	3.8	4.2
24	5.6	4.4	5.5	5.1	0.0	0.0	0.0	0.0	0.0	0.0	3.6	4.9
25	4.1	4.2	5.6	4.2	0.0	0.0	0.0	0.0	0.0	0.0	3.6	5.5
26	5.1	4.2	6.8	4.7	0.0	0.0	0.0	0.0	0.0	0.0	3.2	7.3
27	4.6	4.2	6.9	4.7	0.0	0.0	0.0	0.0	0.0	0.0	3.1	11.5
28	4.7	4.1	7.7	4.5	0.0	0.0	0.0	0.0	0.0	0.0	2.8	12.9
29	7.8	4.0	7.6	4.6	0.0	0.0	0.0	0.0	0.0	0.0	2.9	11.0
30	10.5	—	7.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	3.1	9.3
31	8.8	—	6.3	—	0.0	—	0.0	0.0	—	0.0	—	9.4

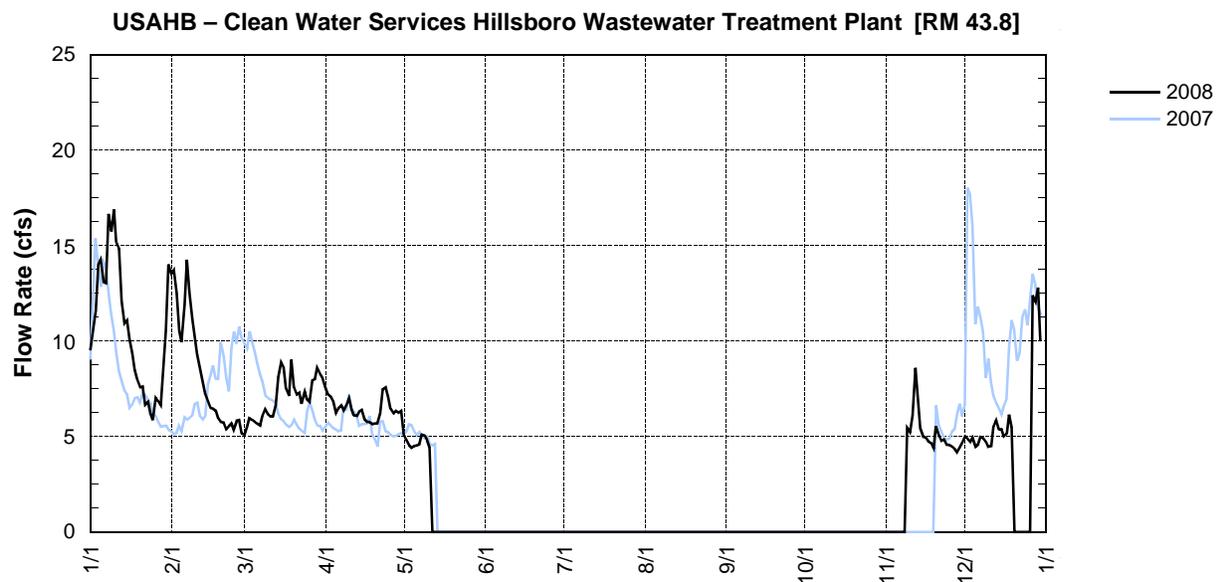
**USAFG –Clean Water Services Forest Grove Wastewater Treatment Plant Discharge [RM 55.2]**



**USAHB – CLEAN WATER SERVICES HILLSBORO WASTEWATER TREATMENT PLANT DISCHARGE [RM 43.8]**

Source Agency: Clean Water Services

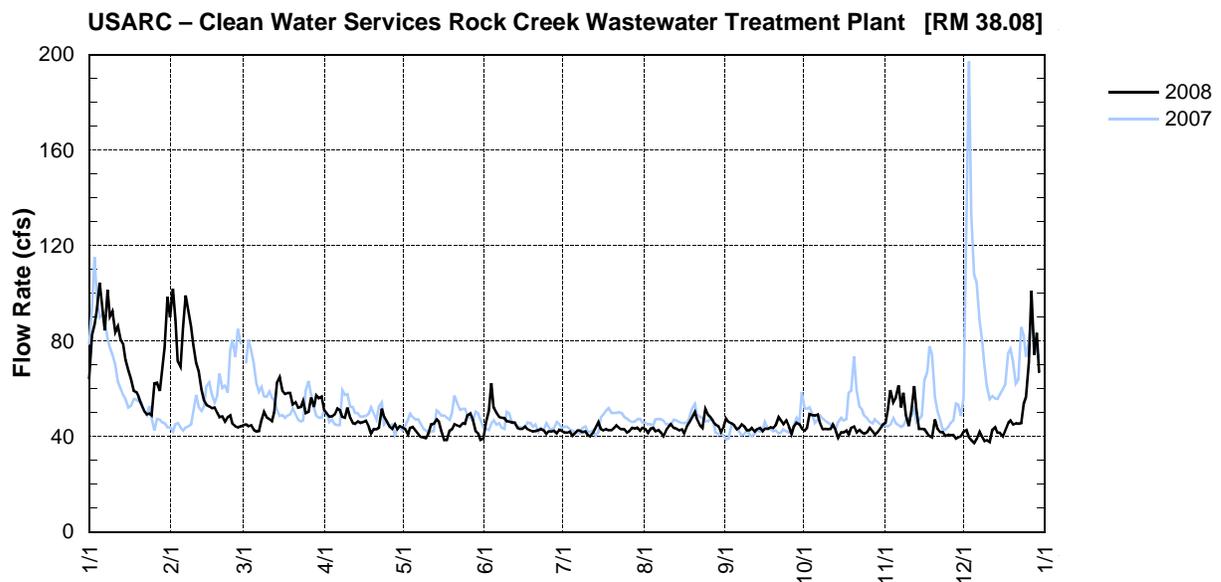
Day	2008 — Mean Daily Water Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	9.6	13.5	5.5	7.2	4.9	0.0	0.0	0.0	0.0	0.0	0.0	5.0
2	10.5	13.7	6.0	7.1	4.5	0.0	0.0	0.0	0.0	0.0	0.0	4.9
3	11.6	12.5	5.9	6.8	4.4	0.0	0.0	0.0	0.0	0.0	0.0	4.7
4	14.0	10.6	5.8	6.2	4.5	0.0	0.0	0.0	0.0	0.0	0.0	5.0
5	14.3	10.0	5.7	6.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	4.5
6	13.1	11.9	5.6	6.6	4.6	0.0	0.0	0.0	0.0	0.0	0.0	4.6
7	13.0	14.3	6.1	6.4	5.1	0.0	0.0	0.0	0.0	0.0	0.0	5.0
8	16.7	12.5	6.4	6.6	5.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9
9	15.7	11.2	6.2	7.0	4.8	0.0	0.0	0.0	0.0	0.0	5.4	4.7
10	16.9	10.2	6.1	6.4	4.4	0.0	0.0	0.0	0.0	0.0	5.2	4.5
11	15.2	9.3	6.1	6.1	0.0	0.0	0.0	0.0	0.0	0.0	6.1	4.5
12	14.8	8.5	6.6	6.1	0.0	0.0	0.0	0.0	0.0	0.0	8.6	5.6
13	12.1	7.9	8.1	6.3	0.0	0.0	0.0	0.0	0.0	0.0	6.8	5.9
14	10.9	7.2	8.9	6.4	0.0	0.0	0.0	0.0	0.0	0.0	5.5	5.4
15	11.1	6.8	8.6	5.9	0.0	0.0	0.0	0.0	0.0	0.0	5.0	5.4
16	10.1	6.5	7.5	5.8	0.0	0.0	0.0	0.0	0.0	0.0	4.9	5.0
17	9.3	6.5	7.1	5.8	0.0	0.0	0.0	0.0	0.0	0.0	4.8	5.2
18	8.5	6.3	9.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	4.7	6.1
19	8.0	6.0	7.6	5.7	0.0	0.0	0.0	0.0	0.0	0.0	4.4	5.5
20	7.6	5.8	7.2	5.7	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0
21	7.6	5.7	7.3	6.2	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0
22	6.7	5.4	6.7	7.5	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0
23	6.8	5.6	7.3	7.6	0.0	0.0	0.0	0.0	0.0	0.0	4.9	0.0
24	6.2	5.7	6.9	7.1	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0
25	5.9	5.3	6.8	6.5	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0
26	7.0	5.8	8.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0
27	6.8	5.9	8.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	4.3	12.4
28	6.6	5.2	8.6	6.2	0.0	0.0	0.0	0.0	0.0	0.0	4.2	12.0
29	8.6	5.1	8.2	6.3	0.0	0.0	0.0	0.0	0.0	0.0	4.4	12.8
30	10.6	—	8.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	4.7	10.1
31	14.0	—	7.6	—	0.0	—	0.0	0.0	—	0.0	—	10.2



**USARC – CLEAN WATER SERVICES ROCK CREEK WASTEWATER TREATMENT PLANT DISCHARGE [RM 38.08]**

Source Agency: Clean Water Services

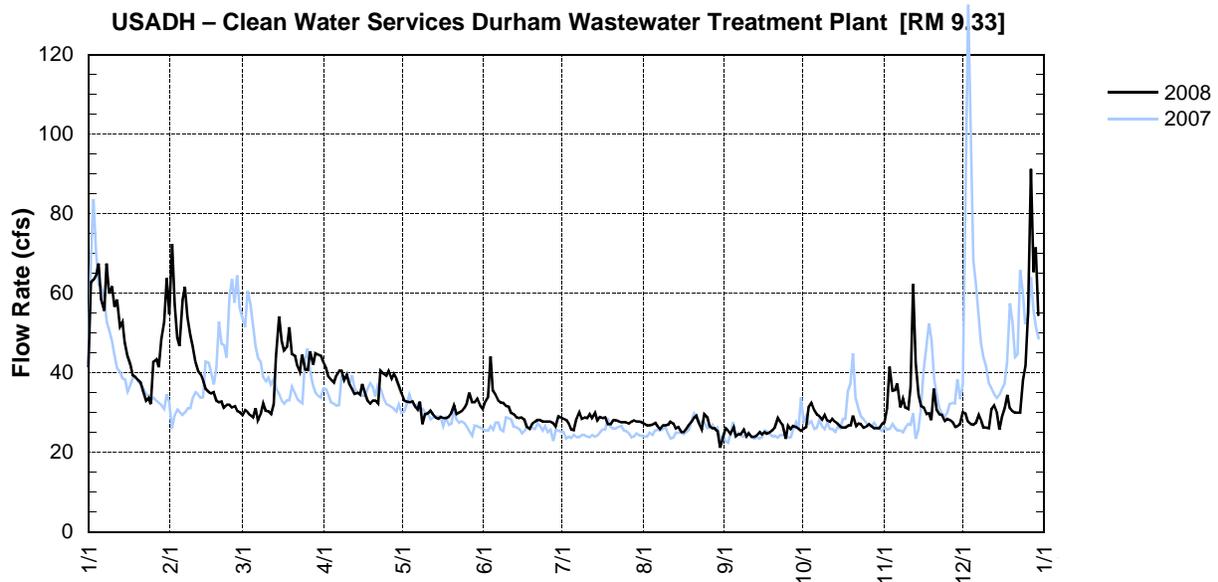
Day	2008 — Mean Daily Water Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	64.2	89.8	44.8	49.5	43.1	45.8	41.5	43.0	47.4	42.3	45.8	42.0
2	82.4	101.9	44.7	48.2	43.6	62.3	41.9	43.2	45.3	49.2	59.4	42.6
3	86.8	88.7	42.6	49.1	44.0	51.9	40.1	43.5	44.6	48.7	54.3	39.6
4	92.9	71.3	41.9	51.7	42.2	49.8	41.1	42.0	42.8	48.7	56.3	38.4
5	104.3	69.0	42.1	51.0	41.1	48.0	42.2	42.6	43.4	49.2	61.4	37.2
6	94.8	86.1	46.6	48.1	39.7	47.8	42.3	41.6	44.9	45.3	52.0	38.8
7	84.3	99.0	50.2	47.8	39.4	47.5	41.7	40.0	44.2	42.8	58.3	41.9
8	101.3	92.0	47.9	51.9	39.1	46.4	41.9	42.7	42.2	43.0	48.7	39.8
9	90.3	86.0	47.1	47.6	41.0	46.1	40.6	44.1	42.4	42.8	44.3	38.0
10	92.6	78.4	46.3	45.3	44.9	45.7	39.9	45.0	43.4	43.0	50.6	38.3
11	83.6	70.6	49.8	45.2	45.1	45.7	41.4	43.3	41.9	44.8	61.0	37.5
12	86.3	67.1	62.7	46.2	47.1	43.4	43.6	43.3	43.1	42.4	51.0	42.5
13	80.2	59.3	64.8	45.6	46.1	43.1	46.0	42.5	43.5	39.4	43.1	43.8
14	78.5	54.9	59.1	45.8	42.1	43.0	42.9	42.9	42.1	41.5	43.1	41.4
15	72.0	53.1	57.7	46.4	38.3	44.1	42.4	41.1	43.2	41.6	42.9	41.4
16	67.5	52.4	58.0	43.9	38.2	42.8	43.0	44.3	42.9	42.2	41.3	40.0
17	64.1	51.8	58.0	41.2	42.2	42.2	42.5	45.9	43.7	40.6	40.2	42.6
18	59.0	51.8	53.4	42.8	42.8	41.9	42.4	48.2	43.3	43.6	39.6	45.5
19	58.5	49.7	54.3	42.8	45.1	42.1	43.3	50.2	44.6	44.1	46.9	46.4
20	56.6	47.9	51.9	43.6	44.6	42.4	44.4	47.0	47.8	41.5	43.1	44.8
21	53.1	48.2	52.3	51.6	44.2	43.0	43.4	44.5	46.6	42.6	41.8	45.4
22	50.7	46.1	54.9	48.1	45.3	42.5	42.8	43.3	45.0	41.8	41.7	45.1
23	49.3	47.9	49.7	46.2	45.1	40.9	42.8	51.4	46.6	41.0	40.1	45.4
24	49.4	48.9	50.3	44.0	48.8	42.0	41.6	49.0	44.3	41.7	40.6	53.7
25	48.6	45.2	56.2	42.9	49.5	42.0	42.1	48.1	40.9	43.6	40.3	56.4
26	62.0	44.1	52.3	45.0	46.8	42.2	43.5	46.2	44.0	42.0	40.5	70.9
27	62.3	43.7	57.2	42.8	41.9	41.3	43.2	44.8	45.7	40.6	38.9	100.9
28	59.0	44.2	55.9	44.3	41.1	42.7	43.6	44.3	45.0	41.5	39.6	74.0
29	68.6	44.8	56.7	43.7	38.5	42.2	42.2	41.7	43.2	43.2	40.0	83.2
30	77.3	—	50.9	43.1	39.1	41.5	43.5	44.2	42.3	44.9	42.0	67.0
31	98.3	—	49.5	—	45.8	—	43.0	47.4	—	45.8	—	64.4



**USADH – CLEAN WATER SERVICES DURHAM WASTEWATER TREATMENT PLANT DISCHARGE [RM 9.33]**

Source Agency: Clean Water Services

Day	2008 — Mean Daily Water Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	41.6	54.6	30.6	41.3	33.1	32.6	28.5	27.2	26.0	26.0	27.5	30.2
2	62.8	72.4	30.2	39.1	32.8	34.0	28.2	26.8	25.5	26.3	31.1	29.9
3	63.4	57.2	29.4	38.2	32.6	44.1	27.1	26.8	24.6	31.6	41.6	27.7
4	64.7	48.9	28.8	37.6	33.0	35.4	25.7	26.9	26.3	32.5	35.4	27.1
5	67.4	46.7	31.1	39.3	31.9	34.5	25.5	27.4	24.1	30.6	35.6	26.9
6	58.5	58.5	28.2	40.5	30.8	33.1	28.6	26.6	24.4	29.5	37.3	27.4
7	55.5	61.7	30.0	40.5	32.8	32.5	30.2	25.8	24.4	29.2	31.4	29.4
8	67.4	54.0	32.3	38.2	27.1	32.5	28.5	26.8	25.7	28.3	33.6	27.8
9	60.0	49.5	30.5	39.6	29.5	31.7	28.8	26.8	24.1	29.4	31.4	26.1
10	61.9	46.4	30.3	37.0	29.9	31.6	28.6	26.9	24.8	28.2	30.9	26.1
11	56.6	42.9	29.7	35.7	30.5	30.0	29.5	27.7	24.0	27.7	36.5	26.0
12	58.5	40.4	32.2	34.7	29.7	29.5	28.6	27.2	24.0	28.5	62.3	30.9
13	51.7	39.6	44.1	35.0	28.8	28.8	30.0	26.0	24.3	27.7	42.7	31.9
14	52.9	37.9	54.1	34.3	28.5	28.6	28.0	26.3	25.1	27.2	34.3	30.0
15	47.6	35.9	48.0	37.1	28.9	28.8	28.9	25.1	24.4	26.5	31.7	25.7
16	44.4	35.1	45.6	34.5	28.6	28.3	28.6	25.1	25.1	26.1	31.4	28.9
17	42.1	34.8	46.6	33.1	28.6	26.3	28.8	25.8	24.6	26.1	29.7	31.2
18	39.4	35.1	51.5	32.3	28.9	25.8	27.1	26.8	25.1	26.8	29.9	34.3
19	39.0	33.1	44.7	33.1	29.9	27.2	27.1	27.7	25.5	26.8	28.2	31.2
20	38.2	32.6	44.2	33.1	31.9	27.7	28.2	28.8	26.1	29.2	36.0	30.5
21	37.6	32.8	41.8	32.3	29.7	28.2	28.0	29.2	28.6	26.6	30.6	30.0
22	35.3	31.2	40.2	40.5	30.0	28.2	27.8	26.9	27.7	27.2	29.5	30.0
23	33.1	32.0	44.6	39.8	30.5	27.7	27.5	25.7	26.9	27.1	29.4	30.0
24	33.7	32.0	40.8	39.3	31.2	27.7	27.5	29.5	23.5	26.1	27.8	38.2
25	32.2	31.4	40.7	40.5	32.3	27.7	27.5	28.8	26.8	26.5	28.5	41.9
26	42.9	31.7	45.3	38.5	35.0	27.7	27.2	26.5	25.8	27.1	28.2	55.2
27	43.5	30.5	42.1	39.8	32.6	27.4	27.7	26.0	26.6	26.6	27.5	91.3
28	41.5	30.2	44.9	38.5	32.6	26.5	28.0	26.0	26.3	26.0	26.3	65.3
29	48.4	30.6	44.6	36.7	33.6	29.1	27.7	25.2	25.8	26.0	26.6	71.6
30	52.9	—	44.2	34.7	31.9	28.8	27.7	21.2	25.4	26.0	27.1	54.5
31	63.7	—	42.7	—	30.9	—	27.5	23.2	—	27.2	—	52.6

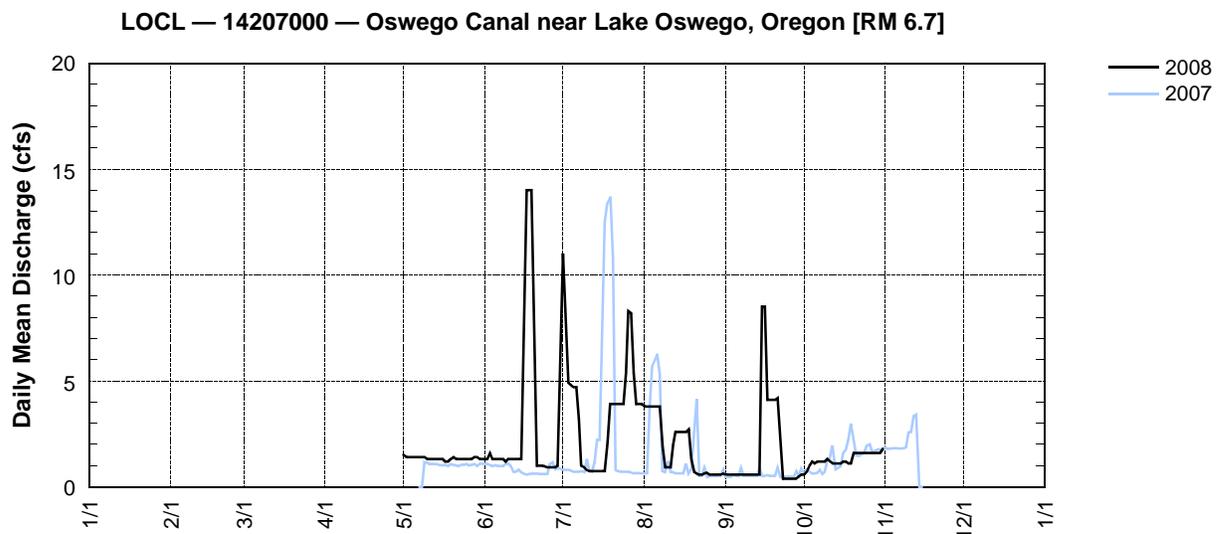


### LOCL – LAKE OSWEGO CANAL [RM 6.7]

Source Agency: District 18 Watermaster

Day	2008 — Daily Water Discharge in Cubic Feet per Second*											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					1.50	1.30	11.00	3.80	0.60	0.58		
2					1.40	1.30	7.80	3.70	0.58	0.71		
3					1.40	1.60	4.90	3.70	0.58	0.99		
4					1.40	1.30	4.80	3.70	0.58	1.20		
5					1.40	1.30	4.70	3.70	0.58	1.10		
6					1.40	1.30	4.70	3.70	0.58	1.10		
7					1.40	1.30	3.20	3.70	0.58	1.10		
8					1.40	1.30	1.00	1.90	0.58	1.10		
9					1.40	1.20	0.95	0.93	0.58	1.30		
10					1.30	1.30	0.80	0.93	0.58	1.30		
11					1.30	1.30	0.75	0.93	0.58	1.20		
12					1.30	1.30	0.75	2.00	0.58	1.10		
13					1.30	1.30	0.75	2.60	0.58	1.10		
14					1.30	1.30	0.75	2.60	0.58	1.10		
15					1.30	1.30	0.75	2.60	8.50	1.10		
16					1.30	8.30	0.75	2.60	8.50	1.20		
17					1.20	14.00	0.75	2.60	4.10	1.20		
18					1.20	14.00	2.10	2.70	4.10	1.10		
19					1.30	13.00	3.90	1.30	4.10	1.10		
20					1.40	8.40	3.90	0.70	4.10	1.60		
21					1.30	1.00	3.90	0.63	4.20	1.60		
22					1.30	1.00	3.90	0.58	2.00	1.60		
23					1.30	1.00	3.90	0.58	0.39	1.60		
24					1.30	0.96	3.90	0.64	0.39	1.60		
25					1.30	0.93	5.40	0.67	0.39	1.60		
26					1.30	0.93	8.30	0.58	0.39	1.60		
27					1.30	0.93	8.20	0.58	0.39	1.60		
28					1.40	0.93	5.40	0.58	0.39	1.60		
29					1.40	1.00	3.90	0.58	0.49	1.60		
30		—			1.30	6.30	3.90	0.58	0.58	1.60		
31		—		—	1.30	—	3.90	0.62	—	1.80	—	

\*Preliminary data—subject to revision



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# Appendix C

## Scoggins Reservoir Operations Monthly Records

The information presented here regarding water allocations is provisional. Final allocations for municipal use can be found in the Appendix E of this report.

**SCOGGINS DAM -- RESERVOIR OPERATIONS**  
January 2008

Source: Tualatin Valley Irrigation District

[See Appendix E for breakdown of municipal use by water provider.]

DAY	INFLOW				HENRY HAGG LAKE					TUALATIN RIVER							WEATHER			WATER DELIVERIES					
	SCHO (cfs) [1]	SCLO (cfs) [2]	TANO (cfs) [3]	TOT INFLO (cfs) [4]	W.S. ELEV (ft) [5]	STOR (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL INFLO (cfs) [9]	COMP INFLO (cfs) [10]	GASO (cfs) [11]	DLLO (cfs) [12]	GOLF (cfs) [13]	ROOD (cfs) [14]	FRMO (cfs) [15]	WSLO (cfs) [16]	PRECIP (inches) [17]	TEMP MAX (°F) [18]	TEMP MIN (°F) [19]	TVID (cfs) [20]	CWS (cfs) [21]	LO (cfs) [22]	MUNI (cfs) [23]	OTHR (cfs) [24]	
1	67	122	10	199	286.61	35895	-610	-308	531	223	415	1030	1679	3590	4230	4434	0.00	38	31	0	0	0	0	0	
2	61	116	9	186	285.69	35026	-869	-438	638	200	387	1098	1702	3450	na	4302	0.16	43	34	0	0	0	0	0	
3	75	125	10	210	285.14	34510	-516	-260	489	229	406	990	1755	3520	3912	4693	0.34	40	35	0	0	0	0	0	
4	119	201	23	343	285.43	34782	272	137	231	368	534	800	1787	3550	3978	4643	0.66	46	39	0	0	0	0	0	
5	209	345	30	584	286.52	35810	1028	518	123	641	na	898	1927	3630	4148	4870	0.89	46	39	0	0	0	0	0	
6	130	254	25	409	287.57	36811	1001	505	123	628	733	1055	2171	3920	4390	5037	0.44	51	33	0	0	0	0	0	
7	93	193	22	308	288.30	37513	702	354	123	477	607	981	2195	4090	4532	5037	0.37	38	33	0	0	0	0	0	
8	101	173	22	296	288.35	37561	48	24	394	418	547	1163	2110	4280	4698	5286	0.26	40	32	0	0	0	0	0	
9	108	188	26	322	289.01	38201	640	323	40	363	718	1098	2150	4570	5023	5643	0.96	37	32	0	0	0	0	0	
10	147	242	>35	389	289.57	38746	545	275	201	476	767	1222	2152	4700	na	5772	0.75	44	32	0	0	0	0	0	
11	235	385	>35	620	290.88	40034	1288	649	47	696	1031	1367	2263	4830	5367	6147	0.33	51	41	0	0	0	0	0	
12	248	396	>35	644	292.34	41489	1455	734	26	760	929	1492	2406	4920	5483	6218	0.51	50	42	0	0	0	0	0	
13	190	325	30	545	293.73	42892	1403	707	26	733	881	1343	2444	509	5757	6289	0.02	51	36	0	0	0	0	0	
14	141	254	22	417	294.45	43629	737	372	185	557	722	1291	2360	5110	5908	6303	0.00	47	37	0	0	0	0	0	
15	122	221	17	360	294.57	43752	123	62	400	462	651	1332	2274	5060	5893	6490	0.19	43	31	0	0	0	0	0	
16	108	183	14	305	294.25	43425	-327	-165	513	348	557	1320	2186	4890	5670	6346	0.00	46	29	0	0	0	0	0	
17	54	155	11	220	293.73	42955	-470	-237	531	294	487	1243	2105	4680	5357	6147	0.01	41	29	0	0	0	0	0	
18	80	133	9	222	293.04	42194	-761	-384	622	238	438	1236	1996	4430	5064	5855	0.00	35	30	0	0	0	0	0	
19	66	120	8	194	292.26	41409	-785	-396	598	202	402	1137	1904	4220	4729	5543	0.00	41	31	0	0	0	0	0	
20	61	108	7	176	291.48	40630	-779	-393	567	174	375	1073	1805	na	4387	5151	0.02	38	33	0	0	0	0	0	
21	55	94	6	155	290.70	39856	-774	-390	535	145	333	981	1686	na	4046	4797	0.00	43	31	0	0	0	0	0	
22	52	85	6	143	289.95	39118	-738	-372	503	131	300	873	1559	3290	3694	4428	0.00	38	26	0	0	0	0	0	
23	45	78	5	128	289.24	38424	-694	-350	472	122	275	806	1433	na	3370	na	0.00	42	25	0	0	0	0	0	
24	42	73	5	120	288.71	37909	-515	-260	373	113	249	717	1280	na	3043	na	0.00	41	21	0	0	0	0	0	
25	41	68	5	114	288.43	37689	-220	-111	300	189	225	617	1101	na	2709	na	0.00	38	24	0	0	0	0	0	
26	38	64	5	107	288.14	37359	-330	-166	288	122	208	577	943	na	2346	na	0.00	41	23	0	0	0	0	0	
27	39	67	5	111	287.91	37137	-222	-112	288	176	237	580	900	na	2156	na	0.56	33	28	0	0	0	0	0	
28	36	61	5	102	287.63	36868	-269	-136	287	151	205	558	841	na	1977	na	0.03	37	30	0	0	0	0	0	
29	43	65	5	113	287.39	36639	-229	-115	288	173	220	557	824	na	1785	na	0.54	39	30	0	0	0	0	0	
30	38	62	6	106	287.19	36447	-192	-97	288	191	252	583	915	na	1996	2430	0.76	39	33	0	0	0	0	0	
31	65	103	13	181	287.05	36314	-133	-67	291	224	482	675	1110	na	2330	3081	0.89	40	34	0	0	0	0	0	
<b>TOTALS</b>		2909	5059	361	8329						14573	30693	53963	81239	117978	124942	8.69	51	42	0	0	0	0	0	
ac-ft		5770	10035	716	16521						28906	60880	107036	161138	234009	247822		33	21	0	0	0	0	0	

RESERVOIR DELIVERY STATUS		USED		REMAINING	
These allocations, amounts used and remaining are provisional and subject to daily changes as the WS elevation rises and falls. These numbers are for planning purposes only.					
TVID	0	TVID	0	TVID	12618
CWS	0	CWS	0	CWS	500
LO	0	LO	0	LO	13500
MUNI	0	MUNI	0	MUNI	
Other	0	Other	0	Other	

SNOTEL Summary for Water Year 2008	
Updated: Jan 30, 2008	
SECO W/Y pc: 43.1% sno depth/water content 19.0/4.4"	
SDMO W/Y pc: 50.7% sno depth/water content 78.8/26.8"	
Jan 9 midnight SWE: SDMO-592% & SECO-183%	
Jan 29 midnight SWE: SDMO-491% & SECO-158%	

Water storage elevation ± to fill curve:	0.14
Water storage in ac-ft ± to fill curve:	130
Percentage of full reservoir:	68.1%
<b>Minimum Required Discharges</b>	
Dec-Sept: 10 cfs	Oct-Nov: 20 cfs

**SCOGGINS DAM -- RESERVOIR OPERATIONS**  
February 2008

Source: Tualatin Valley Irrigation District

[See Appendix E for breakdown of municipal use by water provider.]

DAY	INFLOW				HENRY HAGG LAKE				TUALATIN RIVER						WEATHER			WATER DELIVERIES						
	SCHO (cfs) [1]	SCLO (cfs) [2]	TANO (cfs) [3]	TOT INFLO (cfs) [4]	W.S. ELEV (ft) [5]	STOR (ac-ft) [6]	CHNG STOR (cfs) [7]	CHNG STOR (cfs) [8]	REL INFLO (cfs) [9]	COMP INFLO (cfs) [10]	GASO (cfs) [11]	DLLO (cfs) [12]	GOLF (cfs) [13]	ROOD (cfs) [14]	FRMO (cfs) [15]	WSLO (cfs) [16]	PRECIP (inches) [17]	TEMP MAX (°F) [18]	TEMP MIN (°F) [19]	TVID (cfs) [20]	CWS (cfs) [21]	LO (cfs) [22]	MUNI (cfs) [23]	OTHR (cfs) [24]
1	73	120	16	209	287.33	36581	267	135	193	328	537	735	1410	na	3056	3700	0.64	44	37	0	0	0	0	0
2	74	116	15	205	287.42	36627	46	23	339	362	524	877	1564	na	3333	4099	0.55	41	33	0	0	0	0	0
3	63	95	14	172	287.52	36763	136	69	246	315	454	838	na	na	3617	4623	0.16	36	32	0	0	0	0	0
4	57	83	13	153	287.30	36553	-210	-106	358	252	386	828	na	na	3683	4464	0.00	43	28	0	0	0	0	0
5	54	78	9	141	286.65	35933	-620	-313	522	209	350	916	na	na	3600	4309	0.02	40	29	0	0	0	0	0
6	61	97	16	174	286.34	35639	-294	-148	419	271	402	819	na	na	3520	4192	0.38	46	34	0	0	0	0	0
7	163	205	na	368	286.65	35933	294	148	253	401	774	816	na	3290	3677	4710	0.98	49	35	0	0	0	0	0
8	155	245	na	400	287.78	37012	1079	544	58	602	758	860	na	3520	3920	4633	0.39	46	40	0	0	0	0	0
9	143	245	na	388	288.45	37658	646	326	284	610	764	1092	na	3570	3981	4722	0.09	46	41	0	0	0	0	0
10	122	229	na	351	288.86	38055	397	200	310	510	673	1098	na	na	4019	4648	0.01	49	41	0	0	0	0	0
11	117	212	38	367	289.20	38385	330	166	309	475	619	1007	na	na	4055	4611	0.00	50	37	0	0	0	0	0
12	104	188	25	317	289.64	38815	430	217	200	417	540	844	na	3690	4055	4574	0.00	51	36	0	0	0	0	0
13	95	171	21	287	290.14	39305	490	247	122	369	502	725	na	3610	3984	4513	0.01	46	33	0	0	0	0	0
14	89	152	16	257	290.58	39738	433	218	122	340	452	675	na	3470	3841	4392	0.01	48	29	0	0	0	0	0
15	80	135	16	231	290.98	40133	395	199	102	301	408	618	1460	3270	3636	4192	0.00	47	30	0	0	0	0	0
16	75	122	13	210	291.37	40461	328	165	102	267	375	591	1293	na	3383	3919	0.00	53	31	0	0	0	0	0
17	71	114	12	197	291.59	40739	278	140	102	242	349	555	1126	na	3093	3635	0.00	50	30	0	0	0	0	0
18	67	108	11	186	291.86	41008	269	136	102	238	326	519	997	na	2781	3315	0.00	59	30	0	0	0	0	0
19	64	101	9	174	292.11	41258	250	126	102	228	308	497	900	na	2456	2979	0.00	62	29	0	0	0	0	0
20	60	95	8	163	292.39	41539	281	142	30	172	292	435	812	na	2129	2632	0.00	46	30	0	0	0	0	0
21	58	94	8	160	292.69	41932	393	198	31	229	282	411	744	1580	1837	2294	0.00	52	30	0	0	0	0	0
22	56	90	8	154	292.95	42103	171	86	31	117	276	392	691	1400	1640	2025	0.00	55	32	0	0	0	0	0
23	56	90	8	154	293.23	42386	283	143	31	174	279	377	674	na	1504	1847	0.01	52	30	0	0	0	0	0
24	55	90	8	153	293.49	42650	264	133	31	164	274	370	683	1220	1420	1717	0.03	52	33	0	0	0	0	0
25	55	92	8	155	293.76	42924	274	138	31	169	270	359	625	na	1364	1641	0.02	56	42	0	0	0	0	0
26	52	92	8	152	294.01	43179	255	129	31	160	274	352	620	na	1288	1547	0.00	51	33	0	0	0	0	0
27	50	92	8	150	294.25	43425	246	124	31	155	264	342	597	1030	1233	1464	0.00	57	34	0	0	0	0	0
28	50	94	8	152	294.50	43681	256	129	31	160	269	335	590	997	1182	1400	0.00	59	39	0	0	0	0	0
29	49	97	8	154	294.75	43937	256	129	31	160	294	341	583	966	1148	1354	0.00	62	42	0	0	0	0	0
<b>TOTALS</b>	2268	3742	324	6334													3.30 inches							
cfs	4499	7422	643	12563							12275	18624	15369	31613	82435	98151		62	42	0	0	0	0	0
ac-ft						7623	7623	9033	16656		24347	36941	30484	62704	163510	194683		36	28	0	0	0	0	0

Water storage elevation ± to fill curve:		NA	SNOTEL Summary for Water Year 2008	
Water storage in ac-ft ± to fill curve:	NA	Updated: Feb 11, 2008		
Percentage of full reservoir:	82.4%	SECO W/Y pc: 47.8"	sno depth/water content	3.7/0.8"
Minimum Required Discharges		SDMO W/Y pc: 54.7"	sno depth/water content	62.3/21.4"
Dec-Sept: 10 cfs	Oct-Nov: 20 cfs	2/7/08 SECO: 26.7" SD, 7.9" SWE (260%)		
		2/7/08 SDMO: 93.7" SD, 35.6" SWE (61.4%)		

RESERVOIR DELIVERY STATUS		RESERVOIR DELIVERY STATUS	
These allocations, amounts used and remaining are provisional and subject to daily changes as the WS elevation rises and falls. These numbers are for planning purposes only.			
TVID	USED	TVID	REMAINING
CWS	0	CWS	12618
LO	0	LO	500
MUNI	0	MUNI	13500
Other	0	Other	

**SCOGGINS DAM -- RESERVOIR OPERATIONS**  
March 2008

Source: Tualatin Valley Irrigation District

[See Appendix E for breakdown of municipal use by water provider.]

DAY	INFLOW				HENRY HAGG LAKE				TUALATIN RIVER							WEATHER				WATER DELIVERIES					
	SCHO (cfs) [1]	SCLO (cfs) [2]	TANO (cfs) [3]	TOT INFLO (cfs) [4]	W.S. ELEV (ft) [5]	STOR (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL STOR (cfs) [9]	COMP INFLO (cfs) [10]	GASO (cfs) [11]	DLLO (cfs) [12]	GOLF (cfs) [13]	ROOD (cfs) [14]	FRMO (cfs) [15]	WSLO (cfs) [16]	PRECIP (inches) [17]	TEMP MAX (°F) [18]	TEMP MIN (°F) [19]	TVID (cfs) [20]	CWS (cfs) [21]	LO (cfs) [22]	MUNI (cfs) [23]	OTHR (cfs) [24]	
1	2	120	9	131	295.03	44226	289	146	31	177	392	390	620	945	1124	1394	0.00	58	36	0	0	0	0	0	
2	2	112	8	122	295.34	44546	320	161	31	192	365	391	691	907	1186	1344	0.08	49	30	0	0	0	0	0	
3	47	101	8	156	295.61	44825	279	141	31	172	305	354	648	868	1187	1352	0.01	51	33	0	0	0	0	0	
4	44	94	8	146	295.84	45064	239	120	31	151	289	332	601	816	1123	1344	0.03	49	33	0	0	0	0	0	
5	41	85	8	134	296.05	45282	218	110	31	141	256	307	535	875	1056	1267	0.00	49	31	0	0	0	0	0	
6	37	78	5	120	296.25	45491	209	105	31	136	234	290	512	807	973	1185	0.00	56	31	0	0	0	0	0	
7	34	73	5	112	296.41	45658	167	84	31	115	216	274	485	781	926	1119	0.00	57	32	0	0	0	0	0	
8	39	78	5	122	296.64	45899	241	122	31	153	282	304	479	na	932	1141	0.63	49	34	0	0	0	0	0	
9	36	75	5	116	296.81	46077	178	90	31	121	256	295	489	na	1081	1192	0.00	52	36	0	0	0	0	0	
10	35	73	5	113	296.98	46255	178	90	31	121	241	281	459	667	961	1192	0.00	60	37	1	0	0	0	0	
11	39	88	5	132	297.16	46444	189	95	32	127	308	306	477	743	901	1104	0.15	59	41	1	0	0	0	0	
12	36	85	5	126	297.38	46676	232	117	31	148	321	330	555	796	944	1076	0.04	51	36	1	0	0	0	0	
13	45	108	8	161	297.61	46919	243	123	32	155	307	318	505	869	1025	1214	0.44	53	37	1	0	0	0	0	
14	74	169	11	254	298.05	47385	466	235	33	268	549	416	na	na	1303	1683	0.81	50	41	0	0	0	0	0	
15	75	162	9	246	298.54	47907	522	263	33	296	511	488	10125	na	1796	2052	0.16	47	36	0	0	0	0	0	
16	63	133	8	204	298.94	48334	427	215	33	248	415	453	959	na	2020	2401	0.00	50	37	0	0	0	0	0	
17	55	116	8	179	299.26	48677	343	173	33	206	362	411	874	1150	1957	2430	0.03	47	38	1	0	0	0	0	
18	61	120	9	190	299.30	48720	43	22	198	220	378	514	877	1590	1850	2340	0.23	48	38	1	0	0	0	0	
19	56	110	9	175	299.30	48720	0	0	196	196	409	532	904	1650	1900	2320	0.01	51	35	2	0	0	0	0	
20	55	101	6	162	299.24	48656	-64	-32	196	164	368	528	894	1590	1848	2280	0.06	50	36	2	0	0	0	0	
21	55	97	8	160	299.21	48627	-29	-15	196	181	347	527	903	1570	1815	2260	0.28	47	35	1	0	0	0	0	
22	54	90	7	151	299.32	48742	115	58	101	159	311	444	828	1500	1748	2160	0.01	47	32	1	0	0	0	0	
23	53	88	6	147	299.44	48871	129	65	101	166	283	413	738	1340	1588	2020	0.20	59	43	1	0	0	0	0	
24	54	108	9	171	299.61	49054	183	92	101	193	373	456	827	1340	1564	2000	0.31	51	35	1	0	0	0	0	
25	54	99	8	161	299.75	49205	151	76	101	177	329	446	827	1360	1592	1930	0.00	48	29	1	0	0	0	0	
26	56	99	9	164	299.90	49367	162	82	101	183	338	434	783	1330	1560	1940	0.37	50	31	1	0	0	0	0	
27	58	101	11	170	300.16	49648	281	142	75	217	339	434	877	1510	1737	2070	0.45	44	33	1	0	0	0	0	
28	64	103	13	180	300.39	49897	249	126	76	202	350	436	852	1570	1807	2130	0.37	45	34	1	0	0	0	0	
29	62	103	12	177	300.66	50191	294	148	76	224	344	453	939	1670	1909	2280	0.31	42	34	1	0	0	0	0	
30	58	97	11	166	300.90	50492	301	152	75	227	324	440	961	1730	2014	2400	0.04	45	30	1	0	0	0	0	
31	56	90	11	157	301.12	50692	200	101	76	177	292	418	915	1800	2047	2440	0.01	45	29	1	0	0	0	0	
TOTALS	1500	3156	249	4905			3406	2206	5612		10394	12415	31139	31774	45474	55060	5.03 inches		60	43	21	0	0	0	
ac-ft	2975	6260	494	9729			6755	6755	4376	11131	20616	24625	61764	63024	90198	109212			42	42	42	0	0	0	

RESERVOIR DELIVERY STATUS				RESERVOIR DELIVERY STATUS	
These allocations, amounts used and remaining are provisional and subject to daily changes as the WS elevation rises and falls. These numbers are for planning purposes only.				USED	REMAINING
TVID	42			TVID	12618
CWS	0			CWS	500
LO	0			LO	13500
MUNI	0			MUNI	0
Other	0			Other	0

SNOTEL Summary for Water Year 2008		
Updated:	March 31, 2008	
SECO W/Y pc:	55.7"	sno depth/water content 6.7/1.8"
SDMO W/Y pc:	62.2"	sno depth/water content 78.4/30.7"

Water storage elevation ± to fill curve:	-0.51
Water storage in ac-ft ± to fill curve:	-556
Percentage of full reservoir:	95.1%
<b>Minimum Required Discharges</b>	
Dec-Sept: 10 cfs	Oct-Nov: 20 cfs

**SCOGGINS DAM -- RESERVOIR OPERATIONS**  
April 2008

Source: Tualatin Valley Irrigation District

[See Appendix E for breakdown of municipal use by water provider.]

DAY	INFLOW				HENRY HAGG LAKE				TUALATIN RIVER					WEATHER				WATER DELIVERIES							
	SCHO (cfs) [1]	SCLO (cfs) [2]	TANO (cfs) [3]	TOT INFLO (cfs) [4]	W.S. ELEV (ft) [5]	STOR (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL INFLO (cfs) [9]	COMP INFLO (cfs) [10]	GASO (cfs) [11]	DLLO (cfs) [12]	GOLF (cfs) [13]	ROOD (cfs) [14]	FRMO (cfs) [15]	WSLO (cfs) [16]	PRECIP (inches) [17]	TEMP MAX (°F) [18]	TEMP MIN (°F) [19]	TVID (cfs) [20]	CWS (cfs) [21]	LO (cfs) [22]	MUNI (cfs) [23]	OTHR (cfs) [24]	
1	55	83	11	149	301.29	50878	186	94	76	170	265	390	828	1720	1990	2400	0.02	49	27	2	0	0	0	0	
2	54	80	10	144	301.48	51087	209	105	52	157	246	349	728	1590	1862	2280	0.00	54	29	3	0	0	0	0	
3	53	78	10	141	301.66	51284	197	99	52	151	233	334	679	1450	1700	2110	0.00	59	29	3	0	0	0	0	
4	52	80	9	141	301.85	51493	209	105	52	157	232	320	649	1330	1564	1950	0.04	61	31	2	0	0	0	0	
5	53	80	8	141	301.85	51493	0	0	154	154	246	418	702	na	1504	1850	0.08	48	38	1	0	0	0	0	
6	53	86	8	147	301.87	51515	22	11	154	165	261	425	720	na	1500	1820	0.09	47	39	1	0	0	0	0	
7	54	95	7	156	301.88	51526	11	6	153	159	294	438	722	na	1468	1790	0.03	51	40	1	0	0	0	0	
8	52	92	7	151	301.93	51581	55	28	133	161	309	435	722	na	1418	1730	0.04	49	37	1	0	0	0	0	
9	56	97	8	161	302.07	51735	154	78	103	181	297	402	698	na	1389	1710	0.25	49	40	1	0	0	0	0	
10	50	92	7	149	302.18	51857	122	62	103	165	288	395	699	na	1415	1710	0.05	51	40	1	0	0	0	0	
11	47	86	6	139	302.27	51956	99	50	104	154	264	375	643	na	1339	1660	0.00	54	32	1	0	0	0	0	
12	44	81	6	131	302.40	52100	144	73	70	143	257	339	604	na	1236	1550	0.00	68	36	3	0	0	0	0	
13	40	81	6	127	302.53	52244	144	73	70	143	263	351	581	na	1157	1430	0.00	77	41	3	0	0	0	0	
14	36	78	6	120	302.64	52365	121	61	72	133	298	358	606	948	1120	1370	0.06	66	38	3	0	0	0	0	
15	35	73	6	114	302.73	52465	100	50	72	122	255	339	580	930	1117	1350	0.00	48	30	3	0	0	0	0	
16	32	68	5	105	302.80	52543	78	39	72	111	221	na	538	879	1065	1340	0.00	47	35	2	0	0	0	0	
17	31	68	5	104	302.86	52610	67	34	72	106	201	291	501	821	1001	1240	0.00	51	34	2	0	0	0	0	
18	30	65	5	100	302.91	52665	55	28	72	100	190	281	468	758	927	1180	0.00	57	37	3	0	0	0	0	
19	30	64	5	99	302.98	52743	78	39	72	111	189	303	460	723	884	1100	0.10	46	33	2	0	0	0	0	
20	27	59	5	91	303.05	52821	78	39	72	111	183	298	454	714	1070	1070	0.11	42	31	5	0	0	0	0	
21	27	58	5	90	303.09	52865	44	22	72	94	172	284	433	698	873	1060	0.04	47	32	4	0	0	0	0	
22	40	71	7	118	303.14	52921	56	28	104	132	190	324	463	694	841	1060	0.54	45	36	2	0	0	0	0	
23	77	129	9	215	303.18	52966	45	23	200	223	374	487	711	932	1064	1360	0.64	48	40	1	0	0	0	0	
24	96	164	11	271	303.24	53032	66	33	270	303	494	580	972	1260	1426	1550	0.26	47	37	1	0	0	0	0	
25	77	137	10	224	303.27	53066	34	17	237	254	405	568	1003	1420	1616	1770	0.00	52	30	2	0	0	0	0	
26	66	116	9	191	303.36	53166	100	50	154	204	339	517	905	1400	1616	1870	0.00	56	35	3	0	0	0	0	
27	57	106	8	171	303.37	53177	11	6	172	178	313	514	817	1280	1570	1810	0.00	67	41	6	0	0	0	0	
28	50	94	6	150	303.26	53055	-122	-62	225	163	308	522	790	1200	1409	1690	0.02	67	46	2	0	0	0	0	
29	45	92	6	143	303.25	53032	-23	-12	153	141	322	482	754	1140	1346	1600	0.00	66	39	2	0	0	0	0	
30	41	85	6	132	303.32	53122	90	45	98	143	281	416	682	1100	1314	1630	0.13	50	35	2	0	0	0	0	
<b>TOTALS</b>	cfs	1460	2638	217	4315			1225	3465	4690	8190	11535	20112	22987	39602	48040	2.50 inches		77	46	68	0	0	0	0
	ac-ft	2896	5232	430	8559		2430	2430	6873	9303	16245	22880	39892	45595	78551	95287	MAX	MIN	42	27	135	0	0	0	0

**SNOTEL Summary for Water Year 2008**  
Updated: April 30, 2008  
SECO W/Y pc: 60.5" sno depth/water content 0  
SDMO W/Y pc: 67.6" sno depth/water content 56.6/12.6"

**RESERVOIR DELIVERY STATUS**  
These allocations, amounts used and remaining are provisional and subject to daily changes as the WS elevation rises and falls. These numbers are for planning purposes only.

USED	REMAINING
TVID 177	TVID 12618
CWS 0	CWS 500
LO 0	MUNI 13500
MUNI 0	Other 0

**Minimum Required Discharges**  
Dec-Sept: 10 cfs    Oct-Nov: 20 cfs



SCOGGINS DAM -- RESERVOIR OPERATIONS  
June 2008

Source: Tualatin Valley Irrigation District

[See Appendix E for breakdown of municipal use by water provider.]

DAY	INFLOW				HENRY HAGG LAKE				TUALATIN RIVER						WEATHER				WATER DELIVERIES					
	SCHO	SCLO	TANO	TOT	W.S.	STOR	CHNG	COMP	GASO	DLLO	GOLF	ROOD	FRMO	WSLO	PRECIP	TEMP	TEMP	TVID	CWS	LO	MUNI	OTHR		
	(cfs)	(cfs)	(cfs)	(cfs)	(ft)	(ac-ft)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(inches)	(°F)	(°F)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)		
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	
1	7	25	2	34	303.51	53334	11	6	37	43	73	124	135	184	270	432	0.00	67	50	0	0	0	2	
2	7	25	2	34	303.51	53334	0	0	37	37	73	123	139	201	282	401	0.00	57	44	0	0	0	2	
3	13	33	2	48	303.58	53412	78	39	37	76	83	132	154	273	325	776	0.67	61	49	0	0	0	2	
4	8	26	2	36	303.56	53390	-22	-11	64	53	82	157	215	527	697	712	0.03	60	45	0	0	0	2	
5	7	24	2	33	303.52	53345	-45	-23	64	41	76	149	197	362	531	764	0.00	58	43	0	0	0	2	
6	9	30	2	41	303.54	53367	22	11	37	48	82	128	143	305	433	620	0.09	56	46	0	0	0	2	
7	10	30	2	42	303.57	53401	34	17	50	67	140	193	260	253	359	536	0.10	56	44	0	0	0	2	
8	8	29	2	39	303.56	53390	-11	-6	50	44	109	165	229	326	441	497	0.00	59	41	0	0	0	2	
9	7	25	2	34	303.56	53390	0	0	50	50	93	148	166	280	404	527	0.00	69	51	0	0	0	2	
10	8	32	2	42	303.57	53401	11	6	50	56	97	148	173	237	356	482	0.36	62	42	0	0	0	2	
11	8	26	2	36	303.56	53390	-11	-6	50	44	106	157	211	250	334	441	0.00	54	47	0	0	0	2	
12	7	24	2	33	303.55	53378	-12	-6	50	44	93	146	159	253	359	436	0.00	58	38	0	0	0	2	
13	7	23	2	32	303.56	53390	12	6	50	56	87	138	137	206	302	436	0.00	72	45	0	0	0	2	
14	6	22	2	29	303.53	53356	-34	-17	47	30	81	134	134	182	265	389	0.00	73	39	0	0	0	2	
15	6	21	2	28	303.52	53345	-11	-6	47	41	76	124	99	165	245	364	0.00	65	39	0	0	0	2	
16	6	20	2	28	303.50	53325	-20	-10	47	37	72	120	83	147	225	340	0.00	73	42	0	0	0	2	
17	5	20	2	27	303.50	53325	0	0	38	38	68	107	67	135	208	303	0.00	75	41	0	0	0	2	
18	5	20	2	27	303.49	53311	-14	-7	38	31	67	103	50	138	205	282	0.00	64	44	0	0	0	2	
19	5	19	2	26	303.48	53300	-11	-6	43	37	66	115	86	109	181	275	0.00	66	44	0	0	12	2	
20	5	19	1	25	303.40	53211	-89	-45	77	32	62	141	93	113	182	252	0.00	76	48	14	0	0	3	
21	4	18	1	23	303.33	53133	-78	-39	86	47	60	139	104	na	188	252	0.00	80	53	25	0	0	3	
22	4	17	1	22	303.20	52988	-145	-73	85	12	57	136	96	128	198	258	0.00	71	51	25	0	0	3	
23	4	17	1	22	303.10	52876	-112	-56	98	42	58	145	102	130	198	272	0.00	71	43	28	0	0	3	
24	4	16	1	21	302.95	52710	-166	-84	109	25	68	165	95	121	195	272	0.00	70	41	30	0	0	3	
25	4	16	1	21	302.80	52543	-167	-84	116	32	65	174	70	111	182	258	0.00	75	46	27	0	0	3	
26	4	15	1	20	302.57	52288	-255	-129	161	32	64	215	143	95	167	246	0.00	76	45	90	0	0	3	
27	4	15	1	20	302.32	52011	-277	-140	166	26	64	219	147	141	204	236	0.00	69	52	98	0	0	3	
28	3	15	1	19	302.02	51680	-331	-167	202	35	57	249	184	145	213	262	0.00	89	59	132	0	0	3	
29	3	14	1	18	301.70	51328	-352	-177	194	17	56	239	168	159	236	282	0.00	99	63	125	0	0	3	
30	3	13	1	17	301.39	50988	-340	-171	194	23	55	254	191	161	232	352	0.00	91	59	126	0	0	3	
<b>TOTALS</b>																								
cfs	181	649	49	879							2290	4687	4230	5837	8617	11955	1.25 inches	99	63	720	0	0	519	71
ac-ft	359	1287	97	1743							4542	9297	8390	11578	17092	23713		54	38	1428	0	0	1029	141

**SNOTEL Summary for Water Year 2008**  
 Updated: June 30, 2008  
 SECO W/Y pc: 61.4" sno depth/water content 0  
 SDMO W/Y pc: 70.3" sno depth/water content 0

**RESERVOIR DELIVERY STATUS**  
 These allocations, amounts used and remaining are provisional and subject to daily changes as the WS elevation rises and falls. These numbers are for planning purposes only.

	USED	REMAINING
TVID	1605	12618
CWS	0	500
LO	0	12471
MUNI	1029	
Other	262	

Water storage elevation ± to fill curve: -2.11  
 Water storage in ac-ft ± to fill curve: -2335  
 Percentage of full reservoir: 95.6%

**Minimum Required Discharges**  
 Dec-Sept: 10 cfs Oct-Nov: 20 cfs

SCOGGINS DAM -- RESERVOIR OPERATIONS  
July 2008

Source: Tualatin Valley Irrigation District

[See Appendix E for breakdown of municipal use by water provider.]

DAY	INFLOW				HENRY HAGG LAKE				TUALATIN RIVER							WEATHER				WATER DELIVERIES											
	SCHO	SCLO	TANO	TOT	W.S.	STOR	CHNG	CHNG	COMP	GASO	DLLO	GOLF	ROOD	FRMO	WSLO	PRECIP	TEMP	TEMP	TEMP	TVID	CWS	LO	MUNI	OTHR							
	(cfs)	(cfs)	(cfs)	(cfs)	(ft)	(ac-ft)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(inches)	(°F)	(°F)	(°F)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)							
1	3	13	1	17	301.13	50703	-285	-144	172	28	56	243	172	173	251	0.00	83	51	101	11	0	41	3								
2	3	13	1	17	300.82	50387	-316	-159	177	18	55	233	166	153	224	0.00	82	57	113	11	0	34	3								
3	3	13	1	17	300.59	50093	-294	-148	177	29	53	239	160	143	215	0.00	86	58	113	11	0	34	3								
4	3	13	1	17	300.29	49749	-344	-173	174	1	51	229	165	154	223	0.00	79	60	104	11	0	40	3								
5	3	13	1	17	300.01	49486	-263	-133	174	41	52	229	201	154	223	0.02	71	59	104	11	0	40	3								
6	3	13	1	17	299.71	49162	-324	-163	174	11	54	232	179	168	245	0.00	70	54	104	11	0	40	3								
7	3	12	1	16	299.43	48860	-302	-152	174	22	52	246	192	173	243	0.00	69	48	105	11	0	40	3								
8	3	11	1	15	299.15	48559	-301	-152	164	12	50	220	141	159	230	0.00	81	56	98	1	0	48	3								
9	3	10	1	14	298.85	48238	-321	-162	190	28	48	261	143	122	195	0.00	90	58	105	1	0	68	3								
10	3	10	1	14	298.54	47907	-331	-167	176	9	55	228	161	123	187	0.00	90	49	108	1	0	50	3								
11	3	10	1	14	298.19	47534	-373	-188	201	13	57	284	182	121	187	0.00	74	42	104	33	0	47	3								
12	3	9	1	13	297.80	47120	-414	-209	222	13	55	298	185	145	206	0.00	85	52	103	36	0	67	3								
13	3	9	1	13	297.41	46708	-412	-208	220	12	53	298	182	144	211	0.00	91	55	101	36	0	67	3								
14	3	8	1	12	297.02	46297	-411	-207	220	13	53	277	177	144	210	0.00	93	52	102	36	0	67	3								
15	3	8	1	12	296.64	45899	-398	-201	219	18	52	288	187	132	202	0.00	90	56	108	36	0	60	3								
16	3	8	1	12	296.26	45501	-398	-201	208	7	51	273	174	137	202	0.00	91	51	116	36	0	41	3								
17	3	8	1	12	295.86	45085	-416	-210	222	12	53	296	178	129	196	0.00	80	45	121	36	0	50	3								
18	3	8	1	12	295.45	44659	-426	-215	220	5	60	286	187	136	200	0.00	81	46	119	36	0	50	3								
19	3	8	1	12	295.08	44277	-382	-193	212	19	51	286	183	140	207	0.00	73	44	111	36	0	50	3								
20	3	8	1	12	294.69	43876	-401	-202	211	9	52	284	213	152	213	0.00	75	47	110	36	0	50	3								
21	3	7	1	11	294.31	43486	-390	-197	211	14	50	275	222	173	239	0.00	84	47	110	36	0	50	3								
22	3	7	1	11	293.95	43118	-368	-186	191	5	49	254	156	154	236	0.00	81	51	97	36	3	41	3								
23	3	8	1	12	293.59	42752	-366	-185	203	18	51	273	166	126	190	0.00	69	49	94	36	3	55	3								
24	3	7	1	11	293.20	42356	-396	-200	212	12	50	266	157	149	205	0.00	70	45	93	36	3	66	3								
25	3	5	1	9	292.82	41972	-384	-194	208	14	49	264	175	121	188	0.00	83	50	99	36	3	58	3								
26	3	5	1	9	292.46	41610	-362	-183	192	9	47	231	143	125	188	0.00	81	49	100	36	3	41	3								
27	3	5	1	9	292.14	41288	-322	-162	188	26	48	241	151	111	179	0.00	76	52	101	36	3	36	3								
28	3	5	1	9	291.80	40949	-339	-171	188	17	47	245	183	128	188	0.00	73	48	101	36	3	36	3								
29	3	5	1	9	291.48	40630	-319	-161	178	17	47	228	151	130	199	0.00	81	50	87	36	3	40	3								
30	3	6	1	10	291.15	40302	-328	-165	174	9	51	211	132	109	182	tr	67	53	81	36	3	41	3								
31	3	5	1	9	290.84	39995	-307	-155	174	19	49	211	138	104	170	0.00	70	44	82	36	3	41	3								
<b>TOTALS</b>																															
cfs	93	270	31	394																											
ac-ft	184	536	61	781																											
0.02 inches																MAX		93		60		3195		833		30		1489		93	
																MIN		67		42		6337		1652		60		2953		184	

**SNOTEL Summary for Water Year 2008**  
 Updated: July 31, 2008  
 SECO W/Y pc: 62.2" sno depth/water content 0  
 SDMO W/Y pc: 71.5" sno depth/water content 0

**RESERVOIR DELIVERY STATUS**  
 These allocations, amounts used and remaining are provisional and subject to daily changes as the WS elevation rises and falls. These numbers are for planning purposes only.

	USED	REMAINING
TVID	7942	
CWS	1652	10966
LO	60	440
MUNI	3983	9517
Other	446	

**Water storage elevation ± to fill curve:** -12.66  
**Water storage in ac-ft ± to fill curve:** -13328  
**Percentage of full reservoir:** 75.0%

**Minimum Required Discharges**  
 Dec-Sept: 10 cfs Oct-Nov: 20 cfs

SCOGGINS DAM -- RESERVOIR OPERATIONS  
August 2008

Source: Tualatin Valley Irrigation District

[See Appendix E for breakdown of municipal use by water provider.]

DAY	INFLOW				HENRY HAGG LAKE				TUALATIN RIVER										WEATHER				WATER DELIVERIES					
	SCHO (cfs) [1]	SCLO (cfs) [2]	TANO (cfs) [3]	TOT INFLW (cfs) [4]	W.S. ELEV (ft) [5]	STOR (ac-ft) [6]	CHNG STOR (cfs) [7]	CHNG STOR (cfs) [8]	REL INFLW (cfs) [9]	COMP INFLW (cfs) [10]	GASO (cfs) [11]	DLLO (cfs) [12]	GOLF (cfs) [13]	ROOD (cfs) [14]	FRMO (cfs) [15]	WSLO (cfs) [16]	PRECIP (inches) [17]	TEMP MAX (°F) [18]	TEMP MIN (°F) [19]	TVID (cfs) [20]	CWS (cfs) [21]	LO (cfs) [22]	MUNI (cfs) [23]	OTHR (cfs) [24]				
1	3	4	1	8	290.51	39669	-326	-164	174	10	47	206	126	106	171	218	0.00	79	53	88	36	3	41	3				
2	3	5	1	9	290.20	39364	-305	-154	168	14	49	203	121	96	166	218	0.00	70	52	76	36	3	41	3				
3	3	5	1	9	289.88	39050	-314	-158	168	10	47	206	134	95	162	210	0.00	67	44	76	36	3	41	3				
4	3	4	1	8	289.57	38746	-304	-153	168	15	47	201	123	106	172	210	0.00	76	49	77	36	3	41	3				
5	3	4	1	8	289.21	38395	-351	-177	198	21	46	231	133	88	161	218	0.00	91	55	85	41	3	58	3				
6	3	3	1	7	288.78	37977	-418	-211	229	18	43	262	135	88	157	204	0.00	87	56	107	51	3	58	3				
7	3	3	1	7	288.32	37532	-445	-224	233	9	50	272	143	97	163	196	0.00	95	54	111	51	3	58	3				
8	3	3	1	7	287.90	37128	-404	-204	215	11	53	251	139	104	170	201	0.00	86	55	101	51	3	50	3				
9	3	4	1	8	287.54	36782	-346	-174	195	21	53	236	137	105	170	213	0.10	75	52	85	51	3	46	3				
10	3	4	1	8	287.15	36409	-373	-188	194	6	53	237	166	119	181	218	0.00	69	54	86	51	3	43	3				
11	3	4	1	8	286.79	36066	-343	-173	194	21	52	235	165	132	200	236	0.00	73	57	86	51	3	43	3				
12	3	4	1	8	286.43	35725	-341	-172	183	11	51	224	135	117	190	146	0.00	82	55	80	51	3	38	3				
13	3	3	1	7	286.05	35365	-360	-182	199	17	50	233	130	97	170	230	0.00	82	53	97	51	3	38	3				
14	3	3	1	7	285.56	34904	-461	-232	250	18	49	283	150	94	162	207	0.00	86	58	105	71	3	61	3				
15	3	3	1	7	285.06	34435	-469	-236	257	21	48	291	145	102	171	201	0.00	100	62	99	71	3	74	3				
16	3	2	1	6	284.54	33951	-484	-244	258	14	48	291	154	97	172	215	0.00	99	64	90	91	3	65	3				
17	3	2	1	6	284.03	33478	-473	-238	258	20	47	289	172	109	174	213	0.00	101	70	95	91	3	60	3				
18	3	3	1	7	283.50	32989	-489	-247	258	11	49	299	198	134	196	213	0.05	81	61	94	91	3	60	3				
19	3	4	1	8	283.05	32576	-413	-208	214	6	53	256	192	159	224	258	0.08	68	59	82	71	3	48	3				
20	3	12	2	17	282.79	32329	-247	-125	156	31	61	200	160	176	247	314	0.35	70	59	74	31	3	28	3				
21	3	10	1	14	282.60	32165	-164	-83	116	33	64	170	144	195	282	356	0.14	69	55	75	3	3	25	2				
22	3	6	1	10	282.40	31983	-182	-92	110	18	59	159	137	173	252	352	0.00	69	48	67	3	3	25	2				
23	3	4	1	8	282.18	31783	-200	-101	124	23	52	164	137	137	219	314	0.00	80	52	63	23	3	25	2				
24	3	4	1	8	281.95	31574	-209	-105	124	19	50	159	106	113	187	275	0.00	86	53	63	23	3	25	2				
25	3	5	1	9	281.75	31393	-181	-91	124	33	54	165	118	192	239	321	0.26	75	55	62	23	3	25	2				
26	3	4	1	8	281.51	31177	-216	-109	130	21	52	170	147	169	262	340	0.00	68	47	64	23	3	30	2				
27	3	4	1	8	281.30	30988	-189	-95	110	15	51	144	111	145	217	314	0.00	72	50	55	23	3	19	2				
28	3	4	1	8	281.10	30808	-180	-91	105	14	41	148	108	107	179	279	0.00	69	50	57	23	3	12	2				
29	3	3	1	7	280.89	30620	-188	-95	115	20	39	154	107	92	105	236	0.00	80	55	58	33	3	12	2				
30	3	3	1	7	280.61	30370	-250	-126	149	23	37	185	141	88	160	218	0.00	81	43	69	52	3	15	2				
31	3	3	1	7	280.30	30094	-276	-139	149	10	38	186	142	111	176	207	0.00	65	40	69	53	3	15	2				
TOTALS		93	129	32	254						1533	6710	4356	3743	5857	7551	0.98	101	70	2496	1392	93	1213	83				
cfs	184	256	63	504						3041	13309	8640	7424	11617	14977		MAX	65	40	4951	2761	184	2406	165				
ac-ft																	MIN	65	40									

<b>SNOTEL Summary for Water Year 2008</b>	
Updated: August 31, 2008	
SECO W/Y pc: 64.2" sno depth/water content	0
SDMO W/Y pc: 73.9" sno depth/water content	0

<b>RESERVOIR DELIVERY STATUS</b>	
These allocations, amounts used and remaining are provisional and subject to daily changes as the WS elevation rises and falls. These numbers are for planning purposes only.	
USED	REMAINING
TVID 12893	
CWS 4413	8205
LO 244	256
MUNI 6377	7123
Other 611	

<b>Water storage elevation ± to fill curve: -23.20</b>	
<b>Water storage in ac-ft ± to fill curve: -23229</b>	
<b>Percentage of full reservoir: 56.4%</b>	
<b>Minimum Required Discharges</b>	
Dec-Sept: 10 cfs	Oct-Nov: 20 cfs

SCOGGINS DAM -- RESERVOIR OPERATIONS  
September 2008

Source: Tualatin Valley Irrigation District

[See Appendix E for breakdown of municipal use by water provider.]

DAY	INFLOW				HENRY HAGG LAKE				TUALATIN RIVER							WEATHER				WATER DELIVERIES					
	SCHO (cfs) [1]	SCLO (cfs) [2]	TANO (cfs) [3]	TOT INFLW (cfs) [4]	W.S. ELEV (ft) [5]	STOR (ac-ft) [6]	CHNG STOR (cfs) [7]	CHNG STOR (cfs) [8]	REL INFLW (cfs) [9]	COMP INFLW (cfs) [10]	GASO (cfs) [11]	DLLO (cfs) [12]	GOLF (cfs) [13]	ROOD (cfs) [14]	FRMO (cfs) [15]	WSLO (cfs) [16]	PRECIP (inches) [17]	TEMP MAX (°F) [18]	TEMP MIN (°F) [19]	TVID (cfs) [20]	CWS (cfs) [21]	LO (cfs) [22]	MUNI (cfs) [23]	OTHR (cfs) [24]	
1	3	3	1	7	280.01	29836	-258	-130	149	19	38	191	154	130	188	252	0.00	61	46	69	53	3	15	2	
2	3	3	1	7	279.70	29562	-274	-138	149	11	39	189	150	143	219	258	0.00	67	46	69	53	3	15	2	
3	3	3	1	7	279.39	29289	-273	-138	149	11	38	189	146	120	191	268	0.00	75	43	69	53	3	15	2	
4	3	3	1	7	279.09	29008	-281	-142	165	23	43	209	157	111	179	239	0.00	73	48	76	53	3	24	2	
5	3	3	1	7	278.71	28693	-315	-159	174	15	43	217	148	121	185	230	0.00	78	49	71	53	3	34	2	
6	3	3	1	7	278.30	28335	-358	-180	199	19	42	250	158	108	177	230	0.00	78	50	68	53	3	65	3	
7	3	3	1	7	277.86	27954	-381	-192	202	10	43	247	160	111	180	224	0.00	81	53	70	53	3	66	3	
8	3	2	1	6	277.44	27592	-362	-183	201	18	41	242	181	123	185	227	0.00	84	66	70	53	3	66	3	
9	3	2	1	6	277.02	27232	-360	-182	191	9	41	227	128	116	188	236	0.00	86	50	64	63	3	52	3	
10	1	3	1	5	276.56	26838	-394	-199	210	11	41	250	160	91	159	229	0.00	81	42	76	63	3	60	3	
11	1	3	1	5	276.08	26430	-408	-206	219	13	41	261	171	103	169	210	0.00	80	47	85	73	3	50	3	
12	1	3	1	5	275.58	26008	-422	-213	235	22	41	276	184	115	179	213	0.00	88	49	91	83	3	50	3	
13	1	2	1	4	275.06	25572	-436	-220	229	9	50	282	184	125	187	224	0.00	89	49	82	83	3	54	3	
14	1	2	1	4	274.57	25163	-409	-206	229	23	50	281	194	124	191	230	0.00	83	44	81	83	3	55	3	
15	1	2	1	4	274.06	24741	-422	-213	228	15	50	279	203	184	200	246	0.00	82	47	80	83	3	55	3	
16	1	2	1	4	273.57	24337	-404	-204	219	15	50	269	168	184	205	242	0.00	90	50	86	73	3	55	3	
17	1	2	1	4	273.13	23977	-360	-182	198	16	49	245	166	113	184	252	0.00	90	54	70	68	3	50	3	
18	1	3	1	5	272.70	23627	-350	-176	187	11	50	233	147	118	181	233	0.00	81	51	69	68	3	40	3	
19	2	3	1	6	272.30	23303	-324	-163	182	19	52	230	169	115	179	233	0.00	63	48	67	68	3	35	3	
20	1	3	1	5	271.93	23005	-298	-150	164	14	52	210	148	121	187	233	0.00	72	52	55	58	3	40	3	
21	1	4	1	6	271.58	22724	-281	-142	164	22	52	211	150	115	182	239	0.00	62	53	54	58	3	40	3	
22	1	4	1	6	271.23	22445	-279	-141	164	23	54	215	164	137	199	278	0.07	65	46	54	58	3	40	3	
23	1	3	1	5	270.94	22214	-231	-116	130	14	54	180	145	152	222	282	0.00	64	39	39	58	3	22	3	
24	1	3	1	5	270.65	21983	-231	-116	125	9	53	174	137	119	194	282	0.00	68	41	41	58	3	15	3	
25	1	4	1	6	270.38	21769	-214	-108	130	22	46	174	137	109	177	255	0.02	64	47	40	58	3	20	3	
26	1	4	1	6	270.12	21563	-206	-104	131	27	46	173	137	100	169	239	0.00	64	43	41	58	3	22	1	
27	1	4	1	6	269.74	21263	-300	-151	172	21	45	212	153	100	170	224	0.00	71	51	48	78	3	36	1	
28	1	4	1	6	269.34	20948	-315	-159	172	13	44	212	191	119	185	227	0.00	74	44	48	78	3	36	1	
29	1	3	1	5	268.93	20627	-321	-162	172	10	43	211	163	127	196	242	0.00	83	56	49	78	3	36	1	
30	1	3	0	4	268.54	20322	-305	-154	177	23	42	206	161	116	188	246	0.00	87	52	49	78	3	42	1	
<b>TOTALS</b>																									
cfs	49	89	29	167						489	1373	6745	4814	3670	5595	7223	0.09	90	66	1931	1950	90	1205	75	
ac-ft	97	177	58	331						970	2723	13379	9549	7279	11098	14327		61	39	3830	3868	179	2390	149	

**SNOTEL Summary for Water Year 2008**  
 Updated: September 30, 2008  
 SECO W/Y pc: 63.6" sno depth/water content 0  
 SDMO W/Y pc: 73.6" sno depth/water content 0

**RESERVOIR DELIVERY STATUS**  
 These allocations, amounts used and remaining are provisional and subject to daily changes as the WS elevation rises and falls. These numbers are for planning purposes only.

	USED	REMAINING
TVID	16723	
CWS	8281	4337
LO	422	78
MUNI	8779	4721
Other	760	

**Minimum Required Discharges**  
 Dec-Sept: 10 cfs Oct-Nov: 20 cfs

SCOGGINS DAM -- RESERVOIR OPERATIONS  
October 2008

Source: Tualatin Valley Irrigation District

[See Appendix E for breakdown of municipal use by water provider.]

DAY	INFLOW				HENRY HAGG LAKE				TUALATIN RIVER							WEATHER				WATER DELIVERIES					
	SCHO	SCLO	TANO	TOT	W.S.	STOR	CHNG	CHNG	COMP	GASO	DLLO	GOLF	ROOD	FRMO	WSLO	PRECIP	TEMP	TEMP	TEMP	TVID	CWS	LO	MUNI	OTHR	
	(cfs)	(cfs)	(cfs)	(cfs)	(ft)	(ac-ft)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(inches)	(°F)	(°F)	(°F)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]		
1	1	3	0	4	268.16	20027	-295	-149	159	10	42	187	142	119	184	0.00	78	48	38	78	3	35	1		
2	1	3	0	4	267.79	19741	-286	-144	159	15	43	187	142	112	179	0.00	76	55	38	78	3	35	1		
3	2	7	0	9	267.49	19510	-231	-116	165	49	50	206	165	124	187	0.42	67	54	32	78	3	42*	1		
4	52	41	2	95	267.44	19472	-38	-19	117	98	136	216	179	208	262	1.35	60	56	20	53	3	30	1		
5	7	20	1	28	267.27	19341	-131	-66	117	51	110	224	277	315	417	0.09	60	49	20	53	3	30	1		
6	9	18	1	28	267.07	19188	-153	-77	117	40	79	184	188	297	430	0.08	58	50	20	53	3	30	1		
7	10	21	1	32	266.99	19127	-61	-31	79	48	83	146	157	219	328	0.30	66	50	20	3	3	20	1		
8	5	13	1	19	266.89	19050	-77	-39	72	33	77	141	161	198	297	0.00	61	39	20	3	3	17	1		
9	3	11	1	15	266.78	18966	-84	-42	61	19	66	120	122	163	252	0.00	59	35	20	3	3	15	1		
10	3	10	1	14	266.65	18867	-99	-50	81	31	63	136	135	133	207	0.17	52	36	20	23	3	15	1		
11	3	9	1	13	266.45	18715	-152	-77	100	23	59	149	162	134	206	0.00	55	34	20	43	3	15	1		
12	2	8	1	11	266.25	18564	-151	-76	100	24	56	145	145	140	210	0.00	31	36	20	43	3	15	1		
13	2	7	0	9	266.05	18412	-152	-77	100	23	54	144	142	130	198	0.00	63	43	20	43	3	15	1		
14	2	7	0	9	265.89	18292	-120	-61	84	23	48	134	136	119	188	0.00	63	44	20	43	0	20	1		
15	2	7	0	9	265.70	18148	-144	-73	84	11	48	124	110	109	176	0.00	60	35	20	43	0	20	1		
16	2	7	0	9	265.48	17983	-165	-83	105	22	44	144	138	97	166	0.01	55	35	20	63	0	20	1		
17	2	7	1	10	265.27	17826	-157	-79	105	26	45	140	156	113	172	0.00	64	46	20	63	0	20	1		
18	2	7	1	10	265.05	17661	-165	-83	110	27	45	146	147	121	192	0.00	70	46	20	73	0	15	1		
19	2	7	1	10	264.82	17490	-171	-86	110	24	45	148	149	119	187	0.00	62	37	20	73	0	15	1		
20	2	7	1	10	264.58	17311	-179	-90	110	20	46	148	152	118	188	0.06	62	38	20	73	0	15	1		
21	3	11	1	15	264.38	17163	-148	-75	110	35	65	162	161	124	194	0.17	57	37	15	73	0	20	1		
22	2	8	1	11	264.14	16986	-177	-89	110	21	57	157	172	134	202	0.00	55	38	15	73	0	20	1		
23	2	8	1	11	263.91	16817	-169	-85	109	24	54	151	149	131	203	0.00	68	36	18	60	0	30	1		
24	2	7	1	10	263.69	16655	-162	-82	101	19	53	142	151	na	189	0.00	61	35	15	60	0	25	1		
25	2	7	1	10	263.45	16480	-175	-88	111	23	52	146	155	na	182	0.00	62	35	15	70	0	25	1		
26	2	8	1	11	263.23	16319	-161	-81	111	30	53	146	172	113	185	0.00	61	39	15	70	0	25	1		
27	2	8	1	11	262.98	16138	-181	-91	111	20	53	147	160	na	198	0.00	70	42	15	70	0	25	1		
28	2	8	1	11	262.73	15957	-181	-91	111	20	54	147	158	na	194	0.00	69	40	15	70	0	25	1		
29	2	8	1	11	262.53	15812	-145	-73	93	20	54	128	147	na	182	0.00	61	40	12	60	0	20	1		
30	2	9	1	12	262.32	15661	-151	-76	93	17	55	128	144	na	181	0.00	55	43	10	60	0	20	1		
31	4	13	2	19	262.14	15532	-129	-65	94	29	59	134	143	na	175	0.23	58	46	10	60	0	24	1		
TOTALS																									
cfs	139	315	26	480							1848	4757	4817	3590	6711	8932	2.89	78	56	603	1711	39	698	31	
ac-ft	276	625	52	952							3666	9436	9555	7121	13311	17717		31	34	1196	3394	77	1384	61	

<b>Water storage elevation ± to fill curve:</b> -41.36	
<b>Water storage in ac-ft ± to fill curve:</b> -37791	
<b>Percentage of full reservoir:</b> 29.1%	<b>SDMO W/Y pc:</b> 5.8" sno depth/water content
	<b>SDMO W/Y pc:</b> 6.5" sno depth/water content
<b>Minimum Required Discharges</b>	
Dec-Sept: 10 cfs	Oct-Nov: 20 cfs

<b>RESERVOIR DELIVERY STATUS</b>	
These allocations, amounts used and remaining are provisional and subject to daily changes as the WS elevation rises and falls. These numbers are for planning purposes only.	
USED	REMAINING
TVID 17919	943
CWS 11675	0
LO 500	3337
MUNI 10163	94
Other 821	

\* An additional 2 cfs of natural flow was released for municipal use. (total municipal use: 20 cfs)

**SCOGGINS DAM -- RESERVOIR OPERATIONS**  
November 2008

Source: Tualatin Valley Irrigation District

[See Appendix E for breakdown of municipal use by water provider.]

DAY	INFLOW					HENRY HAGG LAKE					TUALATIN RIVER					WEATHER					WATER DELIVERIES				
	SCHO	SCLO	TANO	TOT	W.S.	STOR	CHNG	CHNG	REL	COMP	GASO	DLLO	GOLF	ROOD	FRMO	WSLO	PRECIP	TEMP	TEMP	TVID	CWS	LO	MUNI	OTHR	
	(cfs)	(cfs)	(cfs)	(cfs)	(ft)	(ac-ft)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(inches)	(°F)	(°F)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	
1	13	15	1	29	262.14	15532	0	0	41	41	44	78	135	na	209	242	0.29	24	51	10	30	0	0	1	
2	15	17	1	33	262.10	15504	-28	-14	41	27	32	60	78	126	219	285	0.36	59	50	10	30	0	0	1	
3	17	21	1	39	262.10	15504	0	0	41	41	44	70	75	na	235	340	0.28	55	44	10	30	0	0	1	
4	34	45	1	80	262.20	15575	71	36	31	67	89	84	131	315	396	654	0.74	51	41	10	20	0	0	1	
5	42	36	1	79	262.29	15640	65	33	19	52	134	110	208	351	543	593	0.22	50	41	5	0	0	0	1	
6	77	80	1	158	262.48	15776	136	69	20	89	203	129	228	na	483	677	0.81	48	48	5	0	0	0	1	
7	39	52	1	92	262.65	15899	123	62	19	81	205	174	395	478	654	683	0.02	60	48	5	0	0	0	0	
8	39	45	1	85	262.77	15986	87	44	18	62	124	122	222	na	590	677	0.07	61	54	5	0	0	0	0	
9	31	64	2	97	262.43	16102	116	58	18	76	183	149	282	na	611	637	0.36	57	50	5	0	0	0	0	
10	27	54	2	83	263.04	16181	79	40	18	58	138	126	291	na	531	604	0.05	57	47	5	0	0	0	0	
11	38	62	2	102	263.15	16261	80	40	20	60	119	122	234	307	467	583	0.49	47	55	5	0	0	0	0	
12	80	137	2	219	263.56	16560	299	151	23	174	513	313	438	395	541	688	0.64	59	49	5	0	0	0	0	
13	139	209	2	350	264.77	17453	893	450	22	472	1051	518	861	977	1150	1380	1.04	61	48	5	0	0	0	0	
14	73	112	2	187	265.36	17893	440	222	23	245	465	599	911	1280	1530	1520	0.00	57	37	5	0	0	0	0	
15	52	80	2	134	265.68	18133	240	121	23	144	267	411	717	1060	1339	1560	0.00	58	36	5	0	0	0	0	
16	35	62	2	99	265.89	18292	159	80	22	102	183	268	482	766	1010	1310	0.00	58	38	3	0	0	0	0	
17	27	50	2	79	266.05	18412	120	61	22	83	146	202	335	522	726	987	0.00	56	40	3	0	0	0	0	
18	18	42	2	62	266.19	18518	106	53	23	76	123	162	261	402	569	752	0.02	48	40	5	0	0	0	0	
19	16	36	2	54	266.30	18602	84	42	23	65	110	139	209	324	463	604	0.00	53	41	4	0	0	0	0	
20	15	35	2	52	266.38	18662	60	30	23	53	101	125	192	270	381	506	0.22	56	39	3	0	0	0	0	
21	23	48	2	73	266.60	18829	167	84	23	107	202	185	298	362	482	599	0.44	50	39	3	0	0	0	0	
22	21	45	2	68	266.75	18944	115	58	24	82	176	162	282	401	550	588	0.07	49	39	3	0	0	0	0	
23	19	41	2	62	266.87	19035	91	46	25	71	149	143	235	338	489	604	0.04	45	36	3	0	0	0	0	
24	17	38	2	57	266.98	19119	84	42	24	66	135	131	233	290	415	541	0.00	53	33	3	0	0	0	0	
25	16	34	2	52	267.07	19188	69	35	25	60	120	120	214	271	384	482	0.00	51	33	3	0	0	0	0	
26	15	34	2	51	267.16	19257	69	35	25	60	112	116	185	248	357	473	0.08	42	30	3	0	0	0	0	
27	14	31	2	47	267.25	19326	69	35	21	56	103	104	179	222	323	441	0.01	54	31	3	0	0	0	0	
28	14	30	2	46	267.35	19403	77	39	20	59	99	na	na	na	302	na	0.04	40	32	3	0	0	0	0	
29	13	28	1	42	267.43	19464	61	31	20	51	90	108	na	na	296	389	0.00	48	45	3	0	0	0	0	
30	13	26	1	40	267.51	19525	61	31	20	51	88	98	na	na	292	380	0.00	54	41	3	0	0	0	0	
<b>TOTALS</b>																									
cfs	992	1609	50	2651											6.29	61	55	143	110	0	0	0			
ac-ft	1968	3191	99	5258	2013	717	2730	5548	5128	8311	10321	16537	19779	10321	16537	19779	MAX	24	30	284	218	0	0	12	
					3993	3993	1422	5415	11004	10171	16485	20472	32801	39232	20472	32801	39232	MIN	24	30					

<b>RESERVOIR DELIVERY STATUS</b>			
<i>These allocations, amounts used and remaining are provisional and subject to daily changes as the WS elevation rises and falls. These numbers are for planning purposes only.</i>			
USED	REMAINING	TVID	CWS
18203	725	18203	11893
11893	0	CWS	500
500	3337	LO	10163
10163	82	MUNI	833
833		Other	

<b>SNOTEL Summary for Water Year 2008</b>			
Updated: Nov 11, 2008			
SECO W/Y pc:	9.8"	sno depth/water content	0
SDMO W/Y pc:	6.5"	sno depth/water content	0

Water storage elevation ± to fill curve:	-15.99
Water storage in ac-ft ± to fill curve:	-13464
Percentage of full reservoir:	36.6%

<b>Minimum Required Discharges</b>	
Dec-Sept: 10 cfs	Oct-Nov: 20 cfs

SCOGGINS DAM -- RESERVOIR OPERATIONS  
December 2008

Source: Tualatin Valley Irrigation District

[See Appendix E for breakdown of municipal use by water provider.]

DAY	INFLOW				HENRY HAGG LAKE				TUALATIN RIVER										WEATHER				WATER DELIVERIES					
	SCHO (cfs) [1]	SCLO (cfs) [2]	TANO (cfs) [3]	TOT INFLW (cfs) [4]	W.S. ELEV (ft) [5]	STOR (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL INFLW (cfs) [9]	COMP INFLW (cfs) [10]	GASO (cfs) [11]	DLLO (cfs) [12]	GOLF (cfs) [13]	ROOD (cfs) [14]	FRMO (cfs) [15]	WSLO (cfs) [16]	PRECIP (inches) [17]	TEMP MAX (°F) [18]	TEMP MIN (°F) [19]	TVID (cfs) [20]	CWS (cfs) [21]	LO (cfs) [22]	MUNI (cfs) [23]	OTHR (cfs) [24]				
1	13	26	1	40	267.59	19572	47	24	20	44	83	94	177	171	250	364	0.01	59	45	0	0	0	0	0				
2	22	43	2	67	267.70	19672	100	50	20	70	121	105	167	2504	275	414	0.42	55	45	0	0	0	0	0				
3	16	33	2	51	267.83	19772	100	50	20	70	135	126	193	285	402	455	0.00	55	41	0	0	0	0	0				
4	14	32	2	48	267.93	19849	77	39	20	59	112	114	199	144	353	473	0.00	52	35	0	0	0	0	0				
5	13	30	2	45	268.00	19903	54	27	20	47	106	104	184	228	330	436	0.00	51	29	0	0	0	0	0				
6	13	28	2	43	268.07	19958	55	28	20	48	98	97	153	203	297	406	0.00	48	30	0	0	0	0	0				
7	13	27	2	42	268.14	20012	54	27	20	47	91	91	144	174	260	376	0.00	49	34	0	0	0	0	0				
8	14	29	2	45	268.23	20082	70	35	20	55	101	99	158	195	272	372	0.14	45	37	0	0	0	0	0				
9	14	27	2	43	268.31	20144	62	31	19	50	87	88	153	202	289	372	0.00	47	39	0	0	0	0	0				
10	14	26	2	42	268.37	20190	46	23	19	42	82	85	135	179	261	368	0.00	42	39	0	0	0	0	0				
11	13	25	2	40	268.43	20237	47	24	19	43	78	81	126	na	243	344	0.00	48	41	0	0	0	0	0				
12	13	24	2	39	268.45	20252	15	8	19	27	76	89	104	162	240	333	0.00	53	32	0	0	0	0	0				
13	26	48	2	76	268.70	20447	195	98	20	118	188	154	219	na	311	397	0.69	48	35	0	0	0	0	0				
14	25	40	2	67	268.87	20558	111	56	20	76	182	159	303	376	493	464	0.17	48	33	0	0	0	0	0				
15	22	38	2	62	269.03	20705	147	74	20	94	150	155	278	407	553	609	0.00	33	30	0	0	0	0	0				
16	20	33	2	55	269.13	20783	78	39	19	58	189	82	224	340	492	609	0.00	26	18	0	0	0	0	0				
17	19	33	2	54	269.24	20869	86	43	19	62	103	106	197	259	383	541	0.00	30	17	0	0	0	0	0				
18	22	35	2	59	269.49	21018	149	75	20	95	146	134	233	292	399	521	0.70	36	24	0	0	0	0	0				
19	17	33	2	52	269.55	21113	95	48	19	67	113	123	230	365	501	577	0.23	37	27	0	0	0	0	0				
20	na	31	2	33	269.64	21184	71	36	19	55	101	115	210	322	467	604	0.06	33	27	0	0	0	0	0				
21	na	148	6	154	269.84	21341	157	79	18	97	105	117	220	285	416	583	0.00	30	21	0	0	0	0	0				
22	na	82	4	86	269.98	21452	111	56	18	74	106	117	222	290	409	551	0.00*	26	24	0	0	0	0	0				
23	na	42	2	44	270.06	21515	63	32	19	51	95	111	206	310	438	531	0.00*	39	25	0	0	0	0	0				
24	na	48	3	51	270.14	21579	64	32	18	50	90	106	184	288	415	531	0.00	29	25	0	0	0	0	0				
25	na	50	3	53	270.23	21682	103	52	18	70	116	126	218	328	447	685	0.00	30	26	0	0	0	0	0				
26	na	47	3	50	270.36	21753	71	36	18	54	97	122	233	430	595	770	0.00	36	29	0	0	0	0	0				
27	na	191	8	199	270.56	21912	159	80	20	100	156	157	274	595	742	1240	1.00	42	36	0	0	0	0	0				
28	na	349	10	359	271.18	22405	493	249	20	269	na	529	900	1400	1660	2270	0.26	50	37	0	0	0	0	0				
29	163	639	32	834	272.30	23303	898	453	20	473	na	735	1293	1920	2280	2830	0.41	49	35	0	0	0	0	0				
30	73	564	14	651	273.30	24116	813	410	19	429	641	806	1486	2340	2781	3470	0.21	43	33	0	0	0	0	0				
31	93	529	14	636	274.03	24716	600	303	19	322	575	717	1515	2390	2837	3490	0.28	44	36	0	0	0	0	0				
TOTALS		652	3330	138	4120		2617.1	599	3216	4323	5844	10528	17384	20091	25770	4.58	59	45	0	0	0	0	0	0				
ac-ft	1293	6605	274	8172		5191	5191	1188	6379	8575	11592	20882	34481	39850	51115		26	17	0	0	0	0	0	0				

SNOTEL Summary for Water Year 2008		
Water storage elevation ± to fill curve:	-9.47	
Water storage in ac-ft ± to fill curve:	-8273	
Percentage of full reservoir:	46.4%	
Minimum Required Discharges		
Dec-Sept: 10 cfs	Oct-Nov: 20 cfs	
Updated: December 31, 2008		
SECO W/Y pc:	24.2"	sno depth/water content 15.5/4.9"
SDMO W/Y pc:	29.0"	sno depth/water content 48.7"/na

RESERVOIR DELIVERY STATUS		
These allocations, amounts used and remaining are provisional and subject to daily changes as the WS elevation rises and falls. These numbers are for planning purposes only.		
USED	REMAINING	
TVID 18203		
CWS 11893		725
LO 500		0
MUNI 10163		3337
Other 833		

\* 16" snow on ground at SCOO

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# Appendix D

## Barney Reservoir Operations Monthly Records

Breakdown of allocations for municipal use by water provider can be found in Appendix E of this report.

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF JANUARY 2008

[See Appendix E for breakdown of municipal use by water provider.]

Source: Joint Water Commission

DAY	SURFACE ELEVATION feet	STORAGE ac-ft	CHANGE IN STORAGE ac-ft	RAIN @ BARNEY in.	TEMP @ BARNEY		MEASURED FLOW TO		STORAGE RELEASED TO		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN	TRASK—ODFW		CWS		MUNICIPAL	
					°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									0	0	0	0	0	0
2	1638.7	19240	120	0.38	30	33	1.7	0.0	0	0	0	0	0	0
3									0	0	0	0	0	0
4	1639.5	19600	360	1.22	31	39	1.7	0.0	0	0	0	0	0	0
5									0	0	0	0	0	0
6									0	0	0	0	0	0
7	1640.8	20000	400	2.36	29	44	64.0	0.0	0	0	0	0	0	0
8									0	0	0	0	0	0
9	1640.8	20000	0	1.44	30	34	90.0	0.0	0	0	0	0	0	0
10									0	0	0	0	0	0
11	1641.0	20000	0	2.74	33	42	240.0	0.0	0	0	0	0	0	0
12									0	0	0	0	0	0
13									0	0	0	0	0	0
14	1640.9	20000	0	0.86	31	42	124.0	0.0	0	0	0	0	0	0
15									0	0	0	0	0	0
16	1640.8	20000	0	0.75	26	40	77.0	0.0	0	0	0	0	0	0
17									0	0	0	0	0	0
18	1640.8	20000	0	0.04	19	31	77.0	0.0	0	0	0	0	0	0
19									0	0	0	0	0	0
20									0	0	0	0	0	0
21									0	0	0	0	0	0
22	1640.7	20000	0	0.28	23	47	47.0	0.0	0	0	0	0	0	0
23	1640.7	20000	0	0.00	22	33	41.0	0.0	0	0	0	0	0	0
24									0	0	0	0	0	0
25	1640.7	20000	0	0.00	22	34	41.0	0.0	0	0	0	0	0	0
26									0	0	0	0	0	0
27									0	0	0	0	0	0
28	1640.7	20000	0	1.00	24	24	41.0	0.0	0	0	0	0	0	0
29									0	0	0	0	0	0
30	1640.7	20000	0	0.07	30	32	41.0	0.0	0	0	0	0	0	0
31									0	0	0	0	0	0
Monthly Totals			880	11.14					0	0	0	0	0	0
Year to Date Totals			880	11.14					0	0	0	0	0	0

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF FEBRUARY 2008

[See Appendix E for breakdown of municipal use by water provider.]

Source: Joint Water Commission

DAY	SURFACE ELEVATION feet	STORAGE ac-ft	CHANGE IN STORAGE ac-ft	RAIN @ BARNEY in.	TEMP @ BARNEY		MEASURED FLOW TO		STORAGE RELEASED TO TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN	cfs	ac-ft	CWS		MUNICIPAL	
					°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									0	0	0	0	0	0
2									0	0	0	0	0	0
3									0	0	0	0	0	0
4									0	0	0	0	0	0
5									0	0	0	0	0	0
6									0	0	0	0	0	0
7									0	0	0	0	0	0
8	1640.9	20000	0					126.4	0.0	0	0	0	0	0
9										0	0	0	0	0
10										0	0	0	0	0
11	1640.8	20000	0					95.8	0.0	0	0	0	0	0
12										0	0	0	0	0
13	1640.8	20000	0	8.40	33	40		77.0	0.0	0	0	0	0	0
14										0	0	0	0	0
15	1640.7	20000	0	0.00				55.5	0.0	0	0	0	0	0
16										0	0	0	0	0
17										0	0	0	0	0
18										0	0	0	0	0
19										0	0	0	0	0
20	1640.7	20000	0		28	46		47.0	0.0	0	0	0	0	0
21										0	0	0	0	0
22	1640.7	20000	0					47.0	0.0	0	0	0	0	0
23										0	0	0	0	0
24										0	0	0	0	0
25	1640.7	20000	0					47.0	0.0	0	0	0	0	0
26										0	0	0	0	0
27										0	0	0	0	0
28	1640.7	20000	0					47.0	0.0	0	0	0	0	0
29	1640.7	20000	0					55.5	0.0	0	0	0	0	0
Monthly Totals			0	8.40							0		0	0
Year to Date Totals			880	19.54							0		0	0

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF MARCH 2008

[See Appendix E for breakdown of municipal use by water provider.]

Source: Joint Water Commission

DAY	SURFACE ELEVATION feet	STORAGE ac-ft	CHANGE IN STORAGE ac-ft	RAIN @ BARNEY in.	TEMP @ BARNEY		MEASURED FLOW TO		STORAGE RELEASED TO TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN	cfs	ac-ft	CWS		MUNICIPAL	
					°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									0	0	0	0	0	0
2									0	0	0	0	0	0
3	1640.7	20000	0				55.5	0.0	0	0	0	0	0	0
4									0	0	0	0	0	0
5	1640.7	20000	0				55.5	0.0	0	0	0	0	0	0
6									0	0	0	0	0	0
7	1640.7	20000	0	1.65	30	48	47.0	0.0	0	0	0	0	0	0
8									0	0	0	0	0	0
9									0	0	0	0	0	0
10	1640.7	20000	0	0.81	33	51	47.0	0.0	0	0	0	0	0	0
11									0	0	0	0	0	0
12									0	0	0	0	0	0
13									0	0	0	0	0	0
14	1640.9	20000	0	2.10	31	45	112.0	0.0	0	0	0	0	0	0
15									0	0	0	0	0	0
16									0	0	0	0	0	0
17	1640.7	20000	0	0.94	32	40	64.0	0.0	0	0	0	0	0	0
18									0	0	0	0	0	0
19	1640.7	20000	0	0.66	31	44	64.0	0.0	0	0	0	0	0	0
20									0	0	0	0	0	0
21	1640.7	20000	0	0.90	29	44	55.5	0.0	0	0	0	0	0	0
22									0	0	0	0	0	0
23									0	0	0	0	0	0
24	1640.7	20000	0	1.07	30	42	64.1	0.0	0	0	0	0	0	0
25									0	0	0	0	0	0
26	1640.7	20000	0	0.94	29	38	64.1	0.0	0	0	0	0	0	0
27									0	0	0	0	0	0
28	1640.7	20000	0				64.1	0.0	0	0	0	0	0	0
29									0	0	0	0	0	0
30									0	0	0	0	0	0
31	1640.7	20000	0	1.70	33	42	41.0	0.0	0	0	0	0	0	0
Monthly Totals			0	10.77							0	0	0	0
Year to Date Totals			880	30.31							0	0	0	0

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF APRIL 2008

[See Appendix E for breakdown of municipal use by water provider.]

Source: Joint Water Commission

DAY	SURFACE ELEVATION feet	STORAGE ac-ft	CHANGE IN STORAGE ac-ft	RAIN @ BARNEY in.	TEMP @ BARNEY		MEASURED FLOW TO		STORAGE RELEASED TO TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN	cfs	ac-ft	CWS		MUNICIPAL	
					°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									0	0	0	0	0	0
2	1640.6	20000	0	0.00	25	41	41.0	0.0	0	0	0	0	0	0
3									0	0	0	0	0	0
4	1640.6	20000	0	0.40	30	43	41.0	0.0	0	0	0	0	0	0
5									0	0	0	0	0	0
6									0	0	0	0	0	0
7	1640.7	20000	0	1.48	30	44	64.0	0.0	0	0	0	0	0	0
8									0	0	0	0	0	0
9	1640.7	20000	0	0.46	32	40	64.0	0.0	0	0	0	0	0	0
10									0	0	0	0	0	0
11	1640.7	20000	0	0.90	34	50	64.0	0.0	0	0	0	0	0	0
12									0	0	0	0	0	0
13									0	0	0	0	0	0
14	1640.7	20000	0	0.11	46	67	64.0	0.0	0	0	0	0	0	0
15									0	0	0	0	0	0
16	1640.7	20000	0	0.54	32	42	47.0	0.0	0	0	0	0	0	0
17									0	0	0	0	0	0
18	1640.7	20000	0	0.13	32	48	41.0	0.0	0	0	0	0	0	0
19									0	0	0	0	0	0
20									0	0	0	0	0	0
21	1640.6	20000	0	0.91	26	42	41.0	0.0	0	0	0	0	0	0
22									0	0	0	0	0	0
23	1640.8	20000	0	2.80	32	36	90.0	0.0	0	0	0	0	0	0
24									0	0	0	0	0	0
25	1640.8	20000	0	0.61	32	42	70.0	0.0	0	0	0	0	0	0
26									0	0	0	0	0	0
27	1640.8	20000	0	0.70	34	59	70.0	0.0	0	0	0	0	0	0
28									0	0	0	0	0	0
29									0	0	0	0	0	0
30	1640.7	20000	0	0.20	32	50	41.0	0.0	0	0	0	0	0	0
Monthly Totals			0	9.24							0		0	0
Year to Date Totals			880	39.55							0		0	0

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF MAY 2008

[See Appendix E for breakdown of municipal use by water provider.]

Source: Joint Water Commission

DAY	SURFACE ELEVATION feet	STORAGE ac-ft	CHANGE IN STORAGE ac-ft	RAIN @ BARNEY in.	TEMP @ BARNEY		MEASURED FLOW TO		STORAGE RELEASED TO TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN	cfs	ac-ft	CWS		MUNICIPAL	
					°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									0	0	0	0	0	0
2	1640.7	20000	0	0.35	34	52	41.0	0.0	0	0	0	0	0	0
3									0	0	0	0	0	0
4									0	0	0	0	0	0
5	1640.6	20000	0	0.01	50	62	35.0	0.0	0	0	0	0	0	0
6									0	0	0	0	0	0
7	1640.6	20000	0	0.00	40	52	35.0	0.0	0	0	0	0	0	0
8									0	0	0	0	0	0
9	1640.6	20000	0	0.02	42	60	35.0	0.0	0	0	0	0	0	0
10									0	0	0	0	0	0
11									0	0	0	0	0	0
12	1640.6	20000	0	0.00	37	58	31.0	0.0	0	0	0	0	0	0
13									0	0	0	0	0	0
14	1640.6	20000	0	0.00	32	54	28.0	0.0	0	0	0	0	0	0
15									0	0	0	0	0	0
16	1640.6	20000	0	0.00	50	79	19.0	0.0	0	0	0	0	0	0
17									0	0	0	0	0	0
18									0	0	0	0	0	0
19	1640.6	20000	0	0.00	52	81	16.0	0.0	0	0	0	0	0	0
20									0	0	0	0	0	0
21	1640.6	20000	0	0.55	38	70	28.0	0.0	0	0	0	0	0	0
22									0	0	0	0	0	0
23	1640.6	20000	0	0.06	40	48	16.5	0.0	0	0	0	0	0	0
24									0	0	0	0	0	0
25									0	0	0	0	0	0
26									0	0	0	0	0	0
27									0	0	0	0	0	0
28	1640.6	20000	0	0.38	46	64	16.5	0.0	0	0	0	0	0	0
29									0	0	0	0	0	0
30	1640.6	20000	0	0.00	42	64	13.5	0.0	0	0	0	0	0	0
31									0	0	0	0	0	0
Monthly Totals			0	1.37					0	0	0	0		
Year to Date Totals			880	40.92					0	0	0	0		

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF JUNE 2008

[See Appendix E for breakdown of municipal use by water provider.]

Source: Joint Water Commission

DAY	SURFACE ELEVATION feet	STORAGE ac-ft	CHANGE IN STORAGE ac-ft	RAIN @ BARNEY in.	TEMP @ BARNEY		MEASURED FLOW TO		STORAGE RELEASED TO TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN	cfs	ac-ft	CWS		MUNICIPAL	
					°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									0	0	0	0	0	0
2	1640.6	20000	0	0.00	40	58	12.3	0.0	0	0	0	0	0	0
3									0	0	0	0	0	0
4	1640.6	20000	0	0.74	41	52	17.5	0.0	0	0	0	0	0	0
5									0	0	0	0	0	0
6	1640.7	20000	0	1.26	39	49	41.0	0.0	0	0	0	0	0	0
7									0	0	0	0	0	0
8									0	0	0	0	0	0
9	1641.0	20000	0	0.24	44	68	17.5	0.0	0	0	0	0	0	0
10									0	0	0	0	0	0
11	1640.6	20000	0	0.81	43	51	19.0	0.0	0	0	0	0	0	0
12									0	0	0	0	0	0
13	1640.6	20000	0	0.00	36	61	16.5	0.0	0	0	0	0	0	0
14									0	0	0	0	0	0
15									0	0	0	0	0	0
16	1640.6	20000	0	0.00	38	64	12.3	0.0	0	0	0	0	0	0
17									0	0	0	0	0	0
18	1640.6	20000	0	0.00	43	63	12.3	0.0	0	0	0	0	0	0
19									0	0	0	0	0	0
20	1640.5	20000	0	0.00	42	70	12.3	0.0	0	0	0	0	0	0
21									0	0	0	0	0	0
22									0	0	0	0	0	0
23	1640.5	20000	0	0.00	42	70	9.5	10.0	0	0	0	0	0	0
24									8	16	0	0	10	20
25	1640.5	20000	0	0.03	40	72	2.4	10.0	8	16	0	0	10	20
26									8	16	0	0	10	20
27	1640.4	19960	-40	0.00	44	74	8.2	10.0	8	16	0	0	10	20
28									8	16	0	0	10	20
29									8	16	0	0	10	20
30	1640.2	19880	-80	0.00	53	84	8.2	10.0	8	16	0	0	10	20
Monthly Totals			-120	3.08						111		0		139
Year to Date Totals			760	44.00						111		0		139

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF JULY 2008

[See Appendix E for breakdown of municipal use by water provider.]

Source: Joint Water Commission

DAY	SURFACE ELEVATION	STORAGE	CHANGE IN STORAGE	RAIN @ BARNEY	TEMP @ BARNEY		MEASURED FLOW TO		STORAGE RELEASED TO		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN	TRASK—ODFW		CWS		MUNICIPAL	
					°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									8	16	0	0	10	20
2	1640.1	19840	-40	0.00	48	74	8.2	10.0	8	16	0	0	10	20
3	1640.1	19840	0	0.00	67	73	8.2	10.0	8	16	0	0	10	20
4									8	16	0	0	10	20
5									8	16	0	0	10	20
6									8	16	0	0	10	20
7	1639.8	19760	-80	0.04	46	68	8.2	10.0	8	16	0	0	10	20
8									8	16	0	0	10	20
9	1639.7	19680	-80	0.00	54	79	8.2	18.0	8	16	0	0	10	20
10									8	16	0	0	18	36
11	1639.4	19560	-120	0.00	50	77	8.2	18.0	8	16	0	0	18	36
12									8	16	0	0	18	36
13									8	16	0	0	18	36
14	1639.2	19480	-80	0.00	44	80	8.2	18.0	8	16	0	0	18	36
15									8	16	0	0	18	36
16	1638.9	19360	-120	0.00	48	78	8.2	18.0	8	16	0	0	18	36
17									8	16	0	0	18	36
18	1638.7	19280	-80	0.00	40	82	8.2	18.0	8	16	0	0	18	36
19									8	16	0	0	18	36
20									8	16	0	0	18	36
21	1638.3	19120	-160	0.00	38	74	8.2	18.0	8	16	0	0	18	36
22									8	16	0	0	18	36
23	1638.1	19040	-80	0.00	42	74	8.2	18.0	8	16	0	0	18	36
24									8	16	0	0	18	36
25	1637.8	18900	-140	0.00	42	76	8.2	18.0	8	16	0	0	18	36
26									8	16	0	0	18	36
27									8	16	0	0	18	36
28	1637.5	18750	-150	0.02	45	70	8.2	18.0	8	16	0	0	18	36
29									8	16	0	0	18	36
30	1637.2	18600	-150	0.11	48	66	8.2	18.0	8	16	0	0	18	36
31									8	16	0	0	18	36
Monthly Totals			-1280	0.17						492		0		964
Year to Date Totals			-520	44.17						603		0		1103

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF AUGUST 2008

[See Appendix E for breakdown of municipal use by water provider.]

Source: Joint Water Commission

DAY	SURFACE ELEVATION feet	STORAGE ac-ft	CHANGE IN STORAGE ac-ft	RAIN @ BARNEY in.	TEMP @ BARNEY		MEASURED FLOW TO		STORAGE RELEASED TO TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN	cfs	ac-ft	CWS		MUNICIPAL	
					°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1	1637.0	18500	-100	0.12	45	65	8.0	18.0	8	16	0	0	18	36
2									8	16	0	0	18	36
3									8	16	0	0	18	36
4	1636.6	18300	-200	0.04	42	76	8.2	18.0	8	16	0	0	18	36
5									8	16	0	0	18	36
6	1634.4	18200	-100	0.00	66	78	8.2	24.0	8	16	0	0	18	36
7									8	16	0	0	24	48
8	1636.1	18050	-150	0.00	69	74	8.2	24.0	8	16	0	0	24	48
9									8	16	0	0	24	48
10									8	16	0	0	24	48
11	1635.7	17888	-162	0.12	47	67	8.2	24.0	8	16	0	0	24	48
12									8	16	0	0	24	48
13	1635.4	17775	-113	0.00	50	70	8.2	24.0	8	16	0	0	24	48
14									8	16	0	0	24	48
15	1635.1	17663	-112	0.00	58	82	8.2	24.0	8	16	0	0	24	48
16									8	16	0	0	24	48
17									8	16	0	0	24	48
18	1634.6	17475	-188	0.18	56	84	8.2	24.0	8	16	0	0	24	48
19									8	16	0	0	24	48
20	1634.4	17400	-75	0.87	59	67	8.2	24.0	8	16	0	0	24	48
21									8	16	0	0	24	48
22	1634.1	17288	-112	0.43	46	60	8.2	24.0	8	16	0	0	24	48
23									8	16	0	0	24	48
24									8	16	0	0	24	48
25	1633.7	17138	-150	0.15	48	70	8.2	24.0	8	16	0	0	24	48
26									8	16	0	0	24	48
27	1633.4	17025	-113	0.22	44	59	8.2	24.0	8	16	0	0	24	48
28									8	16	0	0	24	48
29	1633.1	16913	-112	0.00	48	66	8.2	24.0	8	16	0	0	24	48
30									8	16	0	0	24	48
31									8	16	0	0	24	48
Monthly Totals			-1687	2.13						492		0		1405
Year to Date Totals			-2207	46.30						1095		0		2508

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF SEPTEMBER 2008

[See Appendix E for breakdown of municipal use by water provider.]

Source: Joint Water Commission

DAY	SURFACE ELEVATION	STORAGE	CHANGE IN STORAGE	RAIN @ BARNEY	TEMP @ BARNEY		MEASURED FLOW TO		STORAGE RELEASED TO		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN	TRASK—ODFW		CWS		MUNICIPAL	
									cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
	feet	ac-ft	ac-ft	in.	°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									8	16	0	0	24	48
2	1632.7	16688	-225	0.01	38	68	8.2	24.0	8	16	0	0	24	48
3	1632.2	16575	-113	0.00	43	62	8.2	30.0	8	16	0	0	24	48
4									8	16	14	28	16	32
5	1631.9	16463	-112	0.00	42	64	8.2	30.0	8	16	14	28	16	32
6									8	16	14	28	16	32
7									8	16	14	28	16	32
8	1631.4	16275	-188	0.00	54	71	8.2	30.0	8	16	14	28	16	32
9									8	16	14	28	16	32
10	1630.9	16088	-187	0.00	40	71	8.2	30.0	8	16	14	28	16	32
11									8	16	14	28	16	32
12	1630.6	15975	-113	0.00	43	73	8.2	36.0	8	16	14	28	16	32
13									8	16	14	28	16	32
14									8	16	14	28	22	44
15	1629.8	15675	-300	0.00	44	74	8.0	36.0	8	16	14	28	22	44
16									8	16	14	28	22	44
17	1629.4	15525	-150	0.00	53	75	8.0	36.0	8	16	14	28	22	44
18									8	16	14	28	22	44
19	1628.9	15338	-187	0.00	46	74	8.0	36.0	8	16	14	28	22	44
20									8	16	14	28	22	44
21									8	16	14	28	22	44
22	1628.1	15000	-338	0.11	42	58	8.2	36.0	8	16	14	28	22	44
23									8	16	14	28	22	44
24	1627.7	14888	-112	0.01	38	54	8.2	30.0	8	16	14	28	22	44
25									8	16	14	28	16	32
26	1627.3	14738	-150	0.11	36	55	8.2	30.0	8	16	14	28	16	32
27									8	16	14	28	16	32
28									8	16	14	28	16	32
29	1626.7	14513	-225	0.01	33	68	8.2	30.0	8	16	14	28	16	32
30									8	16	14	28	16	32
Monthly Totals			-2400	0.25						476		750		1131
Year to Date Totals			-4607	46.55						1571		750		3639

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF OCTOBER 2008

[See Appendix E for breakdown of municipal use by water provider.]

Source: Joint Water Commission

DAY	SURFACE ELEVATION feet	STORAGE ac-ft	CHANGE IN STORAGE ac-ft	RAIN @ BARNEY in.	TEMP @ BARNEY		MEASURED FLOW TO		STORAGE RELEASED TO TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN	cfs	ac-ft	CWS		MUNICIPAL	
					°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1	1626.3	14363	-150	0.00	30	58	8.2	30.0	8	16	14	28	16	32
2									8	16	14	28	16	32
3	1625.9	14213	-150	0.72	51	64	8.2	30.0	8	16	14	28	16	32
4									8	16	14	28	16	32
5									8	16	14	28	16	32
6	1625.9	14213	0	3.26	36	55	8.2	30.0	8	16	14	28	16	32
7									8	16	14	28	16	32
8	1625.6	14100	-113	0.59	37	52	8.2	30.0	8	16	14	28	16	32
9									8	16	14	28	16	32
10	1625.2	13950	-150	0.16	34	49	8.4	30.0	8	16	14	28	16	32
11									8	16	14	28	16	32
12									8	16	14	28	16	32
13	1624.7	13763	-187	0.01	44	52	8.4	24.0	8	16	14	28	16	32
14									8	16	14	28	10	20
15	1624.3	13613	-150	0.05	34	52	8.2	24.0	8	16	14	28	10	20
16									8	16	14	28	10	20
17	1624.0	13500	-113	0.12	44	54	7.3	24.0	7	14	14	28	10	20
18									8	16	14	28	10	20
19									8	16	14	28	10	20
20	1623.6	13350	-150	0.26	37	55	8.2	24.0	8	16	14	28	10	20
21									8	16	14	28	10	20
22	1623.3	13238	-112	0.20	36	54	8.4	24.0	8	16	14	28	10	20
23									8	16	14	28	10	20
24	1622.9	13088	-150	0.00	36	54	8.4	24.0	8	16	14	28	10	20
25									8	16	14	28	10	20
26									8	16	14	28	10	20
27	1622.5	12938	-150	0.00	36	56	8.4	24.0	8	16	14	28	10	20
28									8	16	14	28	10	20
29	1622.1	12788	-150	0.00	41	57	8.4	24.0	8	16	14	28	10	20
30									8	16	14	28	10	20
31	1621.8	12675	-113	0.50	44	52	8.4	0.0	8	16	14	28	10	20
Monthly Totals			-1838	5.87						491		861		770
Year to Date Totals			-6445	52.42						2062		1611		4408

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF NOVEMBER 2008

[See Appendix E for breakdown of municipal use by water provider.]

Source: Joint Water Commission

DAY	SURFACE ELEVATION feet	STORAGE ac-ft	CHANGE IN STORAGE ac-ft	RAIN @ BARNEY in.	TEMP @ BARNEY		MEASURED FLOW TO		STORAGE RELEASED TO		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN	TRASK—ODFW		CWS		MUNICIPAL	
					°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									8	16	0	0	0	0
2									8	16	0	0	0	0
3	1621.9	12713	38	0.98	42	52	8.4	0.0	8	16	0	0	0	0
4									8	16	0	0	0	0
5	1622.0	12750	37	1.56	36	46	8.4	0.0	8	16	0	0	0	0
6									8	16	0	0	0	0
7	1622.5	12938	188	1.42	38	54	8.4	0.0	8	16	0	0	0	0
8									8	16	0	0	0	0
9									8	16	0	0	0	0
10	1622.8	13050	112	0.76	40	52	8.4	0.0	8	16	0	0	0	0
11									8	16	0	0	0	0
12	1623.5	13313	263	3.25	42	54	9.5	0.0	8	16	0	0	0	0
13									8	16	0	0	0	0
14	1625.0	13875	562	2.68	32	54	8.2	0.0	8	16	0	0	0	0
15									8	16	0	0	0	0
16									8	16	0	0	0	0
17	1625.4	14025	150	0.02	38	56	8.4	0.0	8	16	0	0	0	0
18									8	16	0	0	0	0
19	1625.5	14036	11	0.04	42	56	8.4	0.0	8	16	0	0	0	0
20									8	16	0	0	0	0
21	1625.8	14175	139	1.10	34	45	8.4	0.0	8	16	0	0	0	0
22									8	16	0	0	0	0
23									8	16	0	0	0	0
24	1625.9	14213	38	0.30	32	42	8.4	0.0	8	16	0	0	0	0
25									8	16	0	0	0	0
26	1626.0	14250	37	0.14	31	42	8.4	0.0	8	16	0	0	0	0
27									8	16	0	0	0	0
28	1626.0	14250	0	0.16	32	43	8.4	0.0	8	16	0	0	0	0
29									8	16	0	0	0	0
30									8	16	0	0	0	0
Monthly Totals			1575	12.41						476		0		0
Year to Date Totals			-4870	64.83						2538		1611		4408

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF DECEMBER 2008

[See Appendix E for breakdown of municipal use by water provider.]

Source: Joint Water Commission

DAY	SURFACE ELEVATION feet	STORAGE ac-ft	CHANGE IN STORAGE ac-ft	RAIN @ BARNEY in.	TEMP @ BARNEY		MEASURED FLOW TO		STORAGE RELEASED TO TRASK—ODFW		STORAGE RELEASED TO TUALATIN				
					Min	Max	TRASK	TUALATIN	cfs	ac-ft	CWS		MUNICIPAL		
					°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft	
1	16226.1	14288	38	0.10	32	52	8.4	0.0	8	16	0	0	0	0	
2										8	16	0	0	0	0
3	1626.3	14363	75	0.88	38	47	8.4	0.0	8	16	0	0	0	0	
4										8	16	0	0	0	0
5	1626.3	14363	0	0.02	31	44	8.4	0.0	8	16	0	0	0	0	
6										8	16	0	0	0	0
7										8	16	0	0	0	0
8	1626.4	14400	37	0.43	33	44	8.4	0.0	8	16	0	0	0	0	
9										8	16	0	0	0	0
10	1626.5	14438	38	0.02	32	44	8.4	0.0	8	16	0	0	0	0	
11										8	16	0	0	0	0
12	1626.5	14438	0	0.13	33	46	8.4	0.0	8	16	0	0	0	0	
13										8	16	0	0	0	0
14										8	16	0	0	0	0
15	1626.9	14588	150	1.74	14	38	8.4	0.0	8	16	0	0	0	0	
16										8	16	0	0	0	0
17	1627.0	14625	37	0.74	15	33	8.4	0.0	8	16	0	0	0	0	
18										8	16	0	0	0	0
19	1627.4	14775	150	1.48	17	34	8.4	0.0	8	16	0	0	0	0	
20										8	16	0	0	0	0
21										8	16	0	0	0	0
22										8	16	0	0	0	0
23	1627.7	14888	113				4.0	0.0	4	8	0	0	0	0	
24									4	8	0	0	0	0	
25									4	8	0	0	0	0	
26	1627.7	14888	0				4.0	0.0	4	8	0	0	0	0	
27									4	8	0	0	0	0	
28									4	8	0	0	0	0	
29	1629.3	15489	601	3.02	22	42	6.2	0.0	4	8	0	0	0	0	
30									4	8	0	0	0	0	
31	1630.1	15788	299				5.1	0.0	0	0	0	0	0	0	
Monthly Totals			1538	8.56						413		0		0	
Year to Date Totals			-3332	73.39						2951		1611		4408	

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# Appendix E

## Municipal Water Use Allocations Monthly Records

**MONTHLY SUMMARIES OF MUNICIPAL ALLOCATIONS**

<b>MONTH</b>	<b>PAGE</b>
January	no stored water released for municipal water use
February	no stored water released for municipal water use
March	no stored water released for municipal water use
April	no stored water released for municipal water use
May	no stored water released for municipal water use
June	E-3
July	E-4
August	E-5
September	E-6
October	E-7
November	no stored water released for municipal water use
December	no stored water released for municipal water use

## MUNICIPAL ALLOCATIONS FOR THE MONTH OF JUNE 2008

Source: Joint Water Commission

DAY	TOTAL MUNICIPAL USE	MUNICIPAL USE BY RESERVOIR		BREAKDOWN OF MUNICIPAL USE BY WATER PROVIDER						
				HILLSBORO		FOREST GROVE		BEAVERTON		TVWD
		Barney	Scoggins	Barney	Scoggins	Barney	Scoggins	Barney	Scoggins	Barney
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	12.0	0.0	12.0	0.0	0.3	0.0	1.9	0.0	9.8	0.0
20	35.0	0.0	35.0	0.0	14.3	0.0	5.8	0.0	14.8	0.0
21	35.0	0.0	35.0	0.0	15.3	0.0	6.1	0.0	13.6	0.0
22	35.0	0.0	35.0	0.0	12.1	0.0	6.8	0.0	16.1	0.0
23	45.0	0.0	45.0	0.0	19.4	0.0	7.7	0.0	17.9	0.0
24	65.0	10.0	55.0	0.9	21.9	0.3	8.8	1.0	24.3	7.8
25	75.0	10.0	65.0	0.3	25.6	0.2	11.7	0.4	27.7	9.1
26	58.0	10.0	48.0	1.2	18.8	0.5	8.7	1.3	20.4	7.1
27	55.0	10.0	45.0	0.4	12.0	0.4	10.9	0.7	22.1	8.5
28	58.0	10.0	48.0	1.8	23.0	0.6	7.7	1.3	17.3	6.3
29	58.0	10.0	48.0	1.8	23.6	0.6	7.6	1.3	16.8	6.3
30	58.0	10.0	48.0	1.0	18.5	0.5	10.0	1.1	19.5	7.4
<b>Monthly Totals</b>										
<b>cfs</b>	589.0	70.0	519.0	7.4	204.9	3.1	93.8	7.0	220.3	52.5
<b>ac-ft</b>	1168.3	138.8	1029.4	14.6	406.5	6.2	186.0	13.9	437.0	104.2
<b>Year-to-Date Totals</b>										
<b>cfs</b>	589.0	70.0	519.0	7.4	204.9	3.1	93.8	7.0	220.3	52.5
<b>ac-ft</b>	1168.3	138.8	1029.4	14.6	406.5	6.2	186.0	13.9	437.0	104.2

## MUNICIPAL ALLOCATIONS FOR THE MONTH OF JULY 2008

Source: Joint Water Commission

DAY	TOTAL MUNICIPAL USE	MUNICIPAL USE BY RESERVOIR		BREAKDOWN OF MUNICIPAL USE BY WATER PROVIDER						
				HILLSBORO		FOREST GROVE		BEAVERTON		TVWD
		Barney	Scoggins	Barney	Scoggins	Barney	Scoggins	Barney	Scoggins	Barney
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
1	51.0	10.0	41.0	1.4	19.1	0.7	9.6	0.9	12.3	6.9
2	44.0	10.0	34.0	2.1	16.5	1.0	7.6	1.2	9.9	5.7
3	44.0	10.0	34.0	2.2	17.2	0.8	6.7	1.3	10.1	5.7
4	50.0	10.0	40.0	1.0	18.1	0.4	7.6	0.8	14.3	7.9
5	50.0	10.0	40.0	0.0	16.2	0.0	8.9	0.0	14.9	10.0
6	50.0	10.0	40.0	0.1	15.2	0.0	10.8	0.1	14.0	9.8
7	50.0	10.0	40.0	0.8	18.5	0.4	10.0	0.5	11.4	8.3
8	58.0	10.0	48.0	0.0	20.1	0.0	13.7	0.0	14.1	10.0
9	78.0	10.0	68.0	0.0	22.5	0.0	23.9	0.0	21.6	10.0
10	68.0	18.0	50.0	1.9	21.8	1.2	13.9	1.3	14.3	13.5
11	65.0	18.0	47.0	2.3	21.1	1.4	12.7	1.4	13.1	12.8
12	85.0	18.0	67.0	0.0	27.2	0.0	19.5	0.0	20.2	18.0
13	85.0	18.0	67.0	0.8	31.5	0.4	17.7	0.4	17.8	16.3
14	85.0	18.0	67.0	0.0	18.8	0.0	25.5	0.0	22.7	18.0
15	78.0	18.0	60.0	0.3	25.9	0.2	17.7	0.2	16.5	17.3
16	59.0	18.0	41.0	1.7	14.8	1.4	12.6	1.5	13.6	13.3
17	68.0	18.0	50.0	0.0	24.4	0.0	12.9	0.0	12.6	18.0
18	68.0	18.0	50.0	3.1	24.8	1.3	10.5	1.8	14.7	11.7
19	68.0	18.0	50.0	3.2	24.7	1.3	9.9	2.0	15.4	11.5
20	68.0	18.0	50.0	2.3	22.1	1.1	10.8	1.8	17.1	12.8
21	68.0	18.0	50.0	3.4	24.5	1.5	10.9	2.0	14.6	11.1
22	59.0	18.0	41.0	4.4	21.4	1.7	8.3	2.3	11.3	9.7
23	73.0	18.0	55.0	0.9	19.0	0.7	14.5	1.1	21.6	15.2
24	84.0	18.0	66.0	2.0	29.3	1.0	14.7	1.5	22.0	13.5
25	76.0	18.0	58.0	3.2	29.4	1.3	11.8	1.8	16.7	11.6
26	59.0	18.0	41.0	3.4	18.9	1.7	9.4	2.3	12.7	10.5
27	54.0	18.0	36.0	2.6	13.7	1.8	9.6	2.4	12.7	11.2
28	54.0	18.0	36.0	4.8	18.2	1.8	7.0	2.8	10.8	8.6
29	58.0	18.0	40.0	3.9	17.6	2.0	9.1	3.0	13.4	9.2
30	59.0	18.0	41.0	4.9	19.7	2.2	9.1	3.0	12.2	7.9
31	59.0	18.0	41.0	4.6	18.6	2.5	10.0	3.1	12.4	7.8
<b>Monthly Totals</b>										
<b>cfs</b>	1975.0	486.0	1489.0	61.2	651.0	30.1	376.9	40.6	461.1	354.0
<b>ac-ft</b>	3917.4	964.0	2953.4	121.5	1291.3	59.8	747.5	80.5	914.6	702.2
<b>Year-to-Date Totals</b>										
<b>cfs</b>	2564.0	556.0	2008.0	68.6	856.0	33.2	470.6	47.6	681.4	406.6
<b>ac-ft</b>	5085.7	1102.8	3982.9	136.1	1697.8	65.9	933.5	94.4	1351.6	806.4

## MUNICIPAL ALLOCATIONS FOR THE MONTH OF AUGUST 2008

Source: Joint Water Commission

DAY	TOTAL MUNICIPAL USE	MUNICIPAL USE BY RESERVOIR		BREAKDOWN OF MUNICIPAL USE BY WATER PROVIDER						
				HILLSBORO		FOREST GROVE		BEAVERTON		TVWD
		Barney	Scoggins	Barney	Scoggins	Barney	Scoggins	Barney	Scoggins	Barney
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
1	59.0	18.0	41.0	4.0	18.9	1.9	9.0	2.8	13.1	9.3
2	59.0	18.0	41.0	3.1	17.8	1.6	9.3	2.4	13.9	10.8
3	59.0	18.0	41.0	4.2	21.5	1.5	7.9	2.3	11.6	10.0
4	59.0	18.0	41.0	3.3	18.3	1.8	10.1	2.3	12.6	10.6
5	76.0	18.0	58.0	1.1	24.0	0.6	14.6	0.9	19.4	15.4
6	76.0	18.0	58.0	1.2	28.0	0.6	13.7	0.7	16.3	15.5
7	82.0	24.0	58.0	1.4	23.0	1.0	15.3	1.2	19.7	20.4
8	74.0	24.0	50.0	2.1	19.9	1.4	13.8	1.7	16.2	18.8
9	70.0	24.0	46.0	3.7	20.2	2.2	11.7	2.6	14.1	15.5
10	67.0	24.0	43.0	5.2	20.2	2.5	9.6	3.4	13.2	12.9
11	67.0	24.0	43.0	3.6	16.1	2.6	11.8	3.4	15.1	14.4
12	62.0	24.0	38.0	6.0	18.7	2.9	8.9	3.4	10.4	11.7
13	62.0	24.0	38.0	4.8	16.3	2.7	9.2	3.7	12.5	12.7
14	85.0	24.0	61.0	2.3	24.6	1.5	15.5	2.0	20.9	18.2
15	98.0	24.0	74.0	2.6	38.2	1.0	14.9	1.4	20.9	19.0
16	89.0	24.0	65.0	1.3	27.2	0.8	16.1	1.0	21.7	20.9
17	84.0	24.0	60.0	2.4	27.9	1.1	13.3	1.6	18.8	18.9
18	84.0	24.0	60.0	3.8	28.4	1.6	11.7	2.7	19.9	15.9
19	72.0	24.0	48.0	4.7	18.5	2.6	10.2	4.9	19.3	11.9
20	52.0	24.0	28.0	8.6	13.4	3.8	6.0	5.4	8.5	6.2
21	42.0	24.0	18.0	9.6	8.6	4.3	3.9	6.1	5.5	4.1
22	49.0	24.0	25.0	7.6	10.2	3.5	4.7	7.4	10.0	5.5
23	49.0	24.0	25.0	9.9	12.7	3.3	4.3	6.3	8.0	4.5
24	49.0	24.0	25.0	10.3	13.0	3.4	4.3	6.0	7.6	4.3
25	49.0	24.0	25.0	6.2	9.2	4.3	6.3	6.4	9.5	7.1
26	54.0	24.0	30.0	6.8	12.2	4.4	7.9	5.5	9.9	7.4
27	43.0	24.0	19.0	11.3	10.3	3.7	3.4	5.7	5.2	3.3
28	36.0	24.0	12.0	9.9	5.7	4.4	2.6	6.3	3.7	3.3
29	36.0	24.0	12.0	9.3	5.5	4.4	2.6	6.5	3.8	3.8
30	39.0	24.0	15.0	11.7	8.6	3.6	2.6	5.3	3.8	3.5
31	39.0	24.0	15.0	10.0	7.6	3.6	2.7	6.2	4.7	4.1
<b>Monthly Totals</b>										
<b>cfs</b>	1921.0	708.0	1213.0	172.0	545.1	78.7	277.9	117.3	390.0	340.1
<b>ac-ft</b>	3810.3	1404.3	2406.0	341.1	1081.3	156.0	551.2	232.6	773.5	674.5
<b>Year-to-Date Totals</b>										
<b>cfs</b>	4485.0	1264.0	3221.0	240.6	1401.1	111.9	748.5	164.9	1071.4	746.6
<b>ac-ft</b>	8896.0	2507.1	6388.9	477.2	2779.1	222.0	1484.7	327.0	2125.1	1481.0

## MUNICIPAL ALLOCATIONS FOR THE MONTH OF SEPTEMBER 2008

Source: Joint Water Commission

DAY	TOTAL MUNICIPAL USE	MUNICIPAL USE BY RESERVOIR		BREAKDOWN OF MUNICIPAL USE BY WATER PROVIDER						
				HILLSBORO		FOREST GROVE		BEAVERTON		TVWD
		Barney	Scoggins	Barney	Scoggins	Barney	Scoggins	Barney	Scoggins	Barney
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
1	39.0	24.0	15.0	10.1	7.6	3.6	2.7	6.1	4.6	4.1
2	39.0	24.0	15.0	9.9	7.5	3.9	3.0	6.1	4.6	4.1
3	39.0	24.0	15.0	9.8	8.2	3.6	3.0	4.6	3.8	6.1
4	40.0	16.0	24.0	4.3	11.0	2.4	6.2	2.7	6.8	6.6
5	50.0	16.0	34.0	3.4	16.1	1.6	7.5	2.2	10.4	8.8
6	81.0	16.0	65.0	0.0	32.7	0.0	14.7	0.0	17.6	16.0
7	82.0	16.0	66.0	0.0	30.0	0.0	15.1	0.0	21.0	16.0
8	82.0	16.0	66.0	0.0	29.6	0.0	18.2	0.0	18.2	16.0
9	68.0	16.0	52.0	0.0	22.8	0.0	14.8	0.0	14.4	16.0
10	76.0	16.0	60.0	0.0	26.7	0.0	16.6	0.0	16.7	16.0
11	66.0	16.0	50.0	0.0	24.8	0.0	12.1	0.0	13.1	16.0
12	66.0	16.0	50.0	0.0	22.3	0.0	13.8	0.0	13.8	16.0
13	70.0	16.0	54.0	0.0	23.5	0.0	14.5	0.0	16.0	16.0
14	77.0	22.0	55.0	1.4	25.3	0.7	13.4	0.9	16.2	19.0
15	77.0	22.0	55.0	1.7	25.4	1.0	14.2	1.1	15.5	18.2
16	77.0	22.0	55.0	0.8	23.9	0.5	16.0	0.5	15.0	20.2
17	72.0	22.0	50.0	1.6	22.5	1.0	13.3	1.0	14.2	18.4
18	62.0	22.0	40.0	4.0	19.6	2.1	10.2	2.1	10.2	13.8
19	57.0	22.0	35.0	3.5	14.1	2.4	9.6	2.8	11.3	13.3
20	62.0	22.0	40.0	3.5	17.0	2.1	10.4	2.6	12.7	13.8
21	62.0	22.0	40.0	6.0	22.1	2.1	7.9	2.7	9.9	11.2
22	62.0	22.0	40.0	3.2	15.9	2.1	10.0	2.9	14.1	13.8
23	44.0	22.0	22.0	5.6	8.7	3.6	5.7	4.8	7.6	8.0
24	37.0	22.0	15.0	7.2	6.7	3.7	3.5	5.2	4.8	5.8
25	36.0	16.0	20.0	5.3	10.0	1.9	3.5	3.5	6.5	5.4
26	38.0	16.0	22.0	3.9	9.2	2.0	4.8	3.4	8.0	6.8
27	52.0	16.0	36.0	3.7	16.7	1.5	7.0	2.7	12.3	8.0
28	52.0	16.0	36.0	4.2	17.8	1.6	6.8	2.7	11.4	7.5
29	52.0	16.0	36.0	2.8	16.3	1.3	7.7	2.0	12.0	9.9
30	58.0	16.0	42.0	0.9	17.0	0.5	10.0	0.8	15.0	13.8
<b>Monthly Totals</b>										
<b>cfs</b>	1775.0	570.0	1205.0	96.8	550.9	45.4	296.2	63.3	357.9	364.5
<b>ac-ft</b>	3520.7	1130.6	2390.1	191.9	1092.7	90.0	587.5	125.6	709.9	723.1
<b>Year-to-Date Totals</b>										
<b>cfs</b>	6260.0	1834.0	4426.0	337.3	1952.0	157.3	1044.7	228.2	1429.3	1111.2
<b>ac-ft</b>	12416.7	3637.7	8779.0	669.1	3871.8	312.0	2072.2	452.6	2835.0	2204.0

## MUNICIPAL ALLOCATIONS FOR THE MONTH OF OCTOBER 2008

Source: Joint Water Commission

DAY	TOTAL MUNICIPAL USE	MUNICIPAL USE BY RESERVOIR		BREAKDOWN OF MUNICIPAL USE BY WATER PROVIDER						
				HILLSBORO		FOREST GROVE		BEAVERTON		TVWD
		Barney	Scoggins	Barney	Scoggins	Barney	Scoggins	Barney	Scoggins	Barney
		(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)
1	51.0	16.0	35.0	1.5	15.3	0.9	8.8	1.1	10.9	12.5
2	51.0	16.0	35.0	0.7	13.1	0.5	9.6	0.6	12.3	14.2
3	58.0	16.0	42.0	0.0	12.9	0.0	12.3	0.0	16.8	16.0
4	46.0	16.0	30.0	2.2	10.1	1.9	8.4	2.5	11.4	9.4
5	46.0	16.0	30.0	1.7	10.4	1.1	7.0	2.0	12.6	11.2
6	46.0	16.0	30.0	3.1	14.8	1.2	5.9	2.0	9.3	9.7
7	36.0	16.0	20.0	2.1	6.2	1.8	5.2	2.9	8.6	9.2
8	33.0	16.0	17.0	3.0	5.9	1.8	3.5	3.8	7.6	7.5
9	31.0	16.0	15.0	3.0	4.9	2.1	3.4	4.0	6.6	7.0
10	31.0	16.0	15.0	1.0	1.9	2.2	4.4	4.3	8.6	8.5
11	31.0	16.0	15.0	2.2	3.9	1.9	3.5	4.2	7.6	7.7
12	31.0	16.0	15.0	3.4	5.5	1.9	3.1	3.9	6.4	6.8
13	31.0	16.0	15.0	1.0	1.9	2.1	4.2	4.4	8.8	8.5
14	30.0	10.0	20.0	0.9	5.5	0.8	4.5	1.7	10.0	6.6
15	30.0	10.0	20.0	2.4	9.2	0.9	3.4	1.9	7.4	4.7
16	30.0	10.0	20.0	0.3	1.3	1.1	5.9	2.5	12.8	6.1
17	30.0	10.0	20.0	1.9	7.4	1.0	3.9	2.3	8.8	4.7
18	25.0	10.0	15.0	1.8	5.1	1.2	3.3	2.4	6.6	4.6
19	25.0	10.0	15.0	0.2	0.7	1.2	5.0	2.2	9.3	6.5
20	25.0	10.0	15.0	1.1	4.1	1.0	3.7	1.9	7.2	5.9
21	30.0	10.0	20.0	1.0	6.0	1.0	5.8	1.4	8.2	6.7
22	30.0	10.0	20.0	0.2	2.3	0.7	7.1	1.1	10.6	8.0
23	40.0	10.0	30.0	0.4	10.0	0.3	7.5	0.5	12.5	8.9
24	35.0	10.0	25.0	0.5	6.8	0.4	6.2	0.8	12.0	8.2
25	35.0	10.0	25.0	0.2	4.0	0.3	7.3	0.6	13.7	8.9
26	35.0	10.0	25.0	0.7	7.3	0.6	6.3	1.1	11.4	7.6
27	35.0	10.0	25.0	1.1	7.6	1.0	6.4	1.6	11.0	6.3
28	35.0	10.0	25.0	0.6	4.9	1.0	7.5	1.7	12.6	6.7
29	30.0	10.0	20.0	1.7	7.2	1.1	4.7	1.9	8.1	5.2
30	30.0	10.0	20.0	0.4	2.5	0.9	6.5	1.6	11.0	7.1
31	34.0	10.0	24.0	0.5	5.3	0.7	6.9	1.2	11.7	7.6
<b>Monthly Totals</b>										
<b>cfs</b>	1086.0	388.0	698.0	40.7	204.2	34.6	181.3	64.1	312.6	248.6
<b>ac-ft</b>	2154.1	769.6	1384.5	80.8	405.0	68.6	359.5	127.1	620.0	493.1
<b>Year-to-Date Totals</b>										
<b>cfs</b>	7346.0	2222.0	5124.0	378.1	2156.2	191.9	1226.0	292.3	1741.9	1359.8
<b>ac-ft</b>	14570.8	4407.3	10163.5	749.9	4276.7	380.5	2431.7	579.7	3455.0	2697.1

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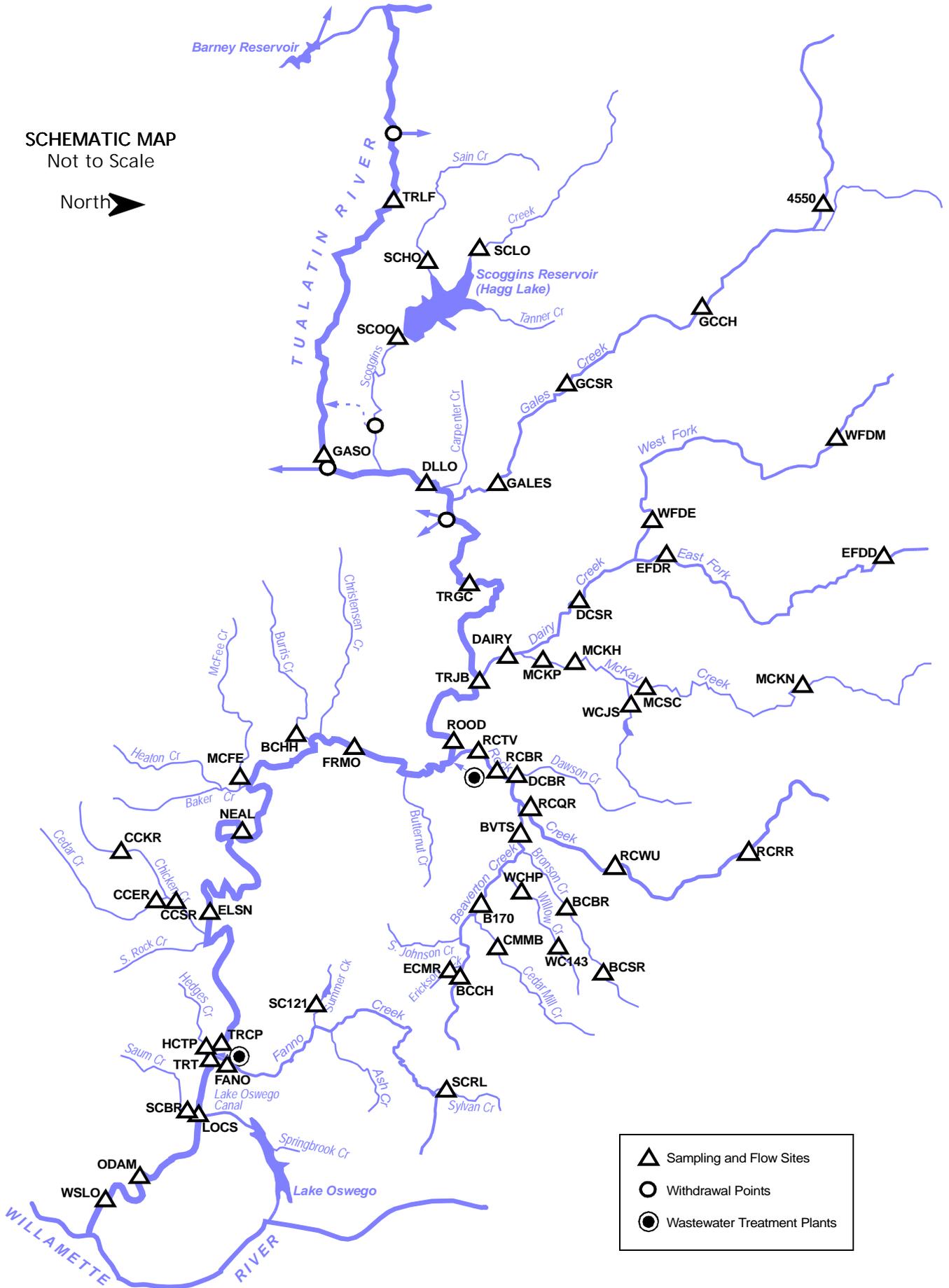
# Appendix F

## Stream Temperature Records

# STREAM TEMPERATURE SITES — LOCATIONS

SCHEMATIC MAP  
Not to Scale

North 



-  Sampling and Flow Sites
-  Withdrawal Points
-  Wastewater Treatment Plants

**STREAM TEMPERATURE SITES — ALPHABETICAL LISTING BY SITE CODE**

<b>SITE CODE</b>	<b>SITE NAME</b>	<b>RIVER MILE</b>	<b>STATION ID</b>	<b>PAGE</b>
4550	Gales Creek above Glenwood, Oregon	19.9	14204550	ND*
ASMP	Ash Creek at Metzger Park at Metzger, Oregon	1.25	14206933	F-51
B170	Beaverton Creek at 170th Ave, Beaverton, Oregon	4.9	—	F-33
BCBR	Bronson Creek at Bronson Road near Orenco, Oregon	2.1	14206423	F-37
BCCH	Beaverton Creek at Cedar Hills Blvd at Beaverton, Oregon	7.45	14206360	F-30
BCHH	Burriss Creek at Hwy 219	0.38	—	F-43
BCSR	Bronson Creek at Saltzman Road near Orenco, Oregon	5.1	14206419	F-36
BVTS	Beaverton Creek at NE Guston Court near Orenco, Oregon	1.2	14206435	F-38
CCER	Cedar Creek at Edy Road near Sherwood, Oregon	0.62	14206748	F-48
CCKR	Chicken Creek at Kruger Road	4.5	—	F-47
CCSR	Chicken Creek at Roy Rogers Road	2.3	14206750	F-49
CMMB	Cedar Mill Creek at Murray Boulevard near Beaverton, Oregon	1.64	14206395	F-32
DAIRY	Dairy Creek at Hwy 8 near Hillsboro, Oregon	2.06	14206200	F-24
DCBR	Dawson Creek at Brookwood Road near Hillsboro, Oregon	0.7	14206443	F-39
DCSR	Dairy Creek at Susbauer Road	6.02	—	F-18
DLLO	Tualatin River at Dilley, Oregon	58.8	14203500	F-9
ECMR	Erickson Creek at Menlo Drive at Beaverton, Oregon	0.76	14206365	F-31
EFDD	East Fork Dairy Creek near Dairy Creek Road near Mountaindale, Oregon	12.33	14205480	F-16
EFDR	East Fork Dairy Creek at Roy Road	1.24	—	F-17
ELSN	Tualatin River at Elsner Road near Sherwood, Oregon	16.2	14206600	F-46
FANO	Fanno Creek at Durham Road near Tigard, Oregon	1.2	14206950	F-54
FRMO	Tualatin River at Farmington, Oregon	33.3	14206500	F-42
GALES	Gales Creek at Old Hwy 47 near Forest Grove, Oregon	2.36	14204530	F-12
GASO	Tualatin River at Gaston, Oregon	62.3	14202510	F-5
GCCH	Gales Creek at Clapshaw Hill Road near Gales Creek, Oregon	12.36	14204540	F-10
GCSR	Gales Creek at Stringtown Road	6.98	—	F-11
HCTP	Hedges Creek at Tualatin Community Park at Tualatin, Oregon	0.3	14206958	F-55
LOCS	Tualatin River at Oswego Canal near Lake Oswego, Oregon	6.7	14206990	F-58
MCKH	McKay Creek at Hornecker Road near Hillsboro, Oregon	2.2	14206180	F-22
MCKN	McKay Creek at Northrup Road near North Plains, Oregon	15.5	14205980	F-19
MCKP	McKay Creek at Padgett Road	1.31	14206190	F-23
MCFE	McFee Creek at Hwy 219 near Scholls, Oregon	0.8	14206670	F-44
MCSC	McKay Creek at Scotch Church Road above Waible Ck near North Plains, Oregon	6.3	14206070	F-20
NEAL	Tualatin River at RM 24.5 near Scholls, Oregon	24.5	14206694	F-45
ODAM	Tualatin River at Oswego Dam near West Linn, Oregon	3.4	14207200	F-59
RCQR	Rock Creek at Quatama near Orenco, Oregon	4.9	14206347	F-29
RCBR	Rock Creek at Brookwood Avenue, Hillsboro, Oregon	2.4	—	F-40
RCRR	Rock Creek at Rock Creek Road near Bowers Junction, Oregon	15.8	14206305	F-27
RCTV	Rock Creek at Hwy 8 near Hillsboro, Oregon	1.2	14206450	F-41
RCWU	Rock Creek at West Union Road near Bethany, Oregon	9.0	14206338	F-28
ROOD	Tualatin River at Rood Bridge Road near Hillsboro, Oregon	38.4	14206295	F-26
SC121	Summer Creek at 121st Avenue near Tigard, Oregon	1.0	14206938	F-52
SCBR	Saum Creek at Borland Road	0.6	—	F-57
SCHO	Sain Creek above Henry Hagg Lake near Gaston, Oregon	1.6	14202920	F-7
SCLO	Scoggins Creek above Henry Hagg Lake near Gaston, Oregon	9.3	14202850	F-6
SCOO	Scoggins Creek below Henry Hagg Lake near Gaston, Oregon	4.80	14202980	F-8
SCRL	Sylvan Creek at Raleighwood Lane near West Slope, Oregon	1.0	14206905	F-50
TRCP	Tualatin River at RM 9.9 near Tualatin Oregon	9.9	14206800	F-53
TRGC	Tualatin River at Golf Course Road near Cornelius, Oregon	51.5	14204800	F-13
TRJB	Tualatin River at Hwy 219 Bridge	44.4	14206241	F-25
TRLF	Tualatin River below Lee Falls near Cherry Grove, Oregon	70.7	14202450	F-4
TRT	Tualatin River at Tualatin, Oregon	8.9	14206956	F-56
WC143	Willow Creek at 143rd Avenue near Beaverton, Oregon	3.5	14206410	F-34
WCHP	Willow Creek at Heritage Parkway near Beaverton, Oregon	0.75	14206413	F-35
WCJS	Waible Creek at Jackson School Road near Hillsboro, Oregon	1.0	14206100	F-21
WFDE	West Fork Dairy Creek at Evers Road	1.96	14205160	F-15
WFDM	West Fork Dairy Creek at Manning, Oregon	12.9	—	F-14
WSLO	Tualatin River at West Linn	1.75	14207500	F-60

\*ND= data not available for 2008; will resume 2009

**TRLF – 14202450 – TUALATIN RIVER BELOW LEE FALLS NEAR CHERRY GROVE, OREGON [RM 70.7]**

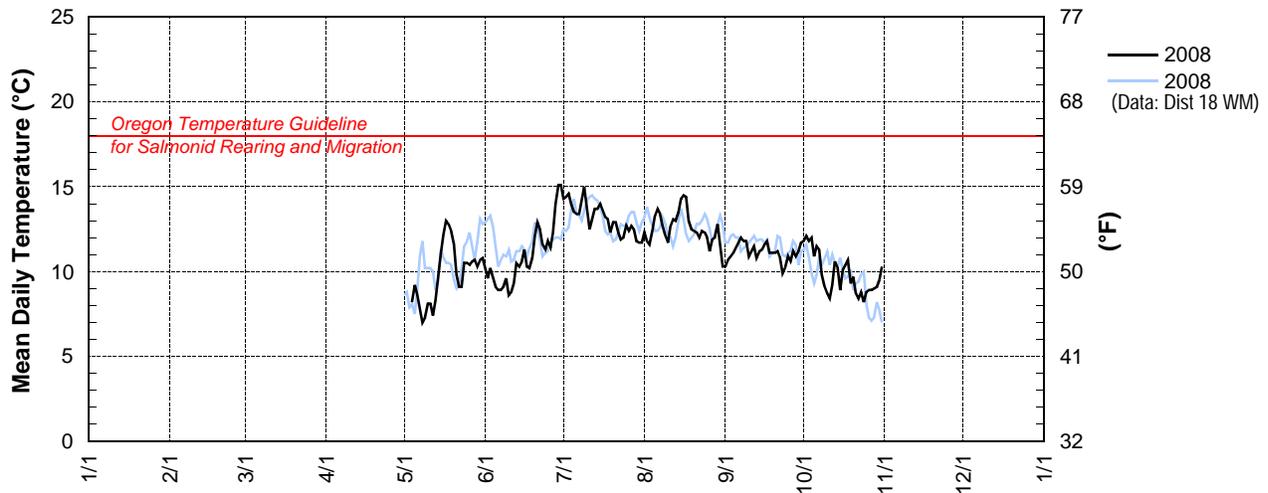
Latitude: 45 30 21 Longitude: 123 13 06

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						10.2	14.3	12.3	10.3	11.8		
2						9.6	14.4	11.8	10.7	12.1		
3						10.2	14.6	11.6	10.9	11.8		
4					8.2	9.6	14.0	12.4	11.1	12.0		
5					9.2	9.1	13.5	13.3	11.4	10.9		
6					8.6	8.9	13.4	13.7	11.7	11.5		
7					7.8	8.9	13.4	13.4	12.0	11.3		
8					7.0	9.1	14.2	12.7	11.8	9.8		
9					7.3	9.6	15.0	12.1	11.8	9.1		
10					8.1	8.6	13.6	11.7	10.9	8.7		
11					8.1	8.8	12.5	12.7	11.2	8.4		
12					7.4	9.3	13.1	13.1	11.5	9.2		
13					8.3	10.5	13.7	13.0	10.8	10.6		
14					9.7	10.3	13.7	13.5	11.2	10.2		
15					11.1	10.6	14.0	14.3	11.3	8.9		
16					12.2	11.3	13.6	14.5	11.6	10.1		
17					13.0	10.3	13.2	14.4	11.8	10.4		
18					12.8	10.2	13.1	13.0	11.1	10.7		
19					12.4	10.8	12.3	12.5	11.1	9.3		
20					11.6	12.1	12.9	12.4	11.1	9.7		
21					9.8	12.9	12.9	12.3	11.2	8.7		
22					9.1	12.5	12.3	12.0	10.8	8.4		
23					9.1	11.6	11.9	12.4	9.9	8.8		
24					10.5	11.3	12.0	12.3	10.3	8.2		
25					10.5	11.8	12.7	12.0	10.9	8.8		
26					10.4	11.4	12.4	11.2	10.6	8.9		
27					10.6	12.3	12.7	11.9	11.2	8.9		
28					10.7	14.0	12.5	12.0	10.9	9.0		
29					10.3	15.1	11.8	12.8	11.2	9.1		
30		—			10.7	15.1	11.7	11.5	11.7	9.5		
31		—		—	10.8	—	11.7	10.3	—	10.3		
MEAN					e9.8	10.9	13.1	12.5	11.1	9.8		
MAX					e13.0	15.1	15.0	14.5	12.0	12.1		
MIN					e7.0	8.6	11.7	10.3	9.9	8.2		

e=estimated value due to incomplete record

**TRLF – 14202450 – Tualatin River below Lee Falls near Cherry Grove, Oregon [RM 70.7]**



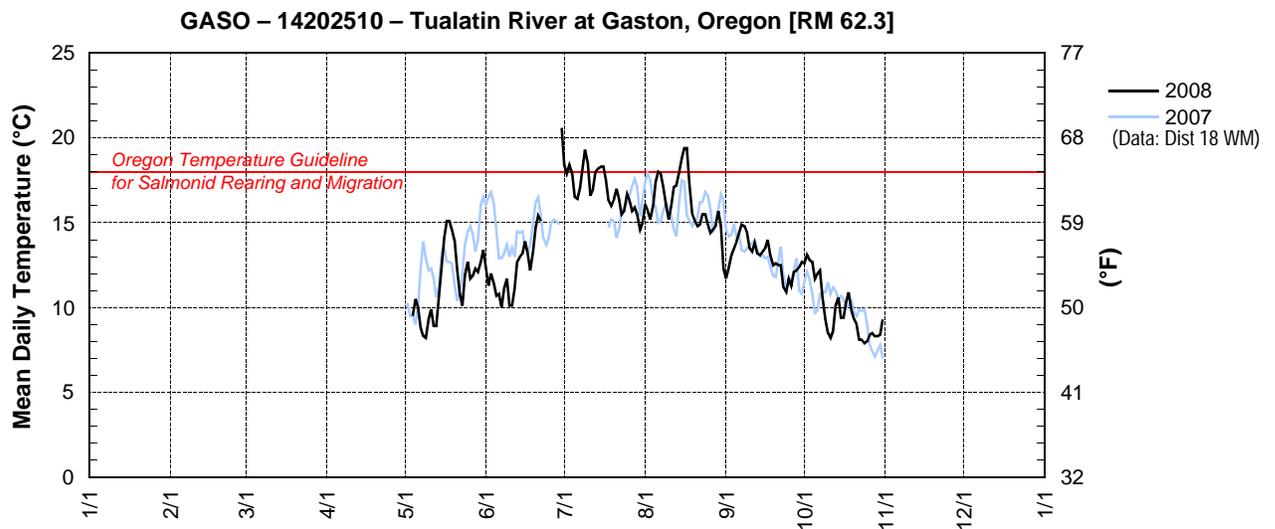
**GASO – 14202510 – TUALATIN RIVER AT GASTON, OREGON [RM 62.3]**

Latitude: 45 26 21 Longitude: 123 07 85

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						12.4	18.4	16.1	11.7	12.6		
2						11.3	17.9	15.7	12.3	13.1		
3						12.0	18.4	15.2	13.1	12.8		
4					9.5	11.4	17.9	16.0	13.5	12.7		
5					10.5	10.7	16.5	17.4	13.9	11.7		
6					10.0	10.8	16.4	18.0	14.4	12.0		
7					8.8	10.0	17.0	17.9	14.9	12.2		
8					8.3	11.1	18.1	17.1	14.8	10.6		
9					8.2	11.7	19.3	16.0	14.4	9.3		
10					9.3	10.1	18.5	15.2	13.5	8.5		
11					9.9	10.1	16.6	16.0	13.3	8.2		
12					8.9	11.1	17.0	17.1	13.8	8.6		
13					8.9	12.7	18.0	17.2	13.2	10.1		
14					10.6	13.0	18.2	18.0	13.1	10.6		
15					12.6	13.2	18.3	18.8	13.3	9.4		
16					14.1	13.9	18.3	19.4	13.5	9.4		
17					15.1	13.2	17.5	19.4	14.0	10.3		
18					15.1	12.2	16.3	17.3	13.1	10.9		
19					14.6	13.3	16.0	15.5	12.5	9.8		
20					13.9	14.7	16.4	15.1	12.6	9.3		
21					12.2	15.4	17.0	14.8	12.5	9.0		
22					10.8	e15.1	16.4	14.9	12.5	8.1		
23					10.1		15.5	15.5	11.2	8.1		
24					11.9		15.7	15.5	10.9	7.9		
25					12.7		16.7	14.9	11.7	8.0		
26					11.7		16.3	14.4	11.3	8.4		
27					11.9		15.7	14.6	12.1	8.5		
28					12.3		15.9	14.8	12.2	8.3		
29					12.1		15.5	15.7	12.4	8.3		
30		—			12.7	e20.6	14.6	14.8	12.7	8.4		
31		—		—	13.4	—	15.0	12.3	—	9.3	—	
<b>MEAN</b>					e11.4	e12.6	16.9	16.2	12.9	9.8		
<b>MAX</b>					e15.1	e20.6	19.3	19.4	14.9	13.1		
<b>MIN</b>					e8.2	e10.0	14.6	12.3	10.9	7.9		

e=estimated value due to incomplete record



**SCLO – 14202850 — SCOGGINS CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 9.3]**

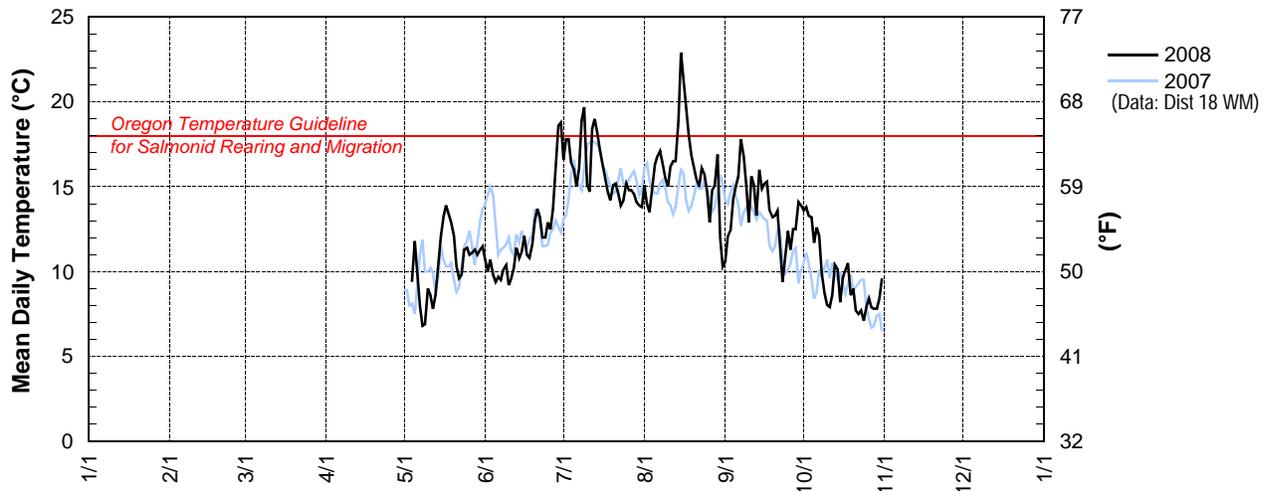
Latitude: 45 30 06 Longitude: 123 15 06

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						10.7	16.6	15.1	10.6	13.6		
2						10.0	17.8	14.0	12.1	13.8		
3						10.7	17.8	13.5	12.5	13.3		
4					9.4	9.8	16.4	14.9	14.3	13.2		
5					11.8	9.4	16.0	16.3	15.0	11.7		
6					9.9	9.7	15.0	16.8	15.6	12.6		
7					8.0	9.5	16.1	17.1	17.8	12.1		
8					6.8	10.1	18.9	16.4	16.8	9.9		
9					6.9	10.4	19.7	15.5	15.1	8.7		
10					9.0	9.2	15.1	15.0	12.9	8.0		
11					8.6	9.6	14.7	16.2	15.6	7.9		
12					7.8	10.2	18.4	16.5	15.1	8.6		
13					8.6	11.4	19.0	16.5	13.3	10.4		
14					10.1	10.8	18.2	18.9	16.0	10.1		
15					12.1	11.2	17.1	22.9	14.9	8.2		
16					13.2	12.1	16.3	21.4	15.2	9.6		
17					13.9	11.0	15.5	19.9	15.3	10.1		
18					13.4	10.8	14.7	18.1	13.6	10.5		
19					12.9	11.6	14.2	16.8	13.2	8.6		
20					12.1	13.0	15.1	16.1	13.3	9.0		
21					10.3	13.7	15.2	15.4	13.6	7.7		
22					9.6	13.2	14.6	15.0	11.4	7.5		
23					9.8	12.0	13.9	16.1	9.4	7.7		
24					11.3	12.0	14.2	15.7	11.1	7.1		
25					11.4	12.9	15.2	14.7	12.4	7.9		
26					11.0	12.5	14.8	12.9	11.3	8.4		
27					11.1	13.7	14.8	14.8	12.5	7.9		
28					11.3	16.1	14.6	15.1	12.5	7.8		
29					11.0	18.6	14.1	16.9	14.1	7.8		
30		—			11.3	18.8	13.9	12.0	13.9	8.4		
31		—		—	11.5	—	13.8	10.3	—	9.6	—	
MEAN					e10.4	11.8	15.9	16.0	13.7	9.6		
MAX					e13.9	18.8	19.7	22.9	17.8	13.8		
MIN					e6.8	9.2	13.8	10.3	9.4	7.1		

e=estimated value due to incomplete record

**SCLO – 14202850 – Scoggins Creek above Henry Hagg Lake near Gaston, Oregon [RM 9.3]**



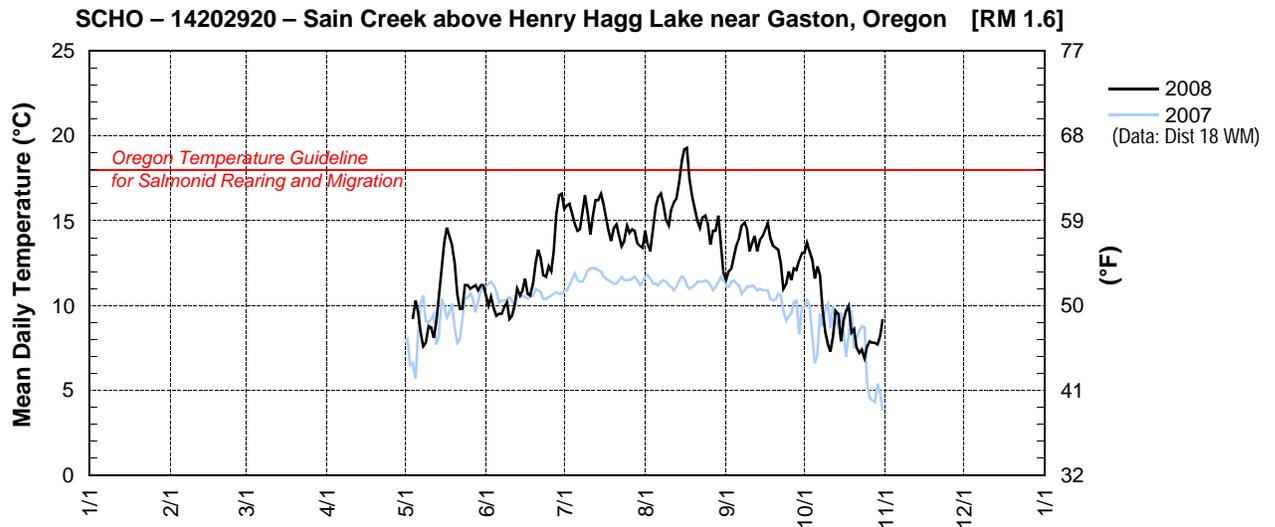
**SCHO – 14202920 — SAIN CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 1.6]**

Latitude: 45 28 50 Longitude: 123 14 40

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						10.6	15.7	14.4	11.5	13.1		
2						10.0	15.9	13.6	12.0	13.7		
3						10.5	16.0	13.2	12.2	13.2		
4					9.2	9.8	15.4	14.5	12.9	12.7		
5					10.3	9.4	14.8	15.8	13.6	11.6		
6					9.6	9.5	14.4	16.4	14.0	12.3		
7					8.4	9.5	14.5	16.6	14.7	11.8		
8					7.6	9.9	15.5	16.0	14.9	9.8		
9					7.8	10.2	16.5	15.0	14.5	8.4		
10					8.8	9.2	15.4	14.7	13.2	7.7		
11					8.7	9.4	14.2	15.7	13.7	7.3		
12					8.1	10.0	15.3	16.1	14.1	8.2		
13					9.0	11.0	16.2	16.3	13.2	9.7		
14					10.4	10.6	16.2	17.3	13.9	9.5		
15					12.2	10.9	16.6	18.5	14.1	7.9		
16					13.7	11.6	16.0	19.2	14.5	9.1		
17					14.6	10.7	15.2	19.3	14.9	9.7		
18					14.1	10.6	14.4	17.5	14.0	10.0		
19					13.6	11.3	13.8	16.4	13.5	8.4		
20					12.5	12.5	14.6	15.7	13.4	8.6		
21					10.7	13.3	14.8	15.0	13.3	7.5		
22					9.8	12.8	14.1	14.6	12.5	7.2		
23					9.8	11.8	13.5	15.2	11.0	7.4		
24					11.2	11.7	13.8	15.3	11.3	6.9		
25					11.2	12.3	14.7	14.8	12.0	7.6		
26					11.0	12.0	14.3	13.6	11.5	7.9		
27					11.1	13.2	14.5	14.4	12.2	7.8		
28					11.2	15.4	14.4	14.4	12.1	7.8		
29					10.9	16.5	13.7	15.3	12.7	7.7		
30		—			11.2	16.6	13.5	13.6	13.1	8.2		
31		—		—	11.2	—	13.4	11.9	—	9.2	—	
<b>MEAN</b>					e10.6	11.4	14.9	15.5	13.2	9.3		
<b>MAX</b>					e14.6	16.6	16.6	19.3	14.9	13.7		
<b>MIN</b>					e7.6	9.2	13.4	11.9	11.0	6.9		

e=estimated value due to incomplete record

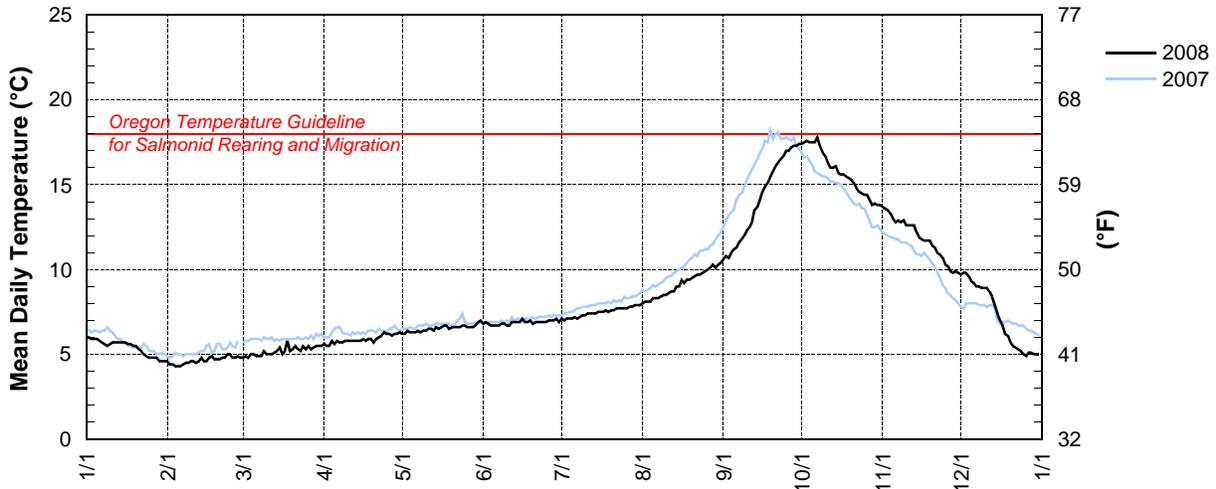


UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER  
**STATION NUMBER 14202980 SCOGGINS CK BLW HENRY HAGG LAKE, NR GASTON, OR**  
 LATITUDE: 452810 LONGITUDE: 12311561

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1	6.0	4.6	4.8	5.6	6.2	6.8	7.1	8.0	10.6	17.5	13.8	9.7
2	6.0	4.4	4.9	5.5	6.2	6.9	7.0	8.1	10.8	17.5	13.6	9.8
3	5.9	4.4	4.8	5.5	6.4	6.8	7.1	8.1	10.7	17.6	13.5	9.8
4	5.9	4.3	5.0	5.8	6.4	6.7	7.1	8.1	11.0	17.5	13.3	9.6
5	5.9	4.4	5.0	5.6	6.3	6.7	7.1	8.3	11.2	17.5	13.0	9.3
6	5.8	4.3	4.9	5.8	6.3	6.7	7.2	8.4	11.3	17.5	12.9	9.2
7	5.7	4.4	4.9	5.7	6.4	6.7	7.2	8.3	11.7	17.8	12.9	9.1
8	5.6	4.5	4.9	5.8	6.3	6.8	7.2	8.4	11.8	17.3	12.8	9.0
9	5.5	4.5	5.2	5.8	6.4	6.8	7.3	8.5	12.0	16.9	12.9	8.9
10	5.6	4.6	5.0	5.8	6.4	6.7	7.3	8.5	12.3	16.7	12.6	8.9
11	5.7	4.6	5.1	5.8	6.5	6.7	7.4	8.6	12.5	16.4	12.6	8.9
12	5.7	4.5	5.0	5.8	6.5	6.9	7.4	8.7	12.8	16.0	12.6	8.7
13	5.7	4.6	5.1	5.8	6.4	6.9	7.4	8.7	13.5	16.0	12.6	8.4
14	5.7	4.8	5.2	5.8	6.6	6.9	7.4	9.0	13.7	16.1	12.2	7.9
15	5.7	4.6	5.4	5.8	6.5	6.9	7.5	9.0	14.0	15.8	11.9	7.4
16	5.7	4.7	5.0	5.9	6.6	7.1	7.5	9.4	14.6	15.6	11.8	7.0
17	5.6	4.8	5.2	5.8	6.7	6.9	7.5	9.2	14.9	15.6	11.7	6.7
18	5.6	4.9	5.8	5.9	6.8	6.9	7.6	9.4	15.1	15.5	11.7	6.2
19	5.5	4.7	5.2	5.9	6.5	7.0	7.5	9.4	15.5	15.4	11.7	6.1
20	5.5	4.7	5.3	5.8	6.6	6.8	7.6	9.5	15.8	15.3	11.4	5.7
21	5.4	4.7	5.5	5.9	6.6	6.9	7.6	9.6	16.1	15.1	11.3	5.5
22	5.2	4.8	5.3	6.1	6.6	6.9	7.7	9.7	16.3	14.8	11.0	5.4
23	5.0	4.8	5.2	6.1	6.6	6.9	7.7	9.7	16.5	14.7	10.9	5.3
24	4.9	5.0	5.5	6.3	6.7	6.9	7.7	9.8	16.7	14.6	10.7	5.2
25	4.8	5.0	5.3	6.2	6.7	6.9	7.7	9.9	17.0	14.4	10.3	5.0
26	4.8	4.8	5.5	6.2	6.6	7.0	7.7	10.0	17.0	14.4	10.2	4.9
27	4.8	4.8	5.4	6.1	6.6	7.0	7.9	10.1	17.2	14.1	9.9	5.1
28	4.8	4.9	5.4	6.2	6.7	7.0	7.8	10.3	17.4	13.8	9.8	5.1
29	4.7	4.8	5.5	6.2	6.7	7.1	7.9	10.2	17.3	13.9	9.9	5.0
30	4.6	—	5.5	6.3	6.9	6.9	7.9	10.3	17.4	13.8	9.8	5.0
31	4.6	—	5.5	—	7.0	—	7.9	10.5	—	13.8	—	5.0
MEAN	5.4	4.7	5.2	5.9	6.5	6.9	7.5	9.1	14.2	15.8	11.9	7.2
MAX	6.0	5.0	5.8	6.3	7.0	7.1	7.9	10.5	17.4	17.8	13.8	9.8
MIN	4.6	4.3	4.8	5.5	6.2	6.7	7.0	8.0	10.6	13.8	9.8	4.9

<sup>†</sup> Provisional data—subject to revision

SCOO – 14202980 – Scoggins Creek below Henry Hagg Lake near Gaston, Oregon [RM 4.80]



**DLLO – 14203500 – TUALATIN RIVER AT DILLEY, OREGON [RM 58.8]**

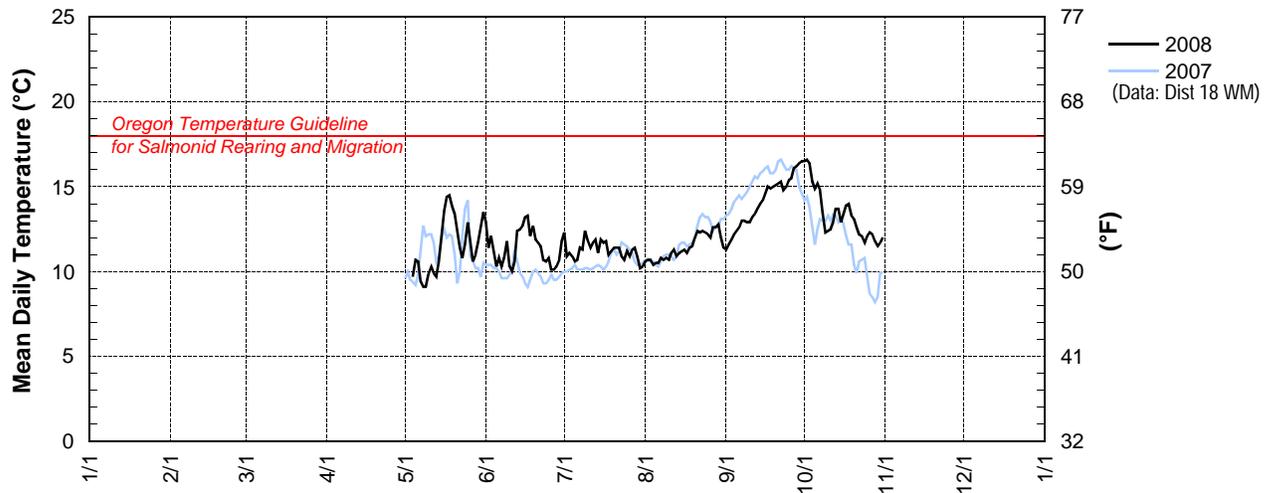
Latitude: 45 28 30 Longitude: 123 07 23

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						12.9	12.3	10.6	11.3	16.5		
2						11.4	10.9	10.7	11.6	16.6		
3						12.1	11.1	10.7	11.9	16.4		
4					9.7	11.1	10.9	10.4	12.2	15.3		
5					10.7	10.3	10.6	10.5	12.4	14.9		
6					10.6	10.8	10.7	10.5	12.6	15.2		
7					9.4	10.3	11.4	10.8	13.0	14.8		
8					9.1	10.8	11.3	10.7	13.0	13.5		
9					9.1	11.8	12.4	10.8	12.9	12.3		
10					9.9	10.3	11.8	10.7	12.9	12.4		
11					10.3	10.0	11.4	11.1	13.2	12.5		
12					9.9	10.6	11.7	11.3	13.4	12.9		
13					9.7	12.4	11.9	10.9	13.7	13.7		
14					10.6	12.5	11.1	11.1	14.0	13.7		
15					12.3	12.7	11.9	11.2	14.2	12.9		
16					13.6	13.2	11.7	11.3	14.6	13.4		
17					14.4	13.3	11.8	11.1	15.0	13.9		
18					14.5	12.1	11.0	11.4	14.9	14.0		
19					13.9	12.7	11.2	11.5	15.0	13.3		
20					13.4	11.9	11.4	12.0	15.1	13.1		
21					12.4	11.7	11.4	12.4	15.2	12.6		
22					11.4	11.5	11.4	12.3	15.3	12.2		
23					10.8	10.7	10.9	12.4	14.8	12.1		
24					11.6	10.6	10.7	12.3	15.0	11.7		
25					12.9	10.8	11.2	12.2	15.4	12.1		
26					11.7	10.1	10.9	12.0	15.5	12.3		
27					10.6	10.1	11.3	12.6	16.1	12.2		
28					11.0	10.3	11.4	12.6	16.2	11.8		
29					11.7	10.7	10.9	12.8	16.4	11.5		
30		—			12.7	11.8	10.2	12.0	16.5	11.7		
31		—		—	13.5	—	10.3	11.4	—	12.0	—	
MEAN					e11.4	11.4	11.3	11.4	14.1	13.3		
MAX					e14.5	13.3	12.4	12.8	16.5	16.6		
MIN					e9.1	10.0	10.2	10.4	11.3	11.5		

e=estimated value due to incomplete record

**DLLO – 14203500 – Tualatin River at Dilley, Oregon [RM 58.8]**



**GCCH – 14204540 – GALES CREEK AT CLAPSHAW HILL ROAD NEAR GALES CREEK, OREGON [RM 12.36]**

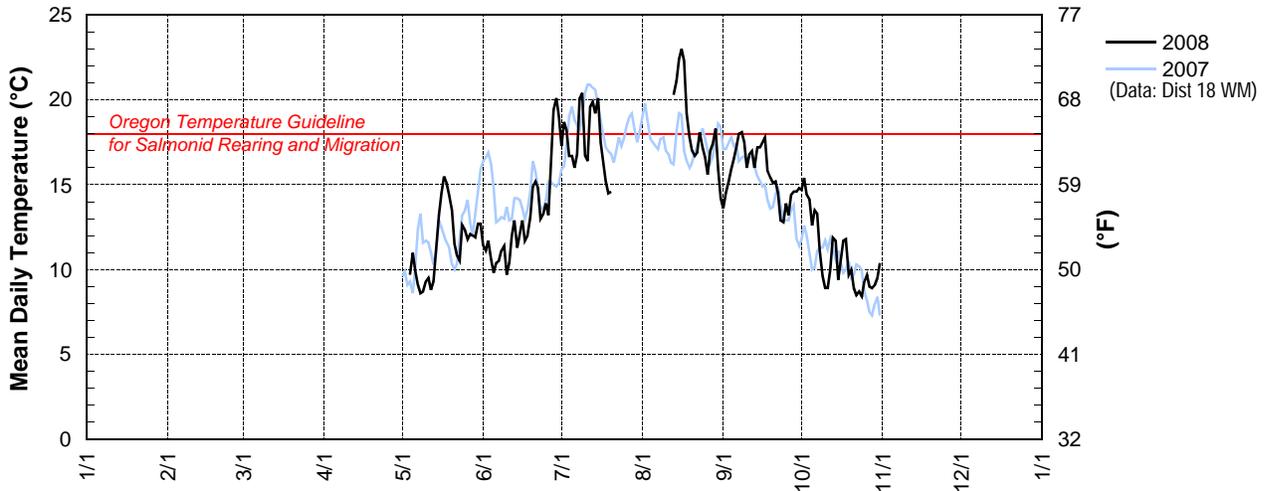
Latitude: 45 35 39 Longitude: 123 12 38

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						11.4	17.3		13.6	14.7		
2						11.1	18.7		14.5	15.4		
3						11.7	18.2		15.2	14.4		
4					9.7	10.6	16.7		15.9	14.1		
5					11.0	9.8	16.7		16.5	12.6		
6					9.9	10.4	16.0		17.2	13.5		
7					9.1	10.5	16.8		18.0	13.3		
8					8.6	11.1	20.1		18.1	11.1		
9					8.7	11.4	20.4		17.5	9.6		
10					9.3	9.7	16.7		16.0	8.9		
11					9.5	10.4	16.4		16.8	8.9		
12					8.8	12.0	19.6		17.0	10.0		
13					9.3	12.9	19.9	e20.3	16.0	11.9		
14					11.0	11.3	19.2	21.1	17.2	11.7		
15					13.2	12.1	20.1	22.4	17.2	9.4		
16					14.5	12.9	17.5	23.0	17.5	10.6		
17					15.5	11.7	16.4	22.3	17.8	11.7		
18					15.1	12.0	15.2	19.2	15.8	11.8		
19					14.4	13.1	14.5	17.8	15.4	9.7		
20					13.5	14.9	e14.6	17.0	15.1	10.0		
21					11.5	15.2		16.7	15.2	8.9		
22					10.8	14.8		16.9	14.5	8.5		
23					10.5	13.0		18.1	12.9	8.7		
24					12.6	13.3		17.2	12.8	8.4		
25					12.3	13.9		16.6	13.9	9.3		
26					11.8	13.2		15.6	13.2	9.7		
27					12.1	16.0		17.0	14.4	9.0		
28					12.0	19.4		17.4	14.6	8.9		
29					11.9	20.1		18.3	14.6	9.1		
30		—			12.7	19.0		15.9	14.8	9.5		
31		—		—	12.7	—		14.2	—	10.4	—	
MEAN					e11.4	13.0	e17.6	e18.3	15.6	10.8		
MAX					e15.5	20.1	e20.4	e23.0	18.1	15.4		
MIN					e8.6	9.7	e14.5	e14.2	12.8	8.4		

e=estimated value due to incomplete record

**GCCH – 14204540 – Gales Creek at Clapshaw Hill Road near Gales Creek, Oregon [RM 12.36]**



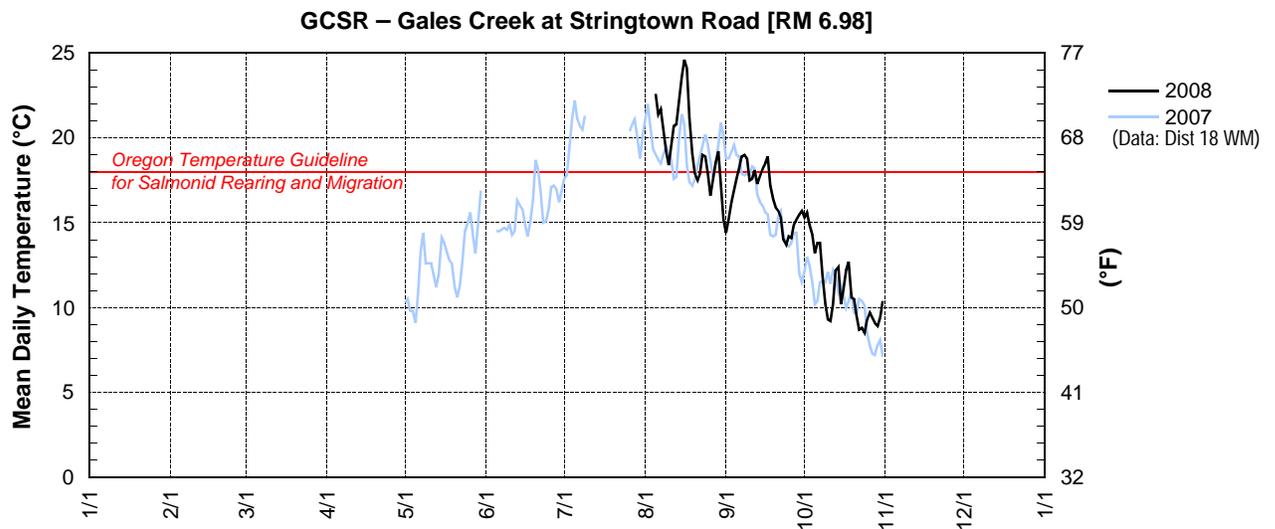
**GCSR – GALES CREEK AT STRINGTOWN ROAD [RM 6.98]**

Latitude: 45 32 26 Longitude: 123 10 09

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1									14.4	15.3		
2									15.2	15.6		
3									16.2	14.9		
4									16.9	14.3		
5								e22.6	17.6	13.2		
6								21.4	18.2	13.8		
7								21.7	18.9	13.8		
8								20.6	19.0	11.9		
9								19.2	18.8	10.2		
10								18.4	17.5	9.3		
11								19.6	17.6	9.2		
12								20.7	18.1	10.2		
13								20.8	17.3	12.2		
14								22.2	17.8	12.4		
15								23.6	18.2	10.2		
16								24.6	18.5	11.1		
17								24.1	18.9	12.2		
18								21.2	17.2	12.7		
19								19.1	16.4	10.6		
20								17.9	15.9	10.5		
21								17.5	15.7	9.5		
22								17.9	15.3	8.7		
23								19.0	14.0	8.8		
24								18.9	13.7	8.5		
25								17.9	14.2	9.3		
26								16.6	14.1	9.7		
27								17.5	14.9	9.4		
28								18.5	15.2	9.1		
29								19.2	15.5	8.9		
30		—						17.4	15.7	9.4		
31		—		—		—		15.2	—	10.4	—	
<b>MEAN</b>								e19.7	16.6	11.1		
<b>MAX</b>								e24.6	19.0	15.6		
<b>MIN</b>								e15.2	13.7	8.5		

e=estimated value due to incomplete record

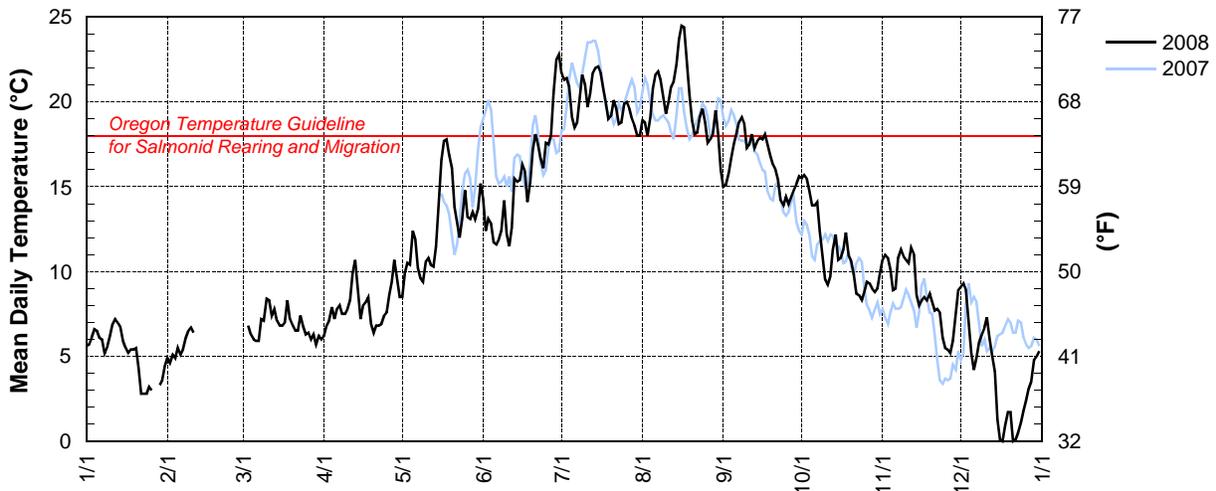


UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER  
**STATION NUMBER 453040123065201\* GALES CREEK AT OLD HWY 47, FOREST GROVE, OR**  
 LATITUDE: 453039.75 LONGITUDE: 1230652.0

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1	5.6	4.9		6.2	8.5	14.3	21.7	19.0	15.1	15.5	10.7	9.1
2	5.7	4.6		6.8	9.8	12.4	21.3	18.8	15.1	15.7	11.0	9.3
3	6.1	5.1	6.8	7.1	10.6	13.1	21.4	18.0	15.8	15.5	10.8	8.9
4	6.6	4.9	6.3	7.9	10.3	12.8	21.0	19.1	16.7	14.7	10.1	7.1
5	6.6	5.5	6.0	7.2	12.3	11.7	19.2	20.8	17.4	13.9	8.9	5.2
6	6.1	5.1	5.9	7.8	12.0	11.6	18.5	21.6	18.1	13.9	9.0	4.2
7	6.0	5.5	5.9	8.0	10.2	11.9	18.9	21.8	18.8	14.1	10.8	4.8
8	5.2	6.1	7.2	7.6	9.6	12.3	20.2	21.3	19.1	12.5	11.3	5.8
9	5.6	6.5	7.1	7.5	9.4	14.2	21.6	20.4	18.8	10.9	10.9	6.3
10	6.2	6.7	8.4	7.8	10.6	12.2	21.1	19.4	17.3	9.5	10.7	6.7
11	6.9	6.4	8.3	8.2	10.8	11.5	19.7	19.9	17.5	9.2	10.5	7.3
12	7.2		7.4	9.8	10.4	12.5	20.5	20.8	18.1	9.7	11.4	6.1
13	7.0		7.8	10.7	10.3	15.5	21.7	21.2	17.3	11.3	11.1	5.1
14	6.7		7.1	9.0	11.4	15.4	22.0	22.2	17.7	12.2	8.7	4.2
15	5.9		6.8	7.2	14.1	15.4	22.1	23.7	17.9	10.7	8.1	1.4
16	5.5		6.8	7.9	16.5	16.3	21.7	24.5	17.8	10.8	8.3	0.1
17	5.2		7.0	8.1	17.7	16.0	20.8	24.5	18.1	11.3	8.5	0.0
18	5.4		8.3	8.5	17.8	14.1	20.0	22.5	17.5	12.3	8.3	0.8
19	5.4		7.3	6.9	17.0	15.3	19.0	20.5	16.8	11.0	8.7	1.7
20	5.5		6.8	6.4	16.2	17.2	19.2	19.0	16.4	10.6	8.2	1.7
21	4.3		6.5	6.8	13.8	18.1	20.1	18.1	16.0	9.9	7.7	0.0
22	2.9		6.5	6.8	12.9	17.5	19.6	18.2	15.5	8.8	7.9	0.1
23	2.8		7.4	6.9	12.0	16.8	18.7	19.1	14.2	8.6	7.6	0.5
24	2.8		6.8	7.4	13.0	16.1	18.8	19.6	13.9	8.3	6.1	1.1
25	3.2		6.3	7.6	14.9	17.6	19.9	18.8	14.4	8.8	5.5	1.8
26	3.0		6.4	8.6	13.3	17.5	20.0	17.6	14.0	9.4	5.4	2.4
27			6.0	9.4	13.1	17.9	19.6	17.8	14.4	9.3	5.2	3.1
28			6.3	10.6	13.5	20.5	19.0	18.1	14.8	9.0	5.9	3.5
29	3.3		5.7	9.6	13.1	22.5	18.7	19.5	15.2	8.8	7.5	4.8
30	3.6	—	6.2	8.5	13.7	22.8	18.0	18.2	15.6	9.0	8.9	5.0
31	4.4	—	6.0	—	15.2	—	18.0	16.0	—	9.9	—	5.3
MEAN	5.3	e5.5	e6.8	8.0	12.7	15.4	20.1	20.0	16.4	11.1	8.8	4.0
MAX	7.2	e6.7	e8.4	10.7	17.8	22.8	22.1	24.5	19.1	15.7	11.4	9.3
MIN	2.8	e4.6	e5.7	6.2	8.5	11.5	18.0	16.0	13.9	8.3	5.2	0.0

<sup>†</sup>Provisional data—subject to revision; estimated value

**GALES – 453040123065201\* – Gales Creek at Old Hwy 47 near Forest Grove, Oregon [RM 2.36]**



\*USGS #453040123065201 is equivalent to OWRD #14204530.

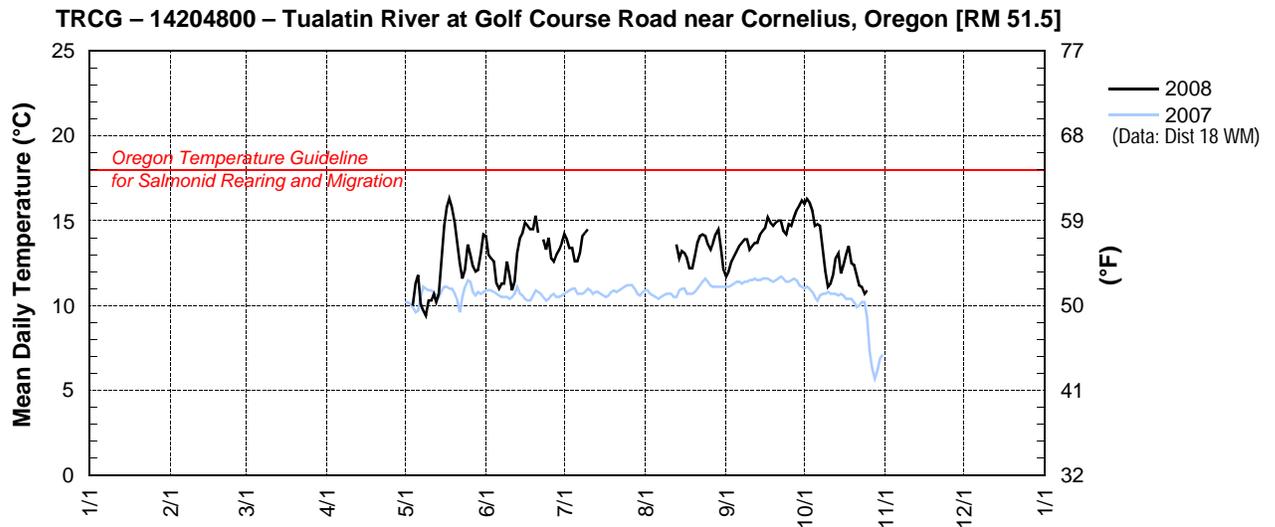
**TRGC – 14204800 – TUALATIN RIVER AT GOLF COURSE ROAD NEAR CORNELIUS, OREGON [RM 51.5]**

Latitude: 45 30 39 Longitude: 123 06 56

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						14.1	14.2		11.7	16.0		
2						13.0	13.9		12.0	16.3		
3						12.8	13.4		12.6	16.1		
4					10.0	12.6	13.4		12.9	15.6		
5					11.3	11.3	12.6		13.2	14.7		
6					11.8	11.0	12.6		13.5	14.8		
7					10.1	11.3	13.1		13.7	14.7		
8					9.7	11.3	14.1		13.9	13.4		
9					9.4	12.6	14.3		13.9	12.0		
10					10.3	11.8	e14.5		13.3	11.1		
11					10.3	10.9			13.5	11.3		
12					10.7	11.4			13.7	11.8		
13					10.2	13.1		e13.6	13.7	12.8		
14					10.7	14.0		12.8	14.2	13.1		
15					12.8	14.3		13.2	14.4	11.9		
16					14.7	14.9		13.1	14.6	12.4		
17					15.8	14.7		12.8	15.2	13.0		
18					16.3	14.5		12.2	14.9	13.5		
19					15.8	14.5		12.2	14.7	12.5		
20					14.9	15.3		12.9	14.9	12.4		
21					13.7	e14.3		13.7	15.0	11.8		
22					12.5			14.1	15.0	11.2		
23					11.6	e13.9		14.2	14.4	11.1		
24					12.1	13.3		14.1	14.2	10.7		
25					13.6	14.0		13.6	14.8	e10.9		
26					13.0	12.8		13.3	14.7			
27					12.3	12.6		13.7	15.2			
28					12.0	13.0		14.2	15.6			
29					12.1	13.3		14.5	15.9			
30		—			13.1	13.7		13.4	16.2			
31		—		—	14.2	—		12.1	—		—	
MEAN					e12.3	e13.1	e13.6	e13.3	14.2	e13.0		
MAX					e16.3	e15.3	e14.3	e14.5	16.2	e16.3		
MIN					e9.4	e10.9	e12.6	e12.1	11.7	e10.7		

e=estimated value due to incomplete record



**WFDM – WEST FORK DAIRY CREEK AT MANNING, OREGON [RM 12.9]**

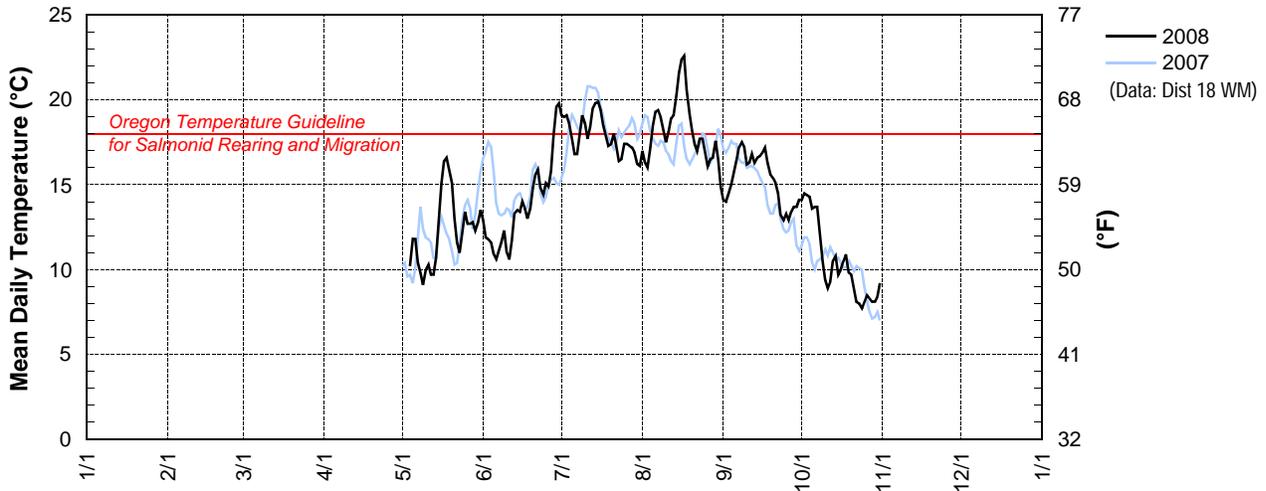
Latitude: 45 39 36 Longitude 123 09 18

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						12.9	19.1	17.0	14.1	14.1		
2						11.9	19.0	16.3	14.0	14.5		
3						11.8	19.1	16.0	14.5	14.4		
4					10.2	11.6	18.6	17.2	15.0	14.3		
5					11.8	10.9	17.7	18.5	15.7	13.6		
6					11.8	10.6	16.8	19.3	16.4	13.7		
7					10.4	11.1	16.8	19.4	17.2	13.7		
8					9.8	11.6	17.9	19.0	17.5	12.1		
9					9.1	12.3	19.1	18.2	17.2	10.5		
10					10.0	11.0	18.6	17.5	16.2	9.4		
11					10.3	10.6	17.7	18.1	16.3	8.9		
12					9.7	11.7	18.4	18.9	16.8	9.3		
13					9.7	13.3	19.5	19.1	16.3	10.5		
14					10.7	13.5	19.8	20.3	16.6	10.8		
15					13.1	13.4	19.9	21.6	16.7	9.7		
16					15.1	14.0	19.4	22.4	16.9	10.0		
17					16.4	13.6	18.5	22.6	17.2	10.5		
18					16.6	13.0	17.9	20.6	16.3	10.9		
19					15.9	13.6	17.3	19.2	15.6	9.8		
20					15.1	14.8	17.4	18.2	15.4	9.7		
21					13.0	15.6	18.0	17.4	15.1	8.9		
22					11.6	15.9	17.3	17.0	14.5	8.1		
23					11.0	14.8	16.4	17.7	13.2	8.0		
24					12.2	14.4	16.5	17.7	12.9	7.7		
25					13.4	15.1	17.4	16.9	13.3	8.1		
26					12.7	14.9	17.4	16.1	12.9	8.5		
27					12.7	15.8	17.3	16.5	13.4	8.3		
28					12.8	17.9	17.2	16.6	13.7	8.1		
29					12.3	19.6	16.9	17.6	13.7	8.1		
30		—			12.8	19.8	16.2	16.5	14.1	8.4		
31		—		—	13.5	—	16.1	14.9	—	9.2	—	
MEAN					e12.2	13.7	17.9	18.2	15.3	10.4		
MAX					e16.6	19.8	19.9	22.6	17.5	14.5		
MIN					e9.1	10.6	16.1	14.9	12.9	7.7		

e=estimated value due to incomplete record

**WFDM – West Fork Dairy Creek at Manning, Oregon [RM 12.9]**



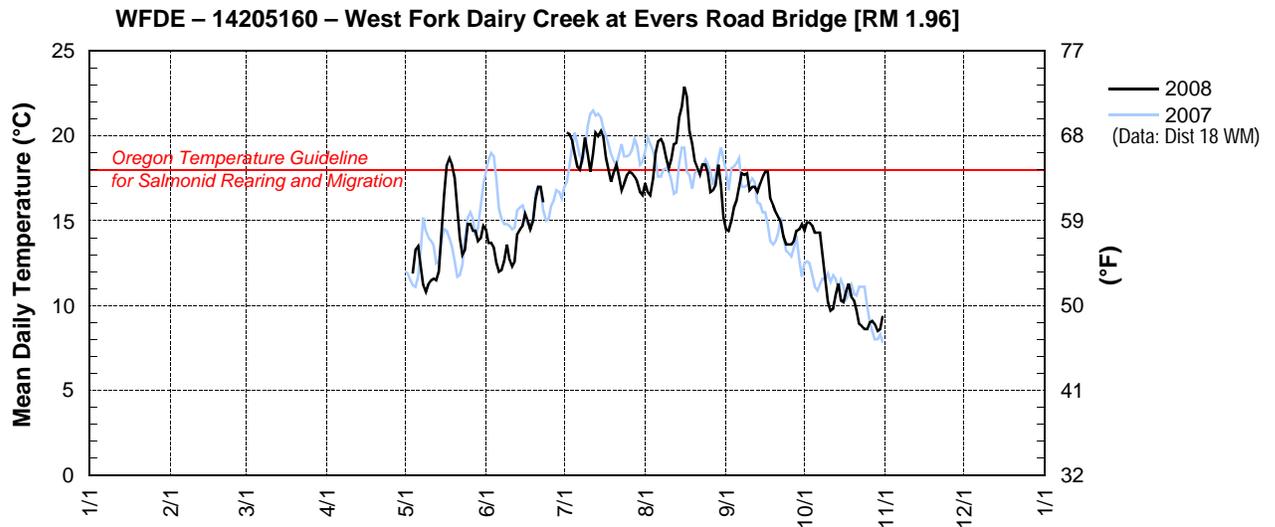
**WFDE – 14205160 – WEST FORK DAIRY CREEK AT EVERS ROAD BRIDGE [RM 1.96]**

Latitude: 45 34 34 Longitude: 123 05 34

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						14.5		17.2	14.5	14.4		
2						13.7	e20.2	16.7	14.4	14.9		
3						13.7	20.1	16.5	15.0	14.9		
4					11.9	13.4	19.7	17.5	15.8	14.7		
5					13.3	12.5	18.9	19.0	16.2	14.3		
6					13.5	12.0	18.2	19.7	17.0	14.3		
7					12.4	12.1	18.0	19.8	17.8	14.3		
8					11.2	12.6	18.7	19.5	17.7	12.9		
9					10.8	13.6	19.9	18.7	17.8	11.5		
10					11.3	12.7	18.9	18.1	16.8	10.2		
11					11.5	12.3	17.9	18.6	17.0	9.7		
12					11.6	12.6	18.9	19.5	17.0	9.8		
13					11.5	14.2	20.2	19.6	16.7	10.6		
14					12.0	14.5	20.0	21.1	17.2	11.3		
15					14.2	14.7	20.3	21.7	17.6	10.3		
16					16.6	15.4	19.9	22.9	17.9	10.2		
17					18.3	15.0	18.7	22.3	17.9	10.8		
18					18.7	14.5	18.0	20.3	16.3	11.3		
19					18.3	15.0	17.3	19.5	15.9	10.5		
20					17.5	16.3	17.9	18.5	15.5	10.3		
21					15.6	17.0	18.3	18.1	15.2	9.7		
22					14.0	17.0	17.6	17.7	14.9	8.9		
23					13.0	e16.1	16.8	18.3	14.1	8.8		
24					13.3		17.2	18.3	13.6	8.6		
25					14.8		17.7	17.8	13.6	8.6		
26					14.8		17.9	16.7	13.6	9.0		
27					14.4		17.8	16.8	13.8	9.1		
28					14.4		17.6	17.1	14.4	8.9		
29					13.8		17.3	18.3	14.5	8.5		
30		—			14.0		16.7	17.1	14.8	8.6		
31		—		—	14.7	—	16.5	15.2	—	9.4	—	
MEAN					e13.9	e14.1	e18.4	18.7	15.8	10.9		
MAX					e18.7	e17.0	e20.3	22.9	17.9	14.9		
MIN					e10.8	e12.0	e16.5	15.2	13.6	8.5		

e=estimated value due to incomplete record



**EFDD – 14205480 – EAST FORK DAIRY CREEK AT DAIRY CREEK ROAD NEAR MOUNTAINDALE, OR [RM 12.33]**

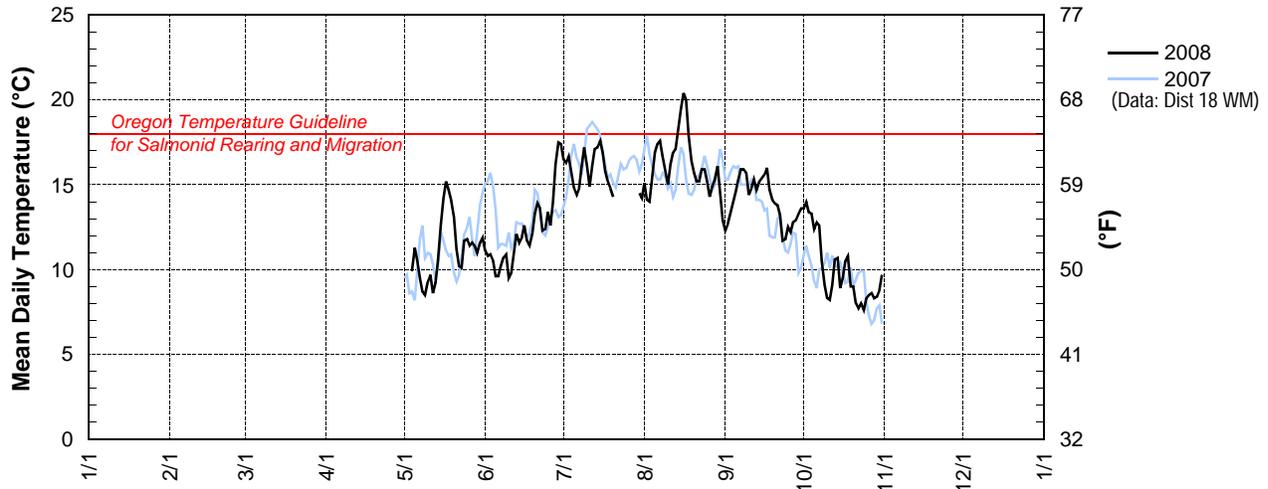
Latitude: 45 40 32 Longitude: 123 03 54

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						11.1	16.5	15.1	12.3	13.6		
2						10.8	16.3	14.1	12.7	14.0		
3						10.9	16.7	14.0	13.4	13.4		
4					9.9	10.5	15.8	15.5	14.0	13.3		
5					11.3	9.6	14.8	16.9	14.6	12.4		
6					10.5	9.6	14.4	17.4	15.3	12.8		
7					9.5	10.2	14.8	17.6	15.9	12.6		
8					8.7	10.7	16.1	16.7	15.9	10.5		
9					8.5	10.9	17.2	15.8	15.7	9.1		
10					9.3	9.5	16.1	15.0	14.4	8.3		
11					9.7	9.8	14.9	16.2	14.8	8.2		
12					8.6	11.0	16.1	16.9	15.3	9.1		
13					9.2	12.1	17.1	17.1	14.7	10.6		
14					10.6	11.6	17.2	18.3	15.2	10.7		
15					12.7	11.9	17.6	19.5	15.4	8.9		
16					14.2	12.6	16.9	20.4	15.6	9.5		
17					15.2	11.7	15.8	20.0	16.0	10.5		
18					14.7	11.4	15.2	17.9	14.7	10.8		
19					14.1	12.1	14.8	16.4	14.1	9.0		
20					13.1	13.3	e14.3	15.7	13.9	9.0		
21					11.2	13.9		15.2	13.8	8.0		
22					10.2	13.6		15.2	13.2	7.7		
23					10.1	12.3		15.9	11.7	8.0		
24					11.7	12.4		15.9	11.8	7.6		
25					11.8	13.4		15.2	12.5	8.3		
26					11.4	12.6		14.3	12.2	8.5		
27					11.6	14.0		14.9	12.8	8.6		
28					11.4	16.2		15.3	12.9	8.3		
29					11.0	17.5		16.1	13.3	8.4		
30		—			11.6	17.4	e14.5	14.6	13.6	8.8		
31		—		—	11.9	—	14.2	12.9	—	9.7	—	
MEAN					e11.2	12.2	e15.8	16.2	14.1	9.9		
MAX					e15.2	17.5	e17.6	20.4	16.0	14.0		
MIN					e8.5	9.5	e14.2	12.9	11.7	7.6		

e=estimated value due to incomplete record

**EFDD – 14205480 – East Fork Dairy Creek at Dairy Creek Road near Mountindale, Oregon [RM 12.33]**



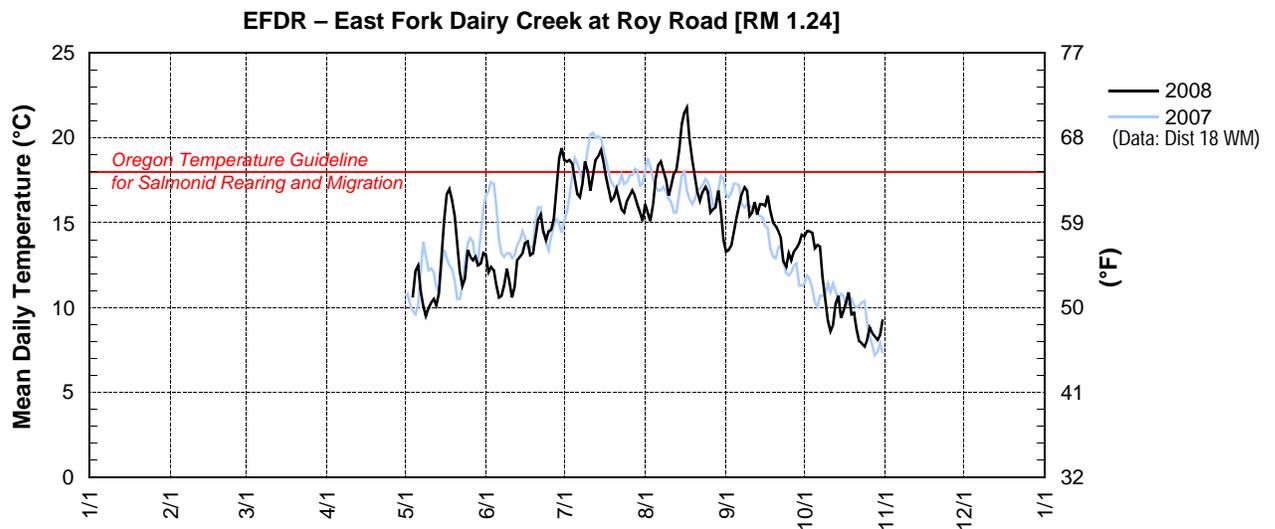
**EFDR – EAST FORK DAIRY CREEK AT ROY ROAD [RM 1.24]**

Latitude: 45 34 43 Longitude: 123 04 14

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						13.1	18.7	16.1	13.3	14.2		
2						12.1	18.6	15.6	13.4	14.5		
3						12.4	18.7	15.1	13.7	14.5		
4					10.6	12.2	18.5	16.1	14.5	14.4		
5					12.2	11.3	17.6	17.6	15.3	13.5		
6					12.5	10.6	16.7	18.4	16.0	13.7		
7					11.0	10.7	16.5	18.6	16.7	13.6		
8					10.1	11.3	17.3	18.1	17.1	11.8		
9					9.5	12.3	18.6	17.5	16.9	10.4		
10					10.0	11.5	18.0	16.6	15.4	9.2		
11					10.3	10.6	16.9	17.2	15.6	8.6		
12					10.5	11.2	17.8	17.9	16.2	9.0		
13					10.1	12.8	18.7	18.1	15.5	10.2		
14					10.8	13.0	18.9	19.3	16.1	10.7		
15					12.9	13.2	19.3	20.8	16.1	9.4		
16					15.2	13.8	18.6	21.5	16.0	9.8		
17					16.7	13.9	17.7	21.8	16.6	10.3		
18					17.0	13.1	17.0	20.0	15.7	10.9		
19					16.4	13.2	16.3	18.7	15.0	9.6		
20					15.4	14.2	16.5	17.8	14.8	9.7		
21					13.6	15.2	17.0	16.8	14.5	8.7		
22					12.1	15.5	16.4	16.3	14.1	8.0		
23					11.3	14.5	15.8	16.8	12.7	7.9		
24					11.7	14.0	15.6	17.1	12.4	7.7		
25					13.4	14.5	16.3	16.8	13.2	8.1		
26					13.0	14.6	16.6	15.6	12.8	8.8		
27					12.8	15.2	16.9	15.8	13.3	8.5		
28					13.0	17.0	16.6	15.9	13.5	8.3		
29					12.5	18.8	16.1	16.9	13.8	8.1		
30		—			12.6	19.4	15.6	15.7	14.3	8.4		
31		—		—	13.2	—	15.1	14.0	—	9.3	—	
MEAN					e12.5	13.5	17.3	17.4	14.8	10.3		
MAX					e17.0	19.4	19.3	21.8	17.1	14.5		
MIN					e9.5	10.6	15.1	14.0	12.4	7.7		

e=estimated value due to incomplete record



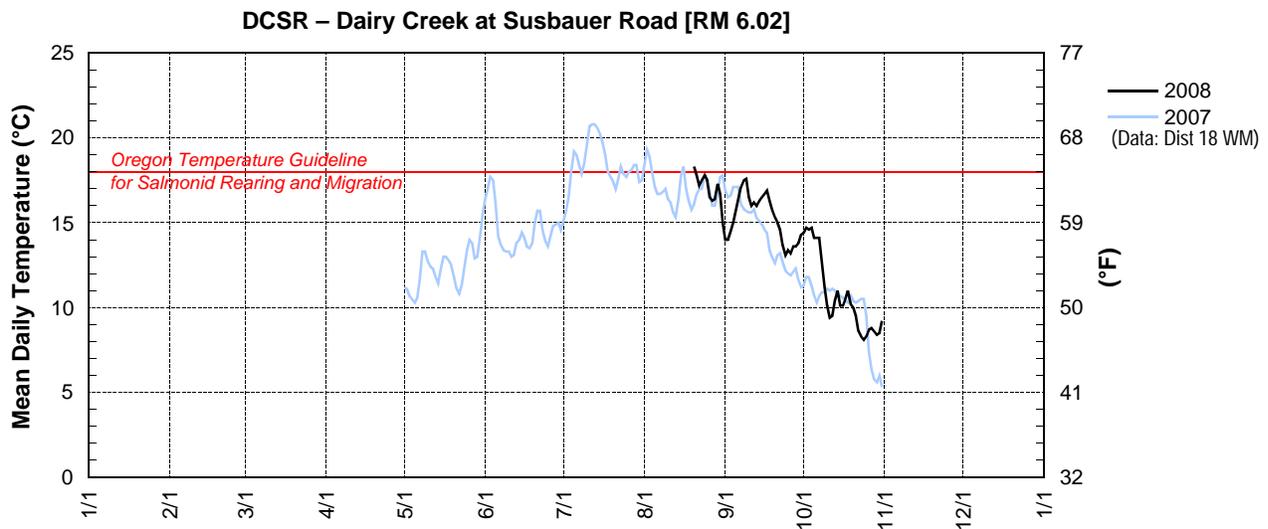
**DCSR – DAIRY CREEK AT SUSBAUER ROAD [RM 6.02]**

Latitude: 45 32 23 Longitude: 123 02 30

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1									14.0	14.4		
2									14.0	14.7		
3									14.5	14.6		
4									15.0	14.7		
5									15.7	14.1		
6									16.4	14.1		
7									17.1	14.1		
8									17.5	12.7		
9									17.6	11.2		
10									16.5	10.1		
11									16.0	9.4		
12									16.2	9.5		
13									16.0	10.4		
14									16.3	11.0		
15									16.5	10.1		
16									16.7	10.1		
17									16.9	10.5		
18									16.3	11.0		
19									15.7	10.2		
20								e18.3	15.3	10.0		
21								17.8	15.0	9.5		
22								17.2	14.6	8.6		
23								17.5	13.7	8.3		
24								17.8	13.1	8.1		
25								17.5	13.4	8.3		
26								16.5	13.2	8.7		
27								16.3	13.6	8.8		
28								16.4	13.6	8.6		
29								17.3	13.8	8.4		
30		—						16.7	14.3	8.5		
31		—		—		—		15.0	—	9.2	—	
MEAN								e17.0	15.3	10.7		
MAX								e18.3	17.6	14.7		
MIN								e15.0	13.1	8.1		

e=estimated value due to incomplete record



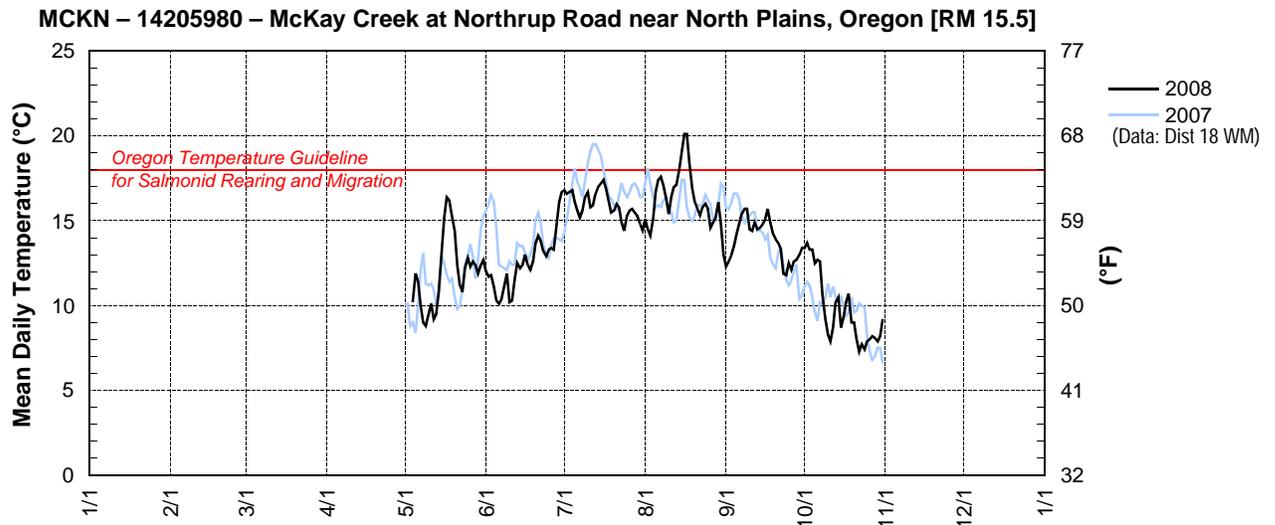
**MCKN – 14205980 – MCKAY CREEK AT NORTHRUP ROAD NEAR NORTH PLAINS, OREGON [RM 15.5]**

Latitude: 45 38 36 Longitude: 122 59 32

Source Agency: WEST Consultants for Clean Water Services

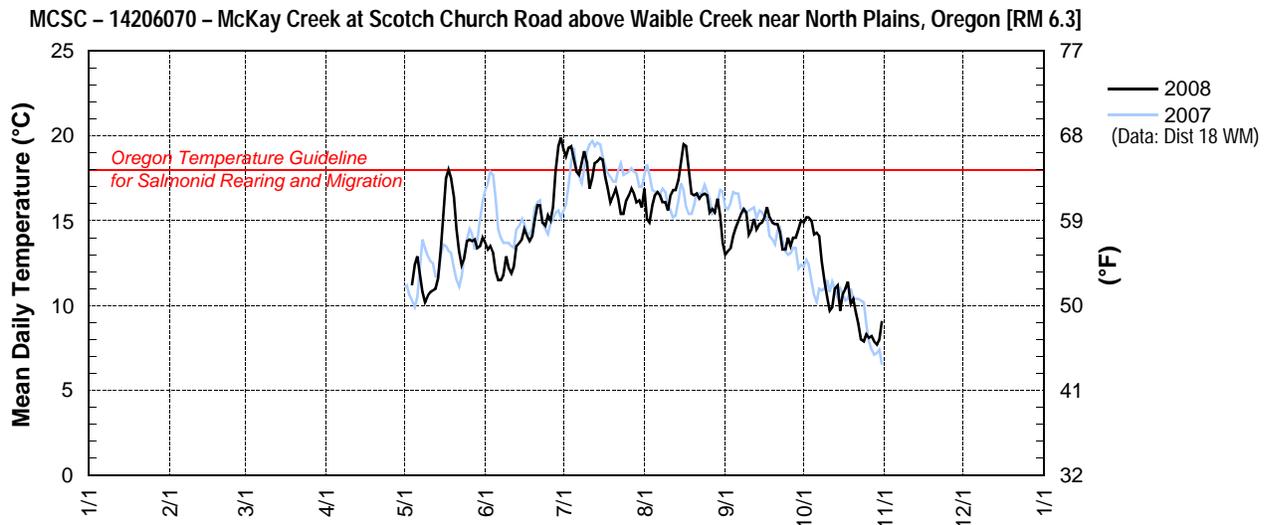
Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						12.0	16.8	15.1	12.3	13.4		
2						11.7	16.6	14.5	12.6	13.7		
3						11.8	16.7	14.1	13.0	13.3		
4					10.2	11.1	16.8	15.1	13.5	13.3		
5					11.9	10.3	16.1	16.7	14.2	12.5		
6					11.4	10.1	15.6	17.4	14.8	12.7		
7					10.0	10.4	15.2	17.6	15.4	12.6		
8					9.0	11.1	15.6	17.1	15.7	10.6		
9					8.8	11.9	16.4	16.3	15.7	9.2		
10					9.5	10.2	16.7	15.4	14.5	8.3		
11					10.1	10.3	15.8	16.4	14.4	7.9		
12					9.2	11.5	15.9	17.0	14.9	8.7		
13					9.5	12.5	16.6	17.1	14.5	10.2		
14					10.9	12.2	17.0	18.0	14.6	10.5		
15					13.1	12.4	17.2	19.1	14.8	8.7		
16					15.2	13.0	17.4	20.1	15.1	9.3		
17					16.4	12.4	16.9	20.1	15.7	10.2		
18					16.2	12.1	16.2	18.4	14.9	10.7		
19					15.3	12.6	15.5	16.9	14.2	9.0		
20					14.4	13.7	15.6	16.1	13.9	9.0		
21					12.4	14.1	16.0	15.7	13.7	8.0		
22					11.2	13.8	15.8	15.3	13.3	7.3		
23					10.8	13.2	14.9	15.8	11.9	7.7		
24					12.2	12.9	14.4	16.0	11.8	7.4		
25					12.8	13.3	15.3	15.7	12.5	7.9		
26					12.3	13.4	15.6	14.6	12.1	8.0		
27					12.6	13.3	15.7	14.9	12.6	8.2		
28					12.4	14.7	15.5	15.2	12.7	8.1		
29					11.9	16.1	15.3	16.1	13.0	7.9		
30		—			12.4	16.7	14.8	14.8	13.4	8.2		
31		—		—	12.7	—	14.4	13.0	—	9.2	—	
MEAN					e11.9	12.5	15.9	16.3	13.9	9.7		
MAX					e16.4	16.7	17.4	20.1	15.7	13.7		
MIN					e8.8	10.1	14.4	13.0	11.8	7.3		

e=estimated value due to incomplete record



Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						13.7	19.2	16.9	13.0	14.9		
2						13.3	18.8	15.1	13.2	15.2		
3						13.5	19.3	14.9	13.4	15.2		
4					11.2	13.1	19.4	15.9	14.1	15.0		
5					12.4	12.0	18.6	16.5	14.6	14.2		
6					12.9	11.5	17.9	16.7	15.0	14.3		
7					11.8	11.5	17.7	16.5	15.4	14.1		
8					10.8	11.8	18.4	16.1	15.7	12.6		
9					10.2	12.9	19.1	16.1	15.5	11.4		
10					10.6	12.2	18.4	15.6	14.2	10.5		
11					10.8	11.9	16.9	16.5	14.5	9.7		
12					10.9	12.3	17.5	16.8	15.1	9.9		
13					11.0	13.5	18.4	16.8	14.5	11.0		
14					11.6	13.7	18.5	17.4	14.8	11.2		
15					13.4	13.9	18.7	18.4	14.9	9.7		
16					15.6	14.5	18.6	19.5	15.2	10.7		
17					17.5	14.1	17.6	19.4	15.8	11.0		
18					18.0	13.8	16.9	18.1	15.2	11.4		
19					17.5	14.1	16.1	16.6	14.9	10.1		
20					16.4	15.1	16.5	16.5	14.8	10.4		
21					14.5	15.9	16.9	16.6	14.8	9.6		
22					13.2	15.9	16.3	16.3	14.3	8.9		
23					12.4	14.9	15.4	16.5	13.3	8.0		
24					12.8	14.7	15.4	16.6	13.3	7.9		
25					13.8	15.3	16.2	16.5	14.0	8.3		
26					13.9	15.0	16.5	15.5	13.5	8.1		
27					13.8	15.8	16.9	15.7	14.0	8.2		
28					13.9	17.9	16.6	15.5	14.0	7.9		
29					13.4	19.4	16.1	16.3	14.5	7.7		
30		—			13.5	19.9	16.2	15.3	15.0	8.0		
31		—		—	14.0	—	15.8	13.7	—	9.1	—	
MEAN					e13.2	14.2	17.4	16.5	14.5	10.8		
MAX					e18.0	19.9	19.4	19.5	15.8	15.2		
MIN					e10.2	11.5	15.4	13.7	13.0	7.7		

e=estimated value due to incomplete record



**WCJS – 14206100 – WAIBLE CREEK AT JACKSON SCHOOL ROAD NEAR HILLSBORO, OREGON [RM 1.0]**

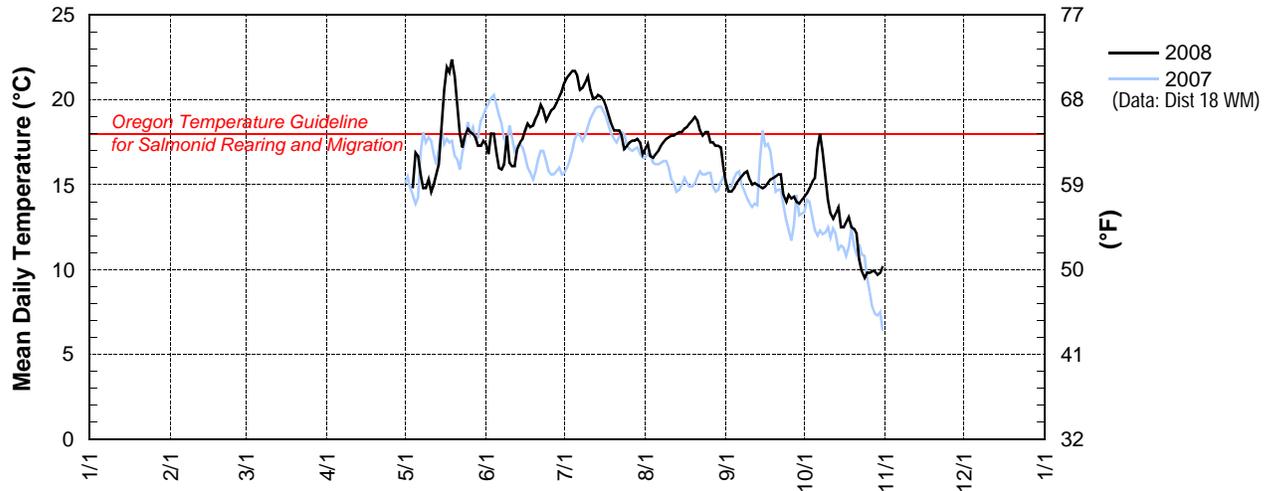
Latitude: 45 33 55 Longitude: 122 58 12

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						17.4	21.0	17.1	15.1	14.3		
2						16.8	21.3	17.4	14.6	14.5		
3							18.0	21.5	16.7	14.6	14.8	
4					14.8	18.0	21.7	16.6	14.8	15.2		
5					16.9	16.9	21.7	16.8	15.1	15.4		
6					16.7	16.0	21.4	17.0	15.3	17.1		
7					15.6	15.9	20.6	17.3	15.5	18.0		
8					14.8	16.2	20.7	17.5	15.7	17.0		
9					14.8	17.9	21.0	17.7	15.8	15.5		
10					15.3	16.3	21.4	17.8	15.3	14.1		
11					14.6	16.1	20.6	17.9	15.0	13.3		
12					15.0	16.1	20.1	17.9	15.1	13.0		
13					15.6	17.1	20.1	18.0	15.0	13.3		
14					16.2	17.5	20.3	18.1	14.9	13.7		
15					18.3	17.7	20.2	18.1	14.8	12.5		
16					20.6	18.2	20.0	18.3	14.9	12.5		
17					21.9	18.6	19.6	18.4	15.1	12.8		
18					21.6	18.4	19.1	18.6	15.3	13.1		
19					22.4	18.5	18.6	18.8	15.4	12.5		
20					21.4	18.9	18.2	19.0	15.5	12.4		
21					19.7	19.2	18.2	18.8	15.6	12.1		
22					18.0	19.7	18.2	18.2	15.6	10.6		
23					17.2	19.4	17.9	17.9	14.4	9.9		
24					17.9	18.8	17.1	18.1	14.0	9.5		
25					18.3	19.1	17.3	18.1	14.4	9.8		
26					18.1	19.4	17.5	17.5	14.2	9.8		
27					18.0	19.5	17.6	17.5	14.3	9.9		
28					17.8	19.8	17.6	17.3	14.0	9.9		
29					17.3	20.2	17.7	17.3	13.9	9.7		
30		—			17.3	20.5	17.5	17.2	14.1	9.8		
31		—		—	17.6	—	16.8	16.0	—	10.2	—	
<b>MEAN</b>					e17.4	18.1	19.4	17.7	14.9	12.8		
<b>MAX</b>					e22.4	20.5	21.7	19.0	15.8	18.0		
<b>MIN</b>					e14.6	15.9	16.8	16.0	13.9	9.5		

e=estimated value due to incomplete record

**WCJS – 14206100 – Waible Creek at Jackson School Road near Hillsboro, Oregon [RM 1.0]**



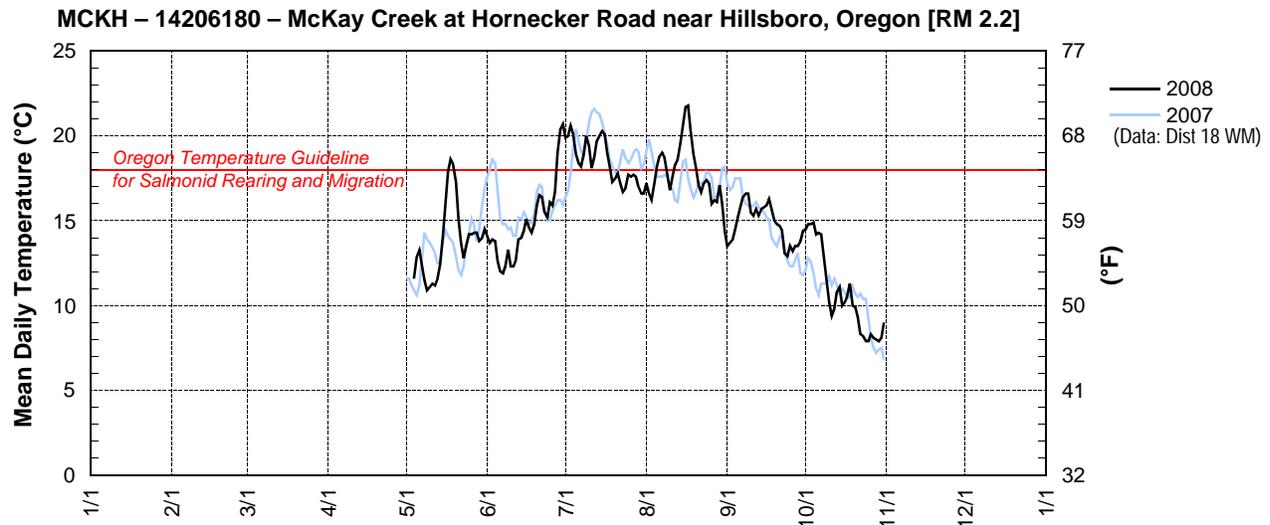
**MCKH – 14206180 – MCKAY CREEK AT HORNECKER ROAD NEAR HILLSBORO, OREGON [RM 2.2]**

Latitude: 45 32 33 Longitude: 123 00 14

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						14.1	19.9	17.2	13.5	14.5		
2						13.7	20.0	16.6	13.7	14.8		
3						13.9	20.6	16.2	13.9	14.8		
4					11.6	13.8	20.1	17.2	14.5	14.9		
5					12.9	12.6	18.9	18.2	15.2	14.2		
6					13.3	12.0	18.4	18.8	15.8	14.3		
7					12.4	11.9	18.2	19.0	16.4	14.2		
8					11.5	12.3	18.9	18.7	16.6	12.8		
9					10.9	13.3	20.0	17.7	16.6	11.4		
10					11.1	12.3	19.4	16.8	15.5	10.2		
11					11.3	12.3	18.1	17.6	15.3	9.4		
12					11.2	12.7	18.7	18.3	15.7	9.8		
13					11.6	13.9	19.7	18.6	15.3	10.8		
14					12.4	14.0	20.0	19.6	15.7	11.1		
15					14.1	14.4	20.3	20.7	15.8	10.0		
16					16.1	15.1	20.1	21.7	15.9	10.2		
17					17.9	14.6	19.0	21.8	16.3	10.6		
18					18.6	14.3	18.2	20.3	15.7	11.3		
19					18.3	14.8	17.3	18.9	15.0	10.0		
20					17.3	15.9	17.5	18.1	14.8	9.9		
21					15.1	16.5	17.8	17.1	14.7	9.3		
22					13.7	16.4	17.2	16.7	14.4	8.3		
23					12.8	15.5	16.7	17.2	13.1	8.2		
24					13.5	15.2	16.9	17.4	12.9	7.9		
25					14.2	16.1	17.7	17.2	13.5	7.9		
26					14.2	15.9	17.6	16.0	13.2	8.3		
27					14.3	16.7	17.7	16.2	13.5	8.1		
28					14.3	19.0	17.6	16.1	13.5	8.0		
29					13.8	20.4	17.0	17.1	13.8	7.9		
30		—			14.0	20.7	16.6	16.0	14.4	8.1		
31		—		—	14.5	—	16.6	14.4	—	9.0	—	
MEAN					e13.7	14.8	18.5	17.9	14.8	10.6		
MAX					e18.6	20.7	20.6	21.8	16.6	14.9		
MIN					e10.9	11.9	16.6	14.4	12.9	7.9		

e=estimated value due to incomplete record



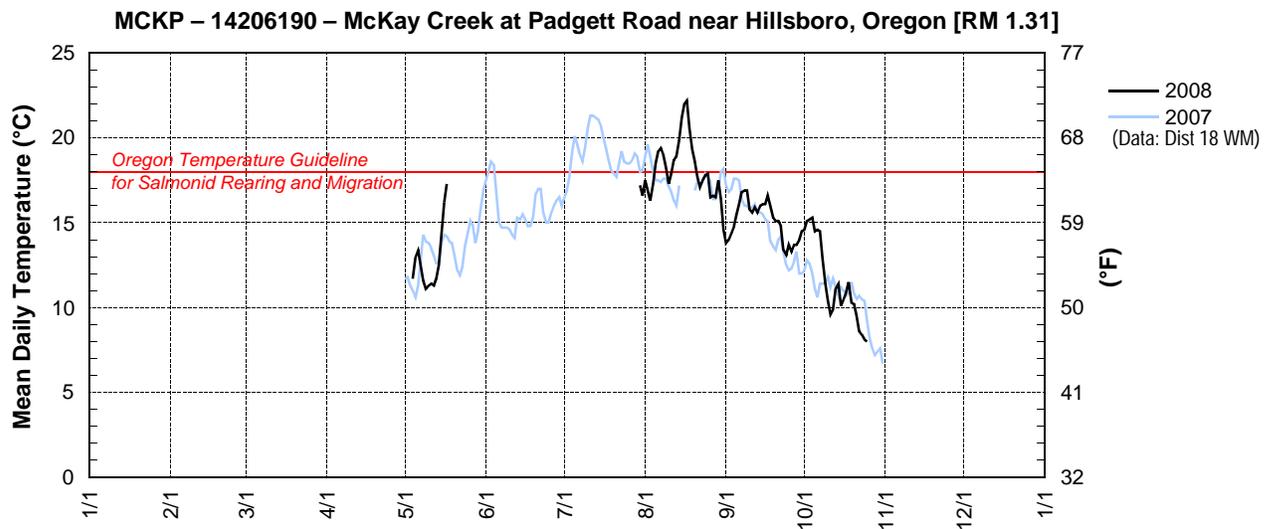
**MCKP – 14206190 – MCKAY CREEK AT PADGETT ROAD NEAR HILLSBORO, OREGON [RM 1.31]**

Latitude: 45 31 57 Longitude: 123 00 16

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1								17.5	13.8	14.6		
2								16.9	14.0	15.1		
3								16.3	14.4	15.2		
4					11.7			17.3	14.8	15.3		
5					13.0			18.5	15.5	14.5		
6					13.4			19.2	16.1	14.6		
7					12.5			19.4	16.8	14.5		
8					11.6			19.0	16.9	12.9		
9					11.1			18.2	16.9	11.4		
10					11.3			17.3	15.8	10.4		
11					11.4			17.9	15.6	9.6		
12					11.3			18.7	15.9	9.9		
13					11.7			18.9	15.6	11.1		
14					12.5			19.9	16.0	11.4		
15					14.3			21.2	16.1	10.1		
16					16.2			22.0	16.1	10.5		
17					e17.3			22.2	16.6	10.9		
18								20.6	16.0	11.5		
19								19.3	15.3	10.3		
20								18.6	15.1	10.2		
21								17.7	15.1	9.5		
22								17.1	14.8	8.6		
23								17.5	13.4	8.4		
24								17.8	13.1	8.1		
25								17.9	13.7	e8.0		
26								16.5	13.3			
27								16.6	13.7			
28								16.5	13.7			
29								17.5	14.0			
30		—						e17.2	16.4	14.5		
31		—		—		—		16.6	14.6	—	—	
MEAN					e12.8			e16.9	18.2	15.1	e11.5	
MAX					e17.3			e17.2	22.2	16.9	e15.3	
MIN					e11.1			e16.6	14.6	13.1	e8.0	

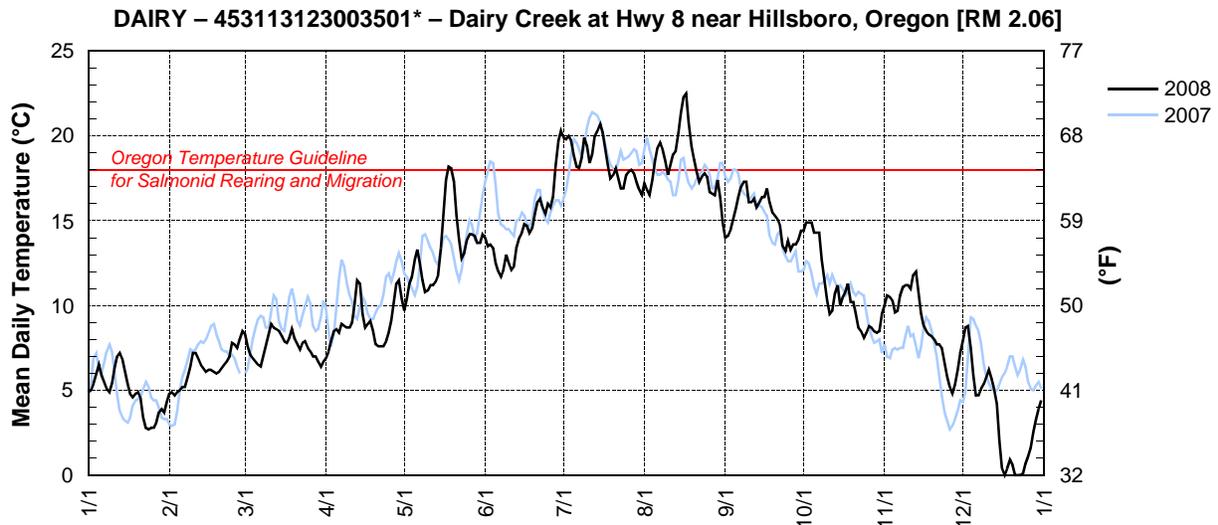
e=estimated value due to incomplete record



UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER  
**STATION NUMBER 453113123003501\* DAIRY CREEK AT HWY 8, HILLSBORO, OR**  
 LATITUDE: 453113.40 LONGITUDE: 1230035.31

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1	5.0	4.8	8.3	6.9	9.7	14.1	19.9	17.2	14.1	14.4	10.0	7.9
2	5.0	4.9	7.6	7.3	10.3	13.6	19.8	16.8	14.1	14.9	10.6	8.7
3	5.3	4.7	7.1	7.9	11.3	13.6	20.0	16.5	14.5	14.9	10.5	8.8
4	6.0	4.9	7.0	8.5	11.7	13.4	19.7	17.3	15.1	15.0	10.3	7.5
5	6.5	5.0	6.7	8.7	12.7	12.6	18.9	18.4	15.7	14.3	9.6	5.9
6	5.9	5.2	6.5	8.4	13.3	12.0	18.2	19.3	16.3	14.3	9.7	4.7
7	5.5	5.2	6.4	8.9	12.5	11.7	18.1	19.6	17.0	14.3	10.6	4.7
8	5.1	5.8	6.9	8.8	11.5	12.1	18.7	19.3	17.3	12.8	11.1	5.1
9	4.9	6.4	7.6	8.7	10.8	13.0	19.8	18.5	17.3	11.4	11.2	5.4
10	5.3	7.1	8.3	8.7	10.9	12.5	19.4	17.7	16.1	10.3	11.2	5.8
11	6.3	7.2	8.9	9.0	11.2	12.1	18.4	18.3	16.1	9.5	11.0	6.2
12	7.0	6.9	8.7	10.0	11.2	12.3	18.9	18.9	16.3	9.7	11.8	5.7
13	7.2	6.6	8.6	11.4	11.5	13.4	20.0	19.1	15.8	10.7	12.0	5.1
14	6.8	6.3	8.5	11.3	11.9	13.9	20.3	20.1	16.1	11.2	10.8	4.2
15	6.1	6.1	8.2	9.5	13.3	14.3	20.7	21.4	16.4	10.1	9.6	2.1
16	5.4	6.2	7.9	8.7	15.5	14.8	20.2	22.3	16.4	10.5	8.8	0.4
17	4.8	6.2	7.8	8.9	17.4	14.7	19.3	22.5	16.9	10.8	8.5	0.0
18	4.6	6.1	8.1	9.1	18.2	14.3	18.3	20.9	16.1	11.3	8.3	0.4
19	4.8	6.0	8.6	8.6	18.1	14.6	17.5	19.5	15.5	10.2	8.2	0.9
20	4.9	6.1	8.0	7.7	17.3	15.4	17.7	18.6	15.3	10.2	8.0	0.6
21	4.5	6.3	7.7	7.6	15.3	16.1	18.1	17.9	15.1	9.6	7.7	0.0
22	3.4	6.5	7.4	7.6	13.9	16.3	17.5	17.3	14.7	8.7	7.7	0.0
23	2.8	6.7	7.8	7.6	12.8	15.8	16.9	17.6	13.5	8.5	7.5	0.0
24	2.7	7.0	7.9	7.9	13.0	15.4	16.9	17.8	13.2	8.1	6.6	0.1
25	2.8	7.8	7.6	8.3	13.9	16.0	17.7	17.6	13.8	8.4	5.8	0.7
26	2.8	7.7	7.3	9.1	14.2	15.8	17.9	16.7	13.3	8.8	5.3	1.1
27	3.1	7.5	7.0	10.2	14.2	16.4	18.0	16.6	13.6	8.7	4.8	1.5
28	3.7	8.0	7.0	11.3	14.1	18.2	17.8	16.5	13.6	8.6	5.3	2.5
29	3.9	8.5	6.7	11.5	13.7	19.7	17.3	17.4	13.8	8.4	6.2	3.3
30	3.7	—	6.4	10.4	13.7	20.3	16.8	16.5	14.4	8.5	7.2	3.9
31	4.3	—	6.7	—	14.2	—	16.5	15.0	—	9.5	—	4.4
<b>MEAN</b>	4.8	6.3	7.6	9.0	13.3	14.6	18.6	18.4	15.3	10.9	8.9	3.3
<b>MAX</b>	7.2	8.5	8.9	11.5	18.2	20.3	20.7	22.5	17.3	15.0	12.0	8.7
<b>MIN</b>	2.7	4.7	6.4	6.9	9.7	11.7	16.5	15.0	13.2	8.1	4.8	0.0

<sup>†</sup>Provisional data—subject to revision



\*USGS #453113123003501 is equivalent to OWRD #14206200.

**TRJB – 14206241 – TUALATIN RIVER AT HWY 219 BRIDGE [RM 44.4]**

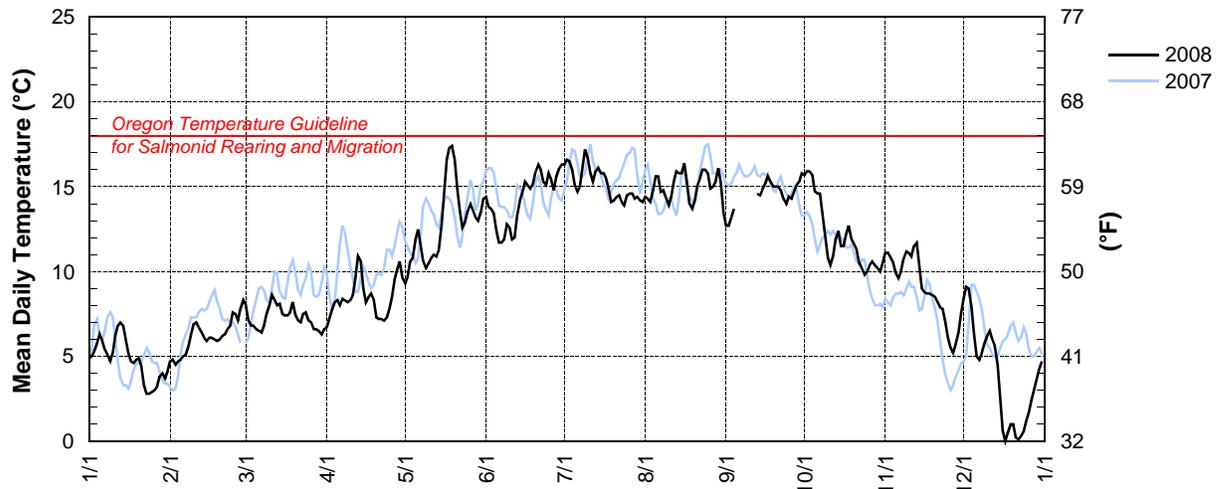
Latitude: 45 30 01 Longitude: 122 59 24

Source Agency: Jackson Bottom Wetland Education Center

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	4.9	4.7	8.0	6.7	9.3	14.4	16.3	14.4	12.7	15.7	11.1	8.4
2	5.0	4.8	7.1	7.2	9.7	13.8	16.6	14.3	12.7	15.9	11.1	9.1
3	5.3	4.5	6.8	7.7	10.6	13.7	16.5	14.1	13.2	15.9	10.8	9.0
4	5.8	4.7	6.8	8.2	10.8	13.4	16.0	14.8	13.7	15.7	10.5	7.9
5	6.3	4.8	6.6	8.3	11.9	12.4	15.1	15.6		14.7	9.9	6.3
6	5.9	5.0	6.5	8.0	12.5	11.7	14.7	15.6		14.6	9.6	5.0
7	5.4	5.1	6.4	8.4	11.5	11.7	15.0	14.7		14.6	10.0	4.8
8	5.1	5.6	6.8	8.3	10.6	11.9	16.1	14.8		13.4	10.8	5.2
9	4.7	6.3	7.5	8.2	10.2	12.8	17.2	14.3		12.0	11.2	5.8
10	5.2	6.9	8.0	8.3	10.5	12.6	16.7	13.9		10.8	11.1	6.2
11	6.2	7.0	8.6	8.6	10.8	11.9	15.8	14.4		10.4	10.9	6.5
12	6.8	6.7	8.3	9.6	11.0	12.0	15.3	15.3		10.9	11.5	6.0
13	7.0	6.4	8.0	10.9	10.9	13.3	15.9	15.9	14.6	11.9	11.7	5.6
14	6.8	6.1	8.1	10.6	11.3	14.2	16.1	15.8	14.5	12.4	10.3	4.5
15	6.0	5.9	7.5	9.0	12.8	14.7	15.8	15.8	14.9	11.5	9.0	2.6
16	5.2	6.1	7.4	8.2	14.9	15.3	15.8	16.4	15.2	11.5	8.8	0.6
17	4.7	6.1	7.4	8.5	16.6	15.1	15.5	15.3	15.6	12.2	8.7	0.0
18	4.6	6.0	7.6	8.7	17.3	14.9	14.9	14.0	15.3	12.7	8.7	0.5
19	4.8	5.9	8.2	8.3	17.4	15.2	14.1	13.7	15.0	11.9	8.6	1.0
20	4.9	6.0	7.4	7.3	16.6	15.9	14.2	14.2	15.0	11.6	8.5	1.0
21	4.4	6.2	7.1	7.2	14.9	16.3	14.4	15.1	15.0	11.3	8.2	0.2
22	3.3	6.3	7.0	7.2	13.6	16.0	14.5	15.5	14.8	10.5	7.9	0.1
23	2.8	6.6	7.5	7.1	12.6	15.3	14.1	16.0	14.3	10.2	7.8	0.3
24	2.8	6.8	7.6	7.3	12.9	15.1	13.9	16.0	14.0	9.8	7.0	0.6
25	2.9	7.6	7.1	7.8	13.6	15.8	14.5	15.8	14.4	10.0	6.1	1.2
26	3.0	7.5	7.0	8.5	14.0	15.4	14.6	14.9	14.3	10.4	5.5	1.7
27	3.2	7.1	6.6	9.5	13.6	14.8	14.6	15.0	14.7	10.6	5.2	2.4
28	3.8	7.8	6.6	10.1	13.2	15.6	14.3	15.3	15.1	10.4	5.7	3.0
29	4.0	8.3	6.5	10.6	13.0	16.1	14.4	16.1	15.3	10.2	6.4	3.7
30	3.7	—	6.3	9.6	13.5	16.3	14.2	15.2	15.8	10.0	7.5	4.3
31	4.1	—	6.6	—	14.3	—	14.1	13.5	—	10.5	—	4.7
MEAN	4.8	6.2	7.3	8.5	12.8	14.3	15.2	15.0	e14.6	12.1	9.0	3.8
MAX	7.0	8.3	8.6	10.9	17.4	16.3	17.2	16.4	e15.8	15.9	11.7	9.1
MIN	2.8	4.5	6.3	6.7	9.3	11.7	13.9	13.5	e12.7	9.8	5.2	0.0

e=estimated value due to incomplete record

**TRJB – 14206241 – Tualatin River at Hwy 219 Bridge [RM 44.4]**



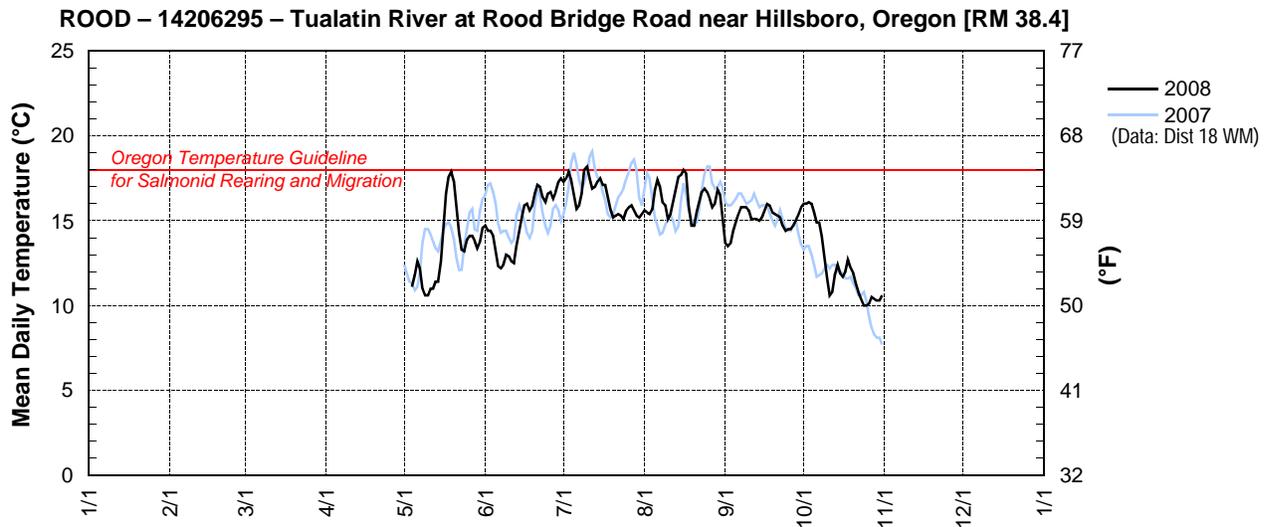
**ROOD – 14206295 – TUALATIN RIVER AT ROOD BRIDGE ROAD NEAR HILLSBORO, OREGON [RM 38.4]**

Latitude: 45 30 38 Longitude: 123 06 56

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						14.7	17.3	15.6	13.7	16.0		
2						14.4	17.5	15.5	13.5	16.0		
3						14.4	17.9	15.4	13.7	16.1		
4					11.1	14.1	17.4	15.7	14.4	16.0		
5					11.8	13.2	16.5	16.8	14.9	15.5		
6					12.6	12.3	15.7	17.4	15.4	14.9		
7					12.2	12.2	15.9	17.0	15.8	14.9		
8					11.0	12.4	16.6	16.1	15.8	14.1		
9					10.6	13.0	18.0	15.9	15.8	12.8		
10					10.6	12.9	18.2	15.1	15.6	11.6		
11					11.0	12.6	17.5	15.4	15.1	10.6		
12					11.0	12.5	16.9	16.1	15.1	10.8		
13					11.4	13.5	17.0	16.8	15.1	11.8		
14					11.4	14.4	17.3	17.6	15.0	12.4		
15					12.6	15.2	17.5	17.7	15.2	11.9		
16					14.7	15.9	17.1	18.0	15.6	11.7		
17					16.6	16.0	17.1	17.8	16.0	12.0		
18					17.6	15.6	16.4	15.9	15.9	12.7		
19					17.9	15.9	15.7	14.7	15.5	12.2		
20					17.3	16.6	15.2	14.7	15.4	11.9		
21					15.8	17.1	15.3	15.5	15.3	11.3		
22					14.3	17.0	15.4	16.1	15.2	10.8		
23					13.3	16.4	15.3	16.7	14.7	10.4		
24					13.2	16.1	15.1	16.9	14.4	10.0		
25					13.9	16.6	15.6	16.7	14.5	10.0		
26					14.1	16.7	15.8	16.3	14.5	10.1		
27					14.1	16.3	15.9	15.8	14.7	10.5		
28					13.8	16.7	15.6	16.0	15.0	10.4		
29					13.4	17.3	15.3	16.8	15.4	10.3		
30		—			13.8	17.5	15.2	16.5	15.8	10.3		
31		—		—	14.6	—	15.4	15.0	—	10.6	—	
MEAN					e13.3	15.0	16.4	16.2	15.1	12.3		
MAX					e17.9	17.5	18.2	18.0	16.0	16.1		
MIN					e10.6	12.2	15.1	14.7	13.5	10.0		

e=estimated value due to incomplete record



**RCRR – 14206305 – ROCK CREEK AT ROCK CREEK ROAD NEAR BOWERS JUNCTION, OREGON [RM 15.8]**

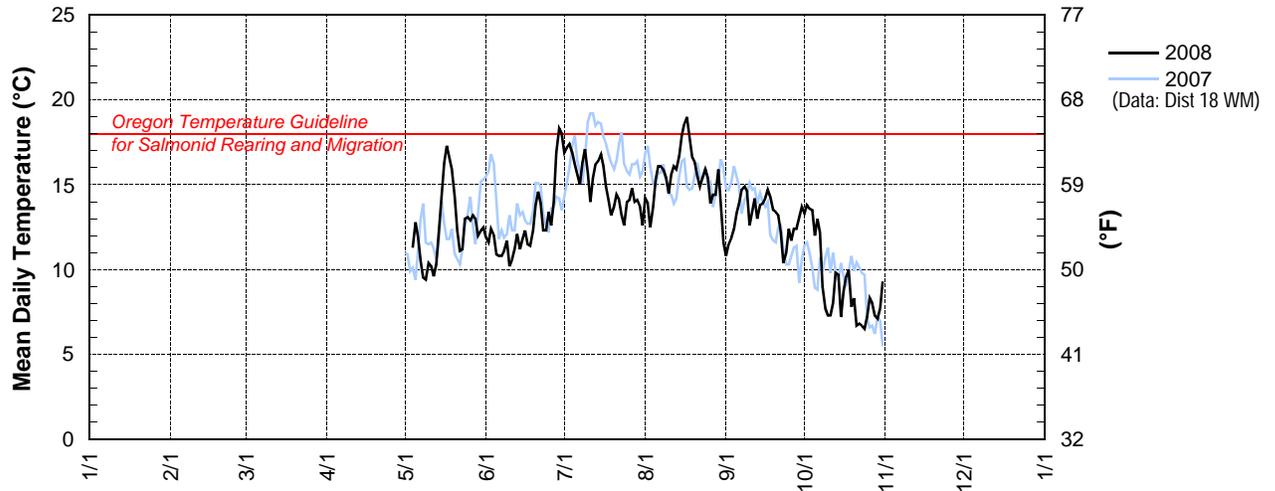
Latitude: 45 37 04 Longitude: 122 53 13

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						11.9	16.9	14.2	10.8	13.3		
2						11.6	17.2	13.9	11.5	13.8		
3						12.4	17.4	12.5	11.9	13.6		
4					11.3	12.0	16.9	13.7	12.4	13.5		
5					12.8	10.9	16.2	15.3	13.3	12.0		
6					11.9	10.8	15.6	16.1	13.9	13.0		
7					10.5	10.8	15.0	16.1	14.7	12.2		
8					9.5	11.1	16.3	15.9	14.9	9.0		
9					9.4	11.7	17.1	15.4	14.6	7.7		
10					10.4	10.2	15.7	14.5	12.6	7.3		
11					10.2	10.6	14.0	15.6	13.4	7.3		
12					9.6	11.2	15.4	16.1	14.2	8.0		
13					10.3	12.1	16.2	15.9	13.0	9.8		
14					12.1	11.2	16.4	16.7	13.8	9.7		
15					14.4	11.8	16.8	17.9	13.9	7.2		
16					16.3	12.3	16.1	18.6	14.2	8.7		
17					17.3	11.5	14.9	19.0	14.7	9.6		
18					16.6	11.4	14.1	17.9	14.3	10.0		
19					15.9	12.3	13.2	16.6	13.5	7.8		
20					14.3	13.8	13.7	16.3	13.4	8.3		
21					12.3	14.6	14.4	15.5	13.2	6.7		
22					11.1	13.9	14.1	14.9	12.2	6.8		
23					11.2	12.3	13.2	15.4	10.4	6.7		
24					13.0	12.3	12.6	15.9	11.0	6.5		
25					13.1	13.4	14.0	15.4	12.4	7.2		
26					12.9	12.6	14.1	13.9	11.7	8.3		
27					13.2	14.0	14.8	14.4	12.4	8.0		
28					13.0	16.9	14.0	14.4	12.4	7.3		
29					12.0	18.3	14.1	15.9	13.1	7.1		
30		—			12.3	18.0	13.7	13.9	13.7	7.7		
31		—		—	12.5	—	12.6	11.6	—	9.3		
<b>MEAN</b>					e12.4	12.6	15.1	15.5	13.0	9.1		
<b>MAX</b>					e17.3	18.3	17.4	19.0	14.9	13.8		
<b>MIN</b>					e9.4	10.2	12.6	11.6	10.4	6.5		

e=estimated value due to incomplete record

**RCRR – 14206305 – Rock Creek at Rock Creek Road near Bowers Junction, Oregon [RM 15.8]**



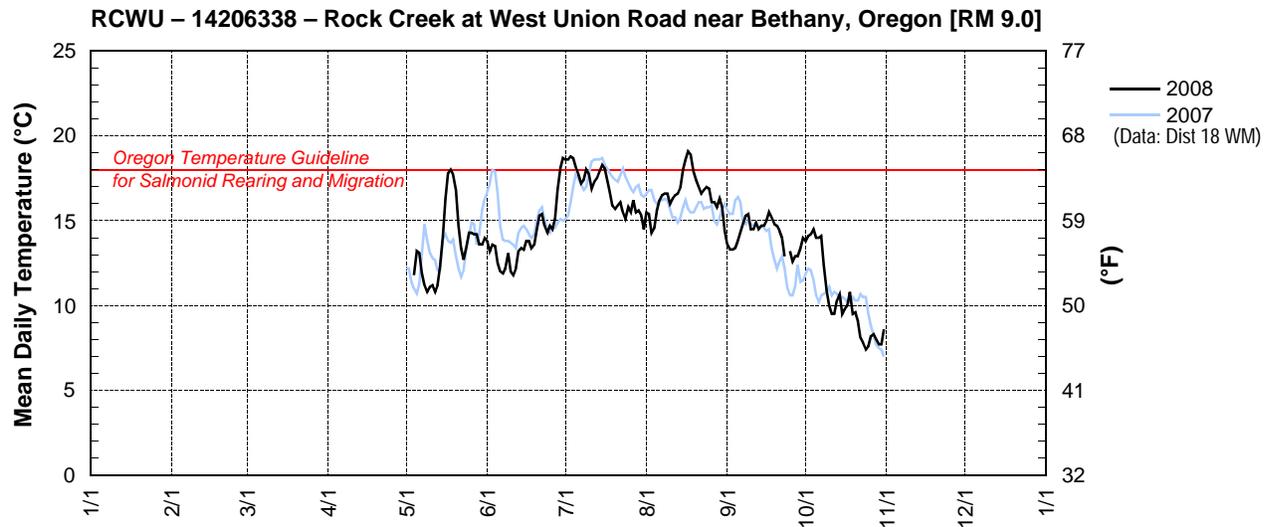
**RCWU – 14206338 – ROCK CREEK AT WEST UNION ROAD NEAR BETHANY, OREGON [RM 9.0]**

Latitude: 45 33 34 Longitude: 122 52 30

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						13.8	18.6	15.5	13.6	13.8		
2						13.2	18.6	15.4	13.3	14.1		
3						13.6	18.8	14.3	13.3	14.2		
4					11.8	13.5	18.7	14.6	13.4	14.5		
5					13.2	12.5	18.1	15.6	13.8	14.0		
6					13.1	12.0	17.7	16.2	14.3	14.0		
7					11.9	11.9	17.2	16.5	14.8	14.1		
8					11.2	12.2	17.4	16.6	15.3	12.4		
9					10.8	13.1	18.0	16.6	15.4	10.9		
10					11.1	12.0	17.7	16.0	14.5	10.0		
11					11.2	11.8	16.9	16.3	14.5	9.5		
12					10.8	12.2	17.3	16.5	14.9	9.5		
13					11.2	13.2	17.5	16.6	14.5	10.3		
14					12.3	13.4	17.9	17.0	14.7	10.7		
15					14.1	13.3	18.3	18.0	14.7	9.5		
16					16.3	13.8	18.1	18.6	15.0	9.8		
17					17.8	13.8	17.4	19.1	15.5	10.0		
18					18.0	13.4	16.7	18.9	15.2	10.8		
19					17.7	13.6	15.9	17.9	14.8	9.5		
20					16.8	14.5	15.7	17.4	14.7	9.6		
21					14.7	15.3	15.9	17.0	14.4	9.1		
22					13.4	15.4	16.1	16.6	14.0	8.1		
23					12.7	14.7	15.5	16.8	e12.9	7.8		
24					13.4	14.3	15.1	17.0		7.4		
25					14.3	14.7	15.8	16.9	e13.2	7.6		
26					14.3	14.5	15.5	16.1	12.6	8.2		
27					14.2	15.1	16.2	16.1	12.9	8.3		
28					14.2	16.8	15.5	15.8	12.9	8.0		
29					13.6	18.1	15.6	16.3	13.4	7.7		
30		—			13.6	18.7	15.3	15.8	14.0	7.7		
31		—		—	14.0	—	14.5	14.4	—	8.6	—	
MEAN					e13.6	13.9	16.9	16.5	e14.2	10.3		
MAX					e18.0	18.7	18.8	19.1	e15.5	14.5		
MIN					e10.8	11.8	14.5	14.3	e12.6	7.4		

e=estimated value due to incomplete record



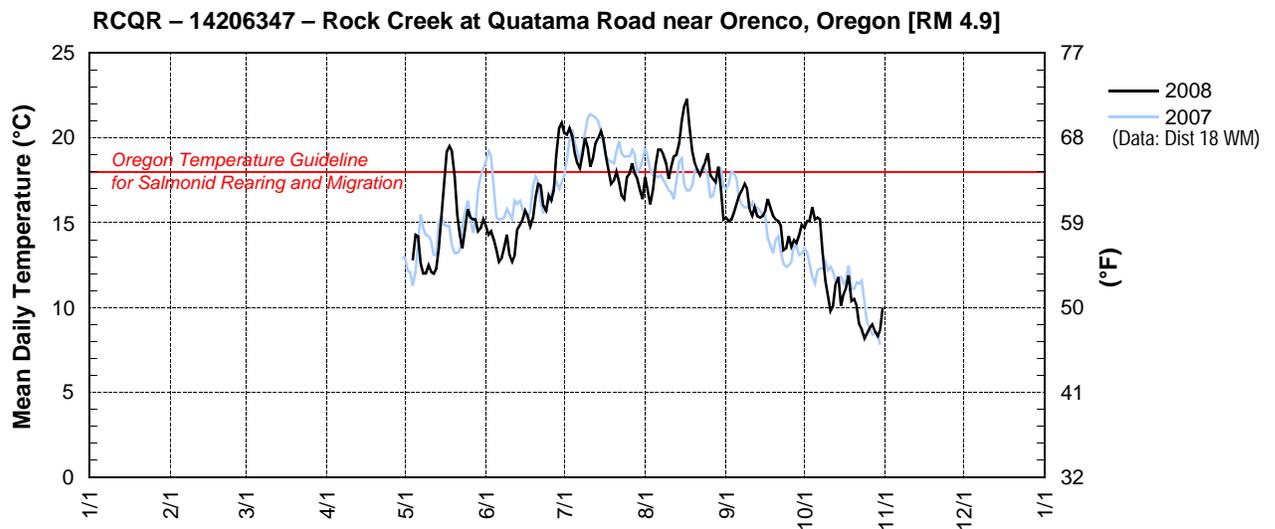
**RCQR – 14206347 – ROCK CREEK AT QUATAMA ROAD NEAR ORENCO, OREGON [RM 4.9]**

Latitude: 45 31 25 Longitude: 122 54 34

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						14.8	20.3	17.7	15.3	14.7		
2						14.3	20.2	16.9	15.1	15.1		
3						14.5	20.6	16.1	15.2	15.1		
4					12.8	14.0	20.1	17.0	15.6	15.9		
5					14.3	13.4	19.1	18.4	16.1	15.2		
6					14.2	12.7	18.5	19.3	16.6	15.3		
7					12.6	12.9	18.2	19.3	16.9	15.2		
8					12.0	13.5	19.0	19.0	17.3	13.3		
9					12.0	14.3	20.0	18.5	17.0	11.6		
10					12.5	13.1	19.4	17.6	15.8	10.7		
11					12.1	12.7	18.3	18.3	15.4	9.8		
12					12.0	13.1	18.8	18.9	15.9	10.1		
13					12.3	14.6	19.7	19.0	15.4	11.4		
14					13.5	14.9	20.0	19.7	15.3	11.8		
15					15.5	15.2	20.4	21.0	15.4	10.1		
16					17.5	15.7	19.9	21.9	15.7	10.8		
17					19.2	15.4	18.9	22.3	16.4	11.2		
18					19.5	14.8	18.1	20.7	15.9	11.9		
19					19.2	15.3	17.3	19.2	15.4	10.4		
20					17.7	16.5	17.5	18.5	15.2	10.5		
21					15.5	17.3	18.0	18.1	15.1	10.1		
22					14.3	17.2	17.4	17.8	14.8	9.0		
23					13.5	16.0	16.6	18.2	13.4	8.7		
24					14.6	15.7	16.4	18.6	13.5	8.2		
25					15.8	16.6	17.7	19.1	14.2	8.5		
26					15.3	16.3	17.9	17.8	13.6	8.8		
27					15.2	16.9	18.5	17.6	14.0	9.0		
28					15.2	19.0	17.9	17.4	13.8	8.6		
29					14.5	20.6	17.6	18.3	14.3	8.3		
30		—			14.7	20.9	16.9	17.0	14.9	8.7		
31		—		—	15.2	—	16.4	15.2	—	10.0	—	
<b>MEAN</b>					e14.7	15.4	18.6	18.5	15.3	11.2		
<b>MAX</b>					e19.5	20.9	20.6	22.3	17.3	15.9		
<b>MIN</b>					e12.0	12.7	16.4	15.2	13.4	8.2		

e=estimated value due to incomplete record



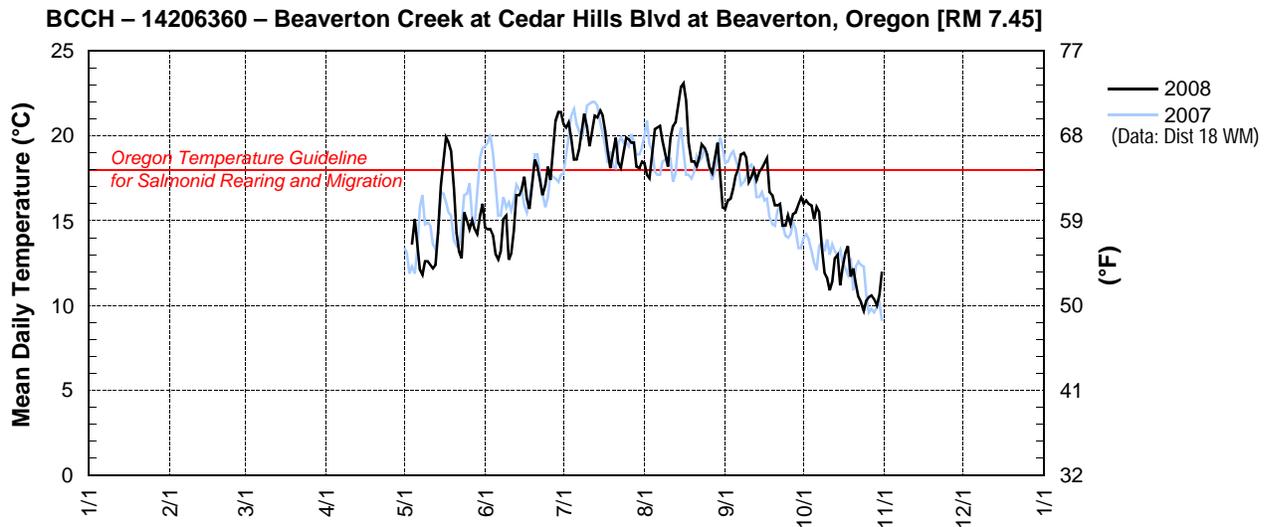
**BCCH – 14206360 – BEAVERTON CREEK AT CEDAR HILLS BLVD AT BEAVERTON, OREGON [RM 7.45]**

Latitude: 45 49 31 Longitude: 122 81 05

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						14.6	20.7	18.4	15.7	16.0		
2						14.5	20.5	17.7	16.2	16.2		
3						14.5	20.8	17.5	16.3	16.0		
4					13.6	14.1	19.9	19.0	16.9	15.9		
5					15.1	13.0	18.6	20.4	17.7	15.1		
6					13.6	12.7	18.6	20.5	18.1	15.8		
7					12.1	13.2	19.2	20.6	18.9	15.5		
8					11.8	15.1	20.2	19.7	19.0	13.5		
9					12.6	15.3	21.3	18.9	18.7	11.9		
10					12.6	12.7	20.5	18.2	17.3	11.6		
11					12.4	13.1	19.4	19.9	17.6	10.9		
12					12.2	14.4	20.3	20.6	18.0	11.4		
13					12.4	16.5	21.2	20.8	17.4	12.8		
14					14.3	16.5	21.1	21.9	17.9	13.0		
15					17.1	16.9	21.5	22.9	18.1	11.2		
16					18.5	17.6	21.2	23.1	18.4	12.3		
17					19.9	16.3	20.3	22.1	18.7	13.1		
18					19.6	15.7	19.1	19.6	16.7	13.5		
19					19.1	17.2	18.1	18.5	16.5	11.7		
20					16.9	18.6	19.1	18.5	15.9	12.2		
21					14.3	18.2	19.9	18.2	15.9	11.3		
22					13.2	17.4	18.4	18.7	16.0	10.5		
23					12.8	16.5	18.1	19.5	14.7	10.2		
24					15.5	17.1	18.9	19.3	14.7	9.7		
25					15.0	18.2	19.9	18.9	15.3	10.3		
26					14.5	17.4	19.8	18.1	14.8	10.5		
27					15.0	19.0	19.6	17.8	15.4	10.6		
28					14.5	20.9	19.6	18.6	15.5	10.4		
29					14.2	21.4	18.2	19.6	16.0	10.0		
30		—			15.3	21.4	18.1	17.5	16.4	10.6		
31		—		—	16.0	—	18.5	15.8	—	12.0	—	
MEAN					e14.7	16.3	19.7	19.4	16.8	12.4		
MAX					e19.9	21.4	21.5	23.1	19.0	16.2		
MIN					e11.8	12.7	18.1	15.8	14.7	9.7		

e=estimated value due to incomplete record



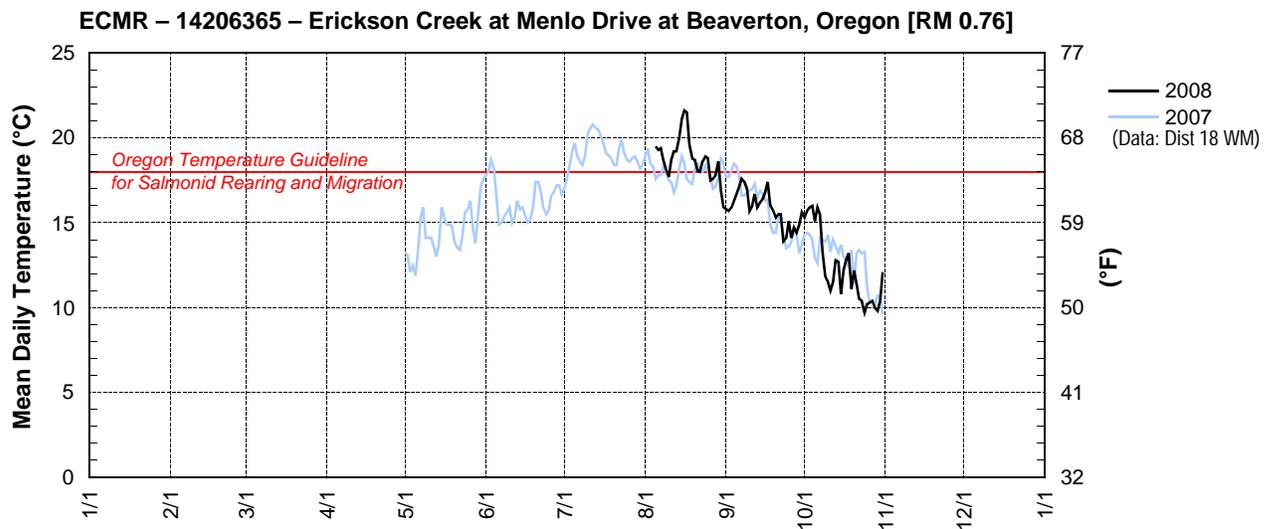
**ECMR – 14206365 – ERICKSON CREEK AT MENLO DRIVE AT BEAVERTON, OREGON [RM 0.76]**

Latitude: 45 29 14 Longitude: 122 58 54

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1									15.8	15.3		
2									15.7	15.7		
3									15.9	15.9		
4									16.3	16.0		
5								e19.5	16.7	15.1		
6								19.3	17.1	15.9		
7								19.4	17.6	15.5		
8								18.7	17.4	13.3		
9								18.1	17.0	11.8		
10								17.7	15.7	11.5		
11								18.7	16.0	11.0		
12								19.2	16.7	11.5		
13								19.2	15.9	12.8		
14								20.0	16.2	12.7		
15								21.1	16.4	10.8		
16								21.6	16.8	12.2		
17								21.5	17.4	12.8		
18								19.6	16.0	13.2		
19								18.8	15.7	11.1		
20								18.7	15.3	12.2		
21								18.1	15.5	11.4		
22								18.0	15.5	10.5		
23								18.6	13.9	10.4		
24								18.9	14.1	9.7		
25								18.8	15.1	10.2		
26								17.5	14.1	10.3		
27								17.6	14.7	10.4		
28								17.8	14.4	10.0		
29								18.6	14.9	9.8		
30		—						16.9	15.6	10.4		
31		—		—		—		15.9	—	12.1	—	
<b>MEAN</b>								e18.8	15.8	12.3		
<b>MAX</b>								e21.6	17.6	16.0		
<b>MIN</b>								e15.9	13.9	9.7		

e=estimated value due to incomplete record



**CMMB – 14206395 – CEDAR MILL CREEK AT MURRAY BOULEVARD NEAR BEAVERTON, OREGON [RM 1.64]**

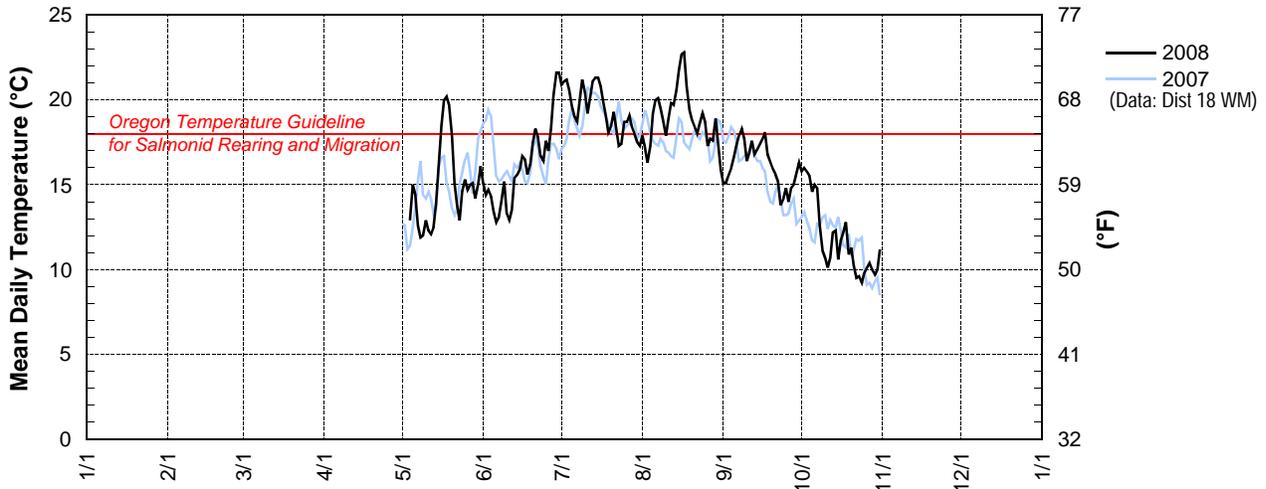
Latitude: 45 30 37 Longitude: 122 49 18

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						15.1	20.9	17.9	15.1	15.8		
2						14.4	21.1	17.2	15.1	16.0		
3						14.7	21.2	16.3	15.6	15.8		
4					12.9	14.3	20.6	17.3	16.0	15.5		
5					15.0	13.4	19.6	19.2	16.6	14.6		
6					14.4	12.8	19.0	20.0	17.3	15.0		
7					12.6	13.1	18.7	20.1	17.9	14.8		
8					11.9	14.0	19.9	19.5	18.3	12.6		
9					12.0	15.2	21.2	18.7	17.7	11.1		
10					12.9	13.3	20.4	17.9	16.4	10.7		
11					12.3	12.9	19.2	18.9	16.9	10.1		
12					12.1	13.5	20.1	19.8	17.6	10.7		
13					12.5	15.4	21.1	19.7	16.8	12.2		
14					13.9	15.6	21.3	20.6	17.1	12.3		
15					16.5	15.9	21.3	21.8	17.4	10.6		
16					18.5	16.7	20.8	22.7	17.7	11.7		
17					20.0	16.5	19.9	22.8	18.1	12.2		
18					20.2	15.6	19.1	20.8	16.8	12.8		
19					19.7	16.2	18.1	19.4	16.3	10.9		
20					17.9	17.5	18.5	18.8	15.9	11.3		
21					15.1	18.3	19.3	18.4	15.6	10.2		
22					13.8	17.8	18.3	18.0	15.2	9.5		
23					12.9	16.7	17.3	18.6	13.8	9.6		
24					14.6	16.4	17.4	19.2	14.2	9.2		
25					15.3	17.6	18.7	18.7	14.8	9.8		
26					14.7	17.0	18.7	17.3	14.0	10.1		
27					15.0	18.3	19.1	17.7	14.8	10.4		
28					15.1	20.3	18.4	17.6	15.0	10.0		
29					14.2	21.6	18.0	18.9	15.7	9.7		
30		—			15.0	21.6	17.5	17.4	16.3	10.0		
31		—		—	16.1	—	17.3	15.9	—	11.2	—	
MEAN					e14.8	16.1	19.4	18.9	16.2	11.8		
MAX					e20.2	21.6	21.3	22.8	18.3	16.0		
MIN					e11.9	12.8	17.3	15.9	13.8	9.2		

e=estimated value due to incomplete record

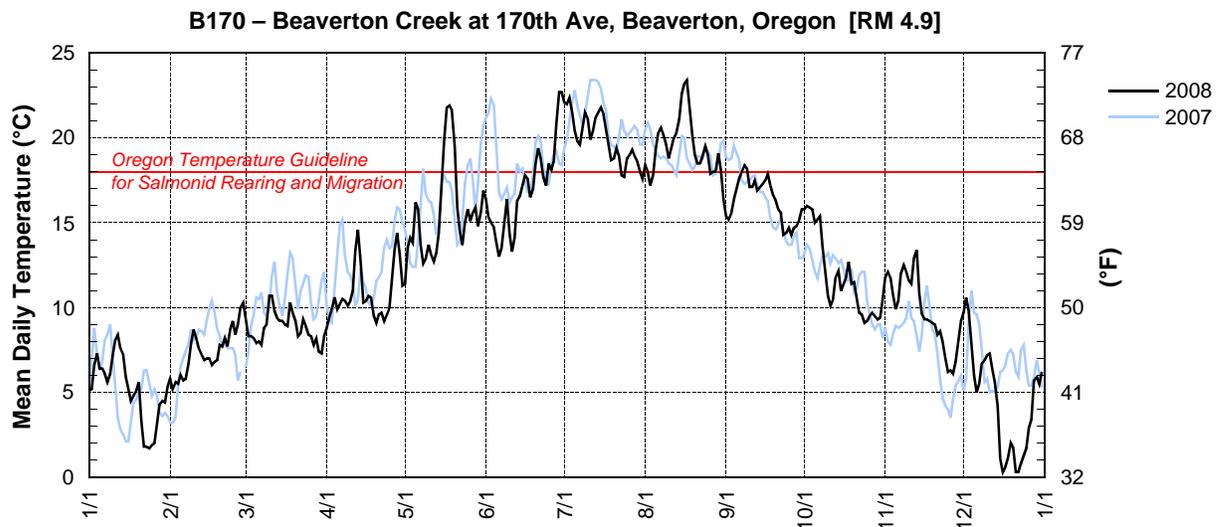
**CMMB – 14206395 – Cedar Mill Creek at Murray Boulevard near Beaverton, Oregon [RM 1.64]**



UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER  
**STATION NUMBER 453004122510301 BEAVERTON CREEK AT 170TH AVE, BEAVERTON, OR.**  
 LATITUDE: 453004 LONGITUDE: 1225103

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1	5.1	5.8	9.3	8.8	11.4	16.5	22.1	18.4	15.4	15.8	11.8	9.7
2	5.2	5.2	8.3	9.4	13.5	15.3	22.0	18.0	15.2	16.0	12.1	10.6
3	6.6	5.6	8.4	9.9	14.1	15.0	22.5	17.2	15.6	15.9	11.7	9.8
4	7.3	5.5	8.2	10.6	13.7	14.7	21.6	17.8	16.4	15.8	10.7	8.0
5	6.5	6.1	7.9	9.9	16.2	13.8	20.4	19.3	17.0	15.0	10.0	6.1
6	6.4	5.7	8.0	10.2	15.8	13.0	19.8	20.3	17.6	15.2	10.4	5.0
7	6.2	5.8	7.8	10.5	13.7	13.5	19.6	20.6	18.0	15.4	11.9	5.5
8	5.6	6.7	8.8	10.4	12.6	14.8	20.5	20.3	18.4	13.7	12.5	6.7
9	6.1	7.8	8.9	10.1	12.9	16.4	21.5	19.6	18.2	12.1	12.1	6.9
10	7.1	8.7	10.7	10.4	13.7	14.5	21.2	18.8	17.2	10.7	11.6	7.2
11	8.1	8.3	10.7	10.9	13.1	13.3	19.9	19.4	17.1	10.1	11.4	7.3
12	8.4	7.6	9.8	13.4	12.7	14.1	20.4	20.0	17.5	10.5	12.8	6.4
13	7.7	7.2	9.5	14.6	13.1	16.2	21.2	20.3	17.0	11.8	13.4	5.6
14	7.3	6.9	9.2	12.7	14.4	16.6	21.5	21.1	17.1	12.2	10.8	4.3
15	5.9	7.0	9.2	10.3	17.3	17.2	21.8	22.6	17.3	11.1	9.7	1.1
16	5.3	7.0	9.0	10.4	19.9	17.8	21.5	23.2	17.5	11.4	9.3	0.3
17	4.5	6.6	8.9	10.7	21.8	17.6	20.5	23.4	17.9	11.8	9.3	0.6
18	4.8	6.8	10.2	10.6	21.9	16.5	19.7	21.9	17.3	12.7	9.2	1.1
19	5.1	6.9	9.7	9.5	21.6	17.0	18.7	20.3	16.6	11.4	9.1	2.0
20	5.6	7.8	9.2	9.1	19.6	18.5	18.8	19.0	16.3	11.5	9.0	1.8
21	3.4	7.7	8.3	9.6	15.9	19.4	19.4	18.5	15.9	10.6	8.4	0.3
22	1.8	8.2	8.5	9.7	14.5	18.8	18.9	18.5	15.6	9.7	8.6	0.3
23	1.8	7.7	9.4	9.2	13.7	17.7	17.9	18.9	14.3	9.6	8.0	0.8
24	1.7	8.6	8.9	9.6	14.9	17.2	17.7	19.5	14.4	9.1	7.1	1.3
25	1.9	9.2	8.5	10.0	15.9	18.5	18.8	19.0	14.7	9.2	6.2	1.7
26	2.0	8.4	8.4	11.8	15.1	18.1	19.0	18.0	14.3	9.5	6.3	2.9
27	3.2	9.0	7.8	13.4	15.6	18.5	19.4	18.0	14.7	9.7	6.1	3.4
28	4.3	10.0	8.2	14.4	16.0	20.8	18.9	18.0	14.8	9.5	6.7	5.6
29	4.5	10.4	7.4	13.2	14.8	22.7	18.7	19.1	15.2	9.3	8.1	5.9
30	4.4	—	7.3	11.3	15.6	22.7	18.0	18.1	15.8	9.4	9.2	5.5
31	5.3	—	8.2	—	16.9	—	17.7	16.4	—	10.5	—	6.1
MEAN	5.1	7.4	8.8	10.8	15.6	16.9	20.0	19.5	16.3	11.8	9.8	4.5
MAX	8.4	10.4	10.7	14.6	21.9	22.7	22.5	23.4	18.4	16.0	13.4	10.6
MIN	1.7	5.2	7.3	8.8	11.4	13.0	17.7	16.4	14.3	9.1	6.1	0.3

<sup>†</sup>Provisional data—subject to revision; e= estimated value



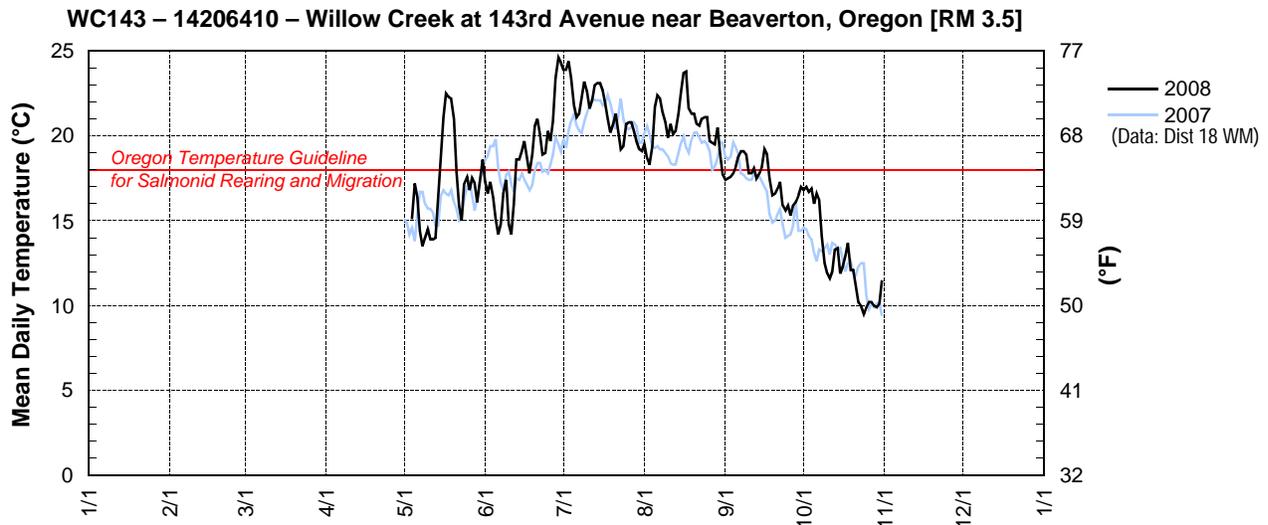
**WC143 – 14206410 – WILLOW CREEK AT 143RD AVENUE NEAR BEAVERTON, OREGON [RM 3.5]**

Latitude: 45 32 12 Longitude: 122 49 24

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						17.3	23.9	19.5	17.4	16.8		
2						16.6	23.9	18.7	17.5	17.0		
3						17.3	24.4	18.3	17.6	16.7		
4					15.1	16.4	23.4	19.4	17.8	16.9		
5					17.2	15.1	21.8	21.7	18.2	16.0		
6					16.4	14.2	21.1	22.4	18.8	16.6		
7					14.4	14.8	21.3	22.2	19.1	16.2		
8					13.5	16.6	22.3	21.4	19.1	14.1		
9					14.0	17.4	23.2	20.8	18.9	12.5		
10					14.5	14.8	22.6	19.9	17.8	11.9		
11					13.9	14.2	21.6	20.7	17.8	11.6		
12					13.9	16.0	22.1	20.1	18.1	12.0		
13					14.0	18.6	23.0	20.3	17.5	13.3		
14					16.0	18.6	23.1	21.3	17.8	13.4		
15					18.9	19.1	23.1	22.6	18.2	11.9		
16					21.1	19.7	22.7	23.7	19.2	12.3		
17					22.5	18.8	21.9	23.8	18.9	12.9		
18					22.3	17.8	21.0	21.6	17.5	13.7		
19					22.2	18.9	20.2	21.3	16.5	12.1		
20					21.0	20.6	20.7	21.3	16.6	12.1		
21					17.9	21.0	21.3	20.7	16.9	11.2		
22					15.9	20.1	20.2	20.6	17.3	10.2		
23					15.0	18.9	19.2	21.0	15.9	10.0		
24					17.2	19.0	19.4	21.1	15.6	9.5		
25					17.6	20.3	20.7	21.1	15.9	9.9		
26					16.8	19.7	20.8	19.7	15.3	10.2		
27					17.5	20.9	20.8	19.6	15.9	10.2		
28					17.2	23.4	20.3	19.5	16.1	10.0		
29					16.1	24.6	19.7	20.5	16.5	9.9		
30		—			17.4	24.3	19.2	18.9	17.0	10.1		
31		—		—	18.6	—	19.1	17.7	—	11.5	—	
MEAN					e17.0	18.5	21.5	20.7	17.4	12.7		
MAX					e22.5	24.6	24.4	23.8	19.2	17.0		
MIN					e13.5	14.2	19.1	17.7	15.3	9.5		

e=estimated value due to incomplete record



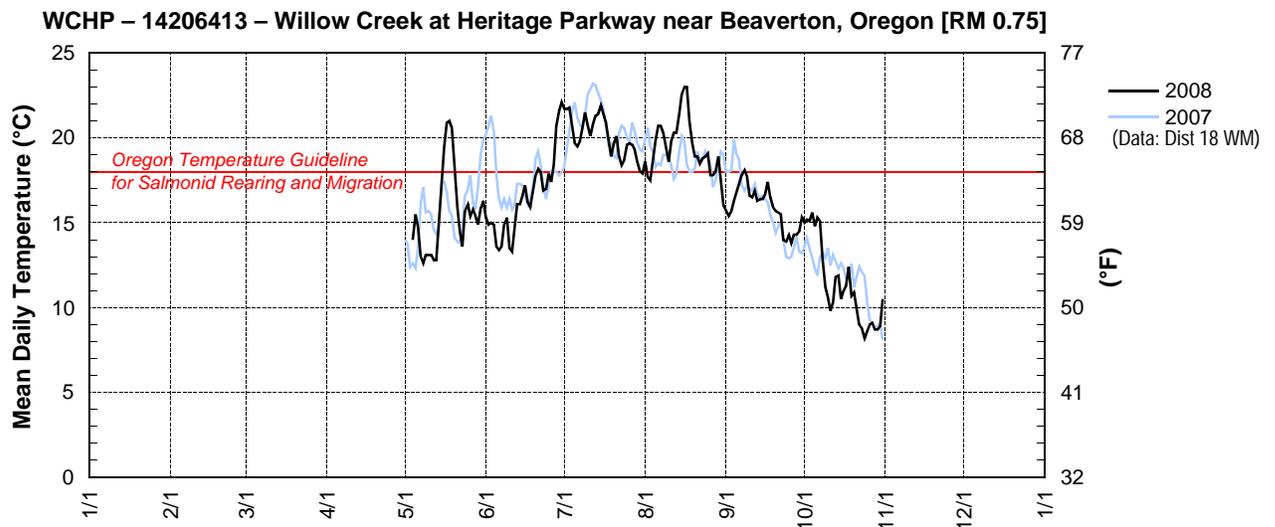
**WCHP – 14206413 – WILLOW CREEK AT HERITAGE PARKWAY NEAR BEAVERTON, OREGON [RM 0.75]**

Latitude: 45 31 12 Longitude: 122 51 35

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						15.3	21.7	18.6	15.7	15.0		
2						14.9	21.7	17.7	15.4	15.2		
3						15.0	21.8	17.5	15.7	15.1		
4					14.0	14.9	20.7	18.7	16.3	15.6		
5					15.5	13.6	19.7	19.9	16.8	14.8		
6					14.7	13.4	19.5	20.7	17.3	15.3		
7					13.0	13.6	19.8	20.7	17.8	15.1		
8					12.6	14.9	20.6	20.3	18.1	12.9		
9					13.1	15.3	21.5	19.4	17.7	11.2		
10					13.1	13.5	20.7	18.6	16.6	10.6		
11					13.1	13.3	20.1	19.8	16.5	9.8		
12					12.8	14.6	20.8	20.3	16.9	10.3		
13					12.8	16.1	21.3	20.3	16.3	11.8		
14					15.0	16.1	21.4	21.4	16.4	11.9		
15					17.6	16.6	21.9	22.6	16.4	10.5		
16					19.5	17.2	21.4	23.0	16.7	11.0		
17					20.9	16.2	20.9	23.0	17.4	11.3		
18					21.0	15.9	19.9	21.0	16.5	12.4		
19					20.6	16.9	18.9	19.7	15.9	10.7		
20					18.4	17.8	19.7	18.9	15.7	10.9		
21					16.0	18.2	20.1	18.9	15.6	9.9		
22					14.5	18.0	18.9	18.5	15.5	9.0		
23					13.6	16.9	18.4	18.8	14.0	8.8		
24					15.7	17.0	18.7	18.9	13.9	8.2		
25					16.1	17.9	19.6	19.1	14.3	8.6		
26					15.4	17.4	19.7	17.8	13.8	9.0		
27					15.8	18.4	19.6	17.8	14.3	9.1		
28					15.4	20.7	19.3	18.0	14.3	8.7		
29					14.9	21.6	18.6	18.9	14.5	8.7		
30		—			15.9	22.1	18.0	17.4	15.3	8.9		
31		—		—	16.3	—	17.9	16.0	—	10.5	—	
<b>MEAN</b>					e15.5	16.4	20.1	19.4	15.9	11.3		
<b>MAX</b>					e21.0	22.1	21.9	23.0	18.1	15.6		
<b>MIN</b>					e12.6	13.3	17.9	16.0	13.8	8.2		

e=estimated value due to incomplete record



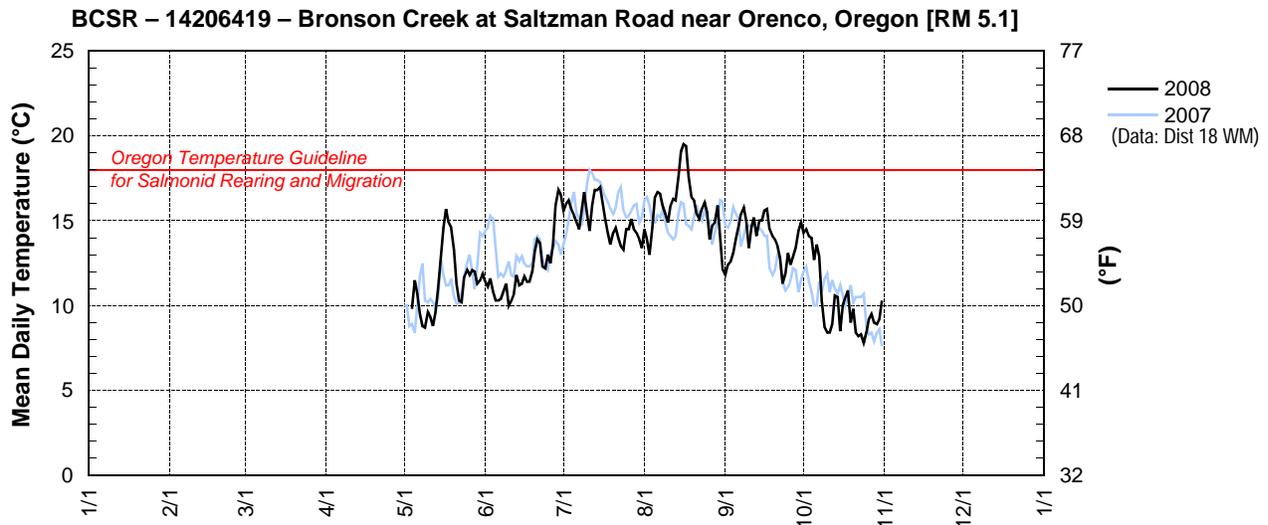
**BCSR – 14206419 – BRONSON CREEK AT SALTZMAN ROAD NEAR ORENCO, OREGON [RM 5.1]**

Latitude: 45 33 19 Longitude: 122 48 25

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						11.4	15.6	14.5	11.8	14.3		
2						11.1	16.0	13.9	12.4	14.5		
3						11.6	16.2	13.0	12.6	14.1		
4					9.8	10.8	15.7	14.6	13.1	14.0		
5					11.5	10.3	15.3	16.4	13.9	12.7		
6					10.7	10.3	14.9	16.7	14.6	13.6		
7					9.5	10.4	14.5	16.6	15.4	12.9		
8					8.8	10.8	15.6	15.9	15.8	10.3		
9					8.7	11.3	16.7	15.4	15.0	8.7		
10					9.6	10.0	15.4	14.9	13.4	8.4		
11					9.3	10.3	14.4	15.9	14.6	8.4		
12					8.8	10.7	15.9	16.3	15.2	8.9		
13					9.6	11.8	16.8	16.2	14.1	10.6		
14					11.0	11.2	16.8	17.6	15.0	10.5		
15					12.9	11.3	17.0	19.1	15.0	8.5		
16					14.6	11.7	16.0	19.5	15.6	10.0		
17					15.7	11.4	15.1	19.4	15.7	10.5		
18					14.9	11.4	14.3	17.6	14.5	10.9		
19					14.6	12.0	13.6	16.4	14.1	9.0		
20					13.3	13.2	14.3	16.2	13.9	9.8		
21					11.3	13.9	14.6	15.4	13.5	8.4		
22					10.3	13.7	14.0	15.1	12.8	8.2		
23					10.2	12.3	13.5	15.7	11.3	8.3		
24					11.7	12.2	13.3	16.1	11.9	7.8		
25					12.1	13.0	14.5	15.5	13.1	8.4		
26					11.8	12.5	14.5	13.9	12.4	9.2		
27					12.1	13.6	15.1	14.7	12.9	9.5		
28					12.0	15.9	14.5	14.9	13.4	9.0		
29					11.3	16.8	14.3	15.9	14.4	8.9		
30		—			11.5	16.5	13.9	13.8	14.9	9.2		
31		—		—	11.9	—	13.4	12.1	—	10.3	—	
MEAN					e11.4	12.1	15.0	15.8	13.9	10.3		
MAX					e15.7	16.8	17.0	19.5	15.8	14.5		
MIN					e8.7	10.0	13.3	12.1	11.3	7.8		

e=estimated value due to incomplete record



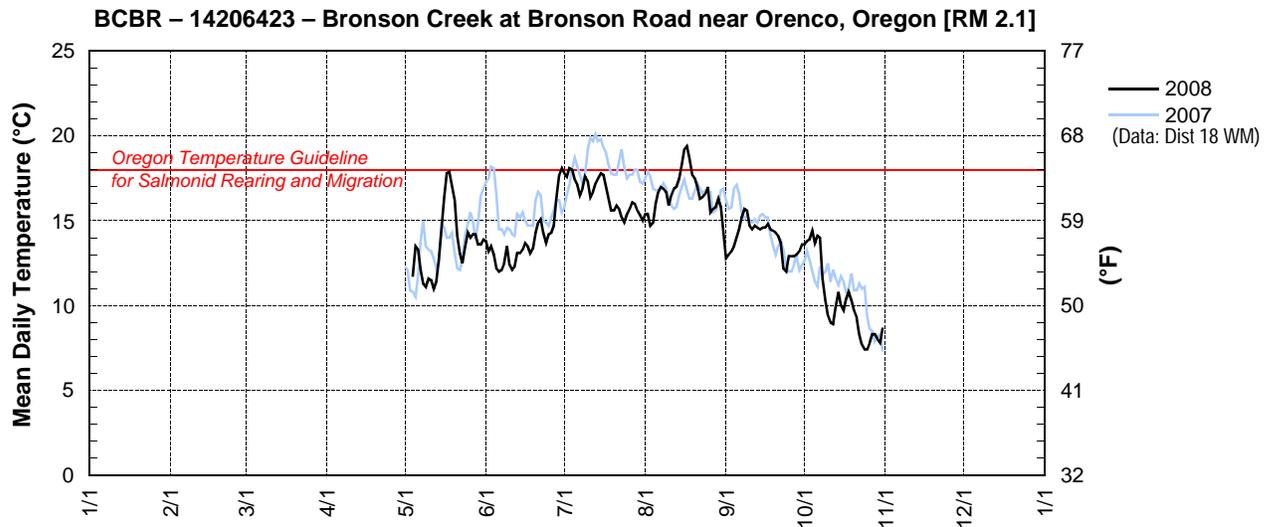
**BCBR – 14206423 – BRONSON CREEK AT BRONSON ROAD NEAR ORENCO, OREGON [RM 2.1]**

Latitude: 45 32 18 Longitude: 122 51 15

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						13.8	17.8	15.4	12.8	13.6		
2						13.2	17.6	15.4	13.0	13.8		
3						13.5	18.1	14.7	13.2	13.9		
4					11.7	13.0	18.0	14.9	13.5	14.4		
5					13.5	12.2	17.4	16.0	14.0	13.7		
6					13.3	12.0	17.1	16.7	14.5	14.1		
7					12.1	12.1	16.5	17.0	15.2	14.0		
8					11.3	12.5	16.9	16.9	15.7	11.6		
9					11.1	13.5	17.6	16.7	15.6	10.3		
10					11.6	12.4	17.3	15.9	14.7	9.4		
11					11.5	12.1	16.4	16.5	14.5	9.0		
12					11.0	12.3	16.7	16.9	14.7	8.9		
13					11.4	13.1	17.2	17.0	14.6	9.9		
14					12.7	13.1	17.5	17.5	14.5	10.8		
15					14.5	13.3	17.8	18.3	14.6	10.0		
16					16.4	13.7	17.7	19.2	14.6	9.7		
17					17.8	13.5	17.0	19.4	14.8	10.4		
18					17.9	13.1	16.3	18.7	14.5	10.8		
19					17.1	13.4	15.6	17.7	14.4	10.3		
20					16.2	14.3	15.6	17.5	14.3	9.7		
21					14.1	14.9	15.9	17.0	14.1	9.3		
22					13.1	15.1	15.7	16.3	13.7	8.3		
23					12.5	14.3	15.2	16.4	12.2	7.7		
24					13.4	13.7	14.9	16.6	12.0	7.4		
25					14.3	14.2	15.4	17.0	12.9	7.4		
26					14.0	14.3	15.7	15.5	12.9	7.8		
27					14.2	14.7	16.1	15.7	12.9	8.3		
28					14.2	16.3	16.0	15.8	13.0	8.3		
29					13.6	17.7	15.6	16.3	13.2	8.0		
30		—			13.6	18.1	15.3	15.8	13.6	7.8		
31		—		—	13.9	—	15.0	14.3	—	8.7	—	
MEAN					e13.6	13.8	16.5	16.6	13.9	10.2		
MAX					e17.9	18.1	18.1	19.4	15.7	14.4		
MIN					e11.0	12.0	14.9	14.3	12.0	7.4		

e=estimated value due to incomplete record



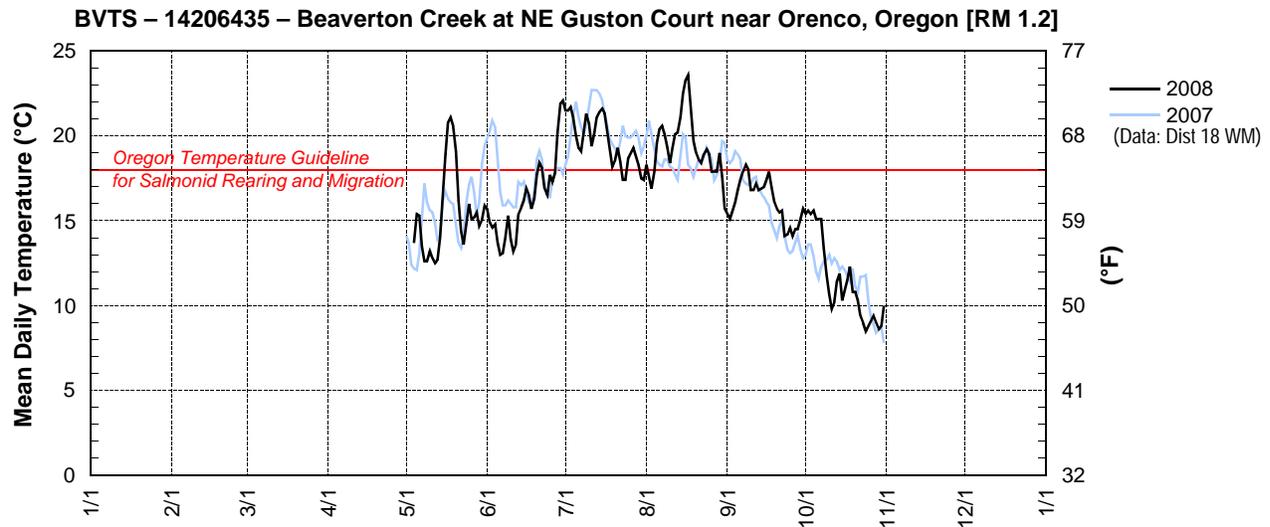
**BVTS – 14206435 – BEAVERTON CREEK AT NE GUSTON COURT NEAR ORENCO, OREGON [RM 1.2]**

Latitude: 45 31 15 Longitude: 122 53 59

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						15.7	21.5	18.3	15.4	15.4		
2						14.9	21.5	17.6	15.1	15.6		
3						14.6	21.7	16.9	15.6	15.4		
4					13.7	14.8	21.1	17.9	16.1	15.6		
5					15.4	13.7	20.0	19.6	16.8	15.1		
6					15.3	13.0	19.3	20.4	17.4	15.1		
7					13.5	13.1	19.1	20.6	17.9	15.1		
8					12.6	14.0	20.2	20.1	18.3	13.4		
9					12.6	15.3	21.3	19.3	18.0	11.8		
10					13.2	13.9	20.7	18.4	16.8	10.7		
11					12.8	13.2	19.4	19.3	16.8	9.8		
12					12.5	13.6	20.1	20.1	17.2	10.2		
13					12.7	15.4	21.1	20.2	16.8	11.4		
14					14.0	15.8	21.4	21.1	16.9	11.9		
15					16.4	16.2	21.6	22.5	17.0	10.3		
16					18.9	16.9	21.3	23.3	17.4	10.9		
17					20.8	16.5	20.2	23.6	17.9	11.5		
18					21.1	15.7	19.2	21.6	17.0	12.3		
19					20.6	16.3	18.2	19.7	16.1	10.8		
20					19.1	17.7	18.6	19.0	15.7	10.8		
21					16.2	18.4	19.3	18.6	15.5	10.3		
22					14.4	18.1	18.5	18.4	15.6	9.4		
23					13.6	16.9	17.4	18.9	14.1	9.0		
24					14.7	16.5	17.4	19.2	14.2	8.5		
25					16.0	17.7	18.7	18.9	14.6	8.8		
26					15.1	17.3	19.0	17.9	14.1	9.1		
27					15.2	17.8	19.3	17.9	14.5	9.4		
28					15.5	20.2	18.8	17.9	14.5	9.0		
29					14.7	21.9	18.3	19.0	15.1	8.6		
30		—			15.1	22.1	17.5	17.6	15.7	8.8		
31		—		—	15.9	—	17.4	15.7	—	10.0	—	
MEAN					e15.3	16.2	19.6	19.4	16.1	11.4		
MAX					e21.1	22.1	21.7	23.6	18.3	15.6		
MIN					e12.5	13.0	17.4	15.7	14.1	8.5		

e=estimated value due to incomplete record



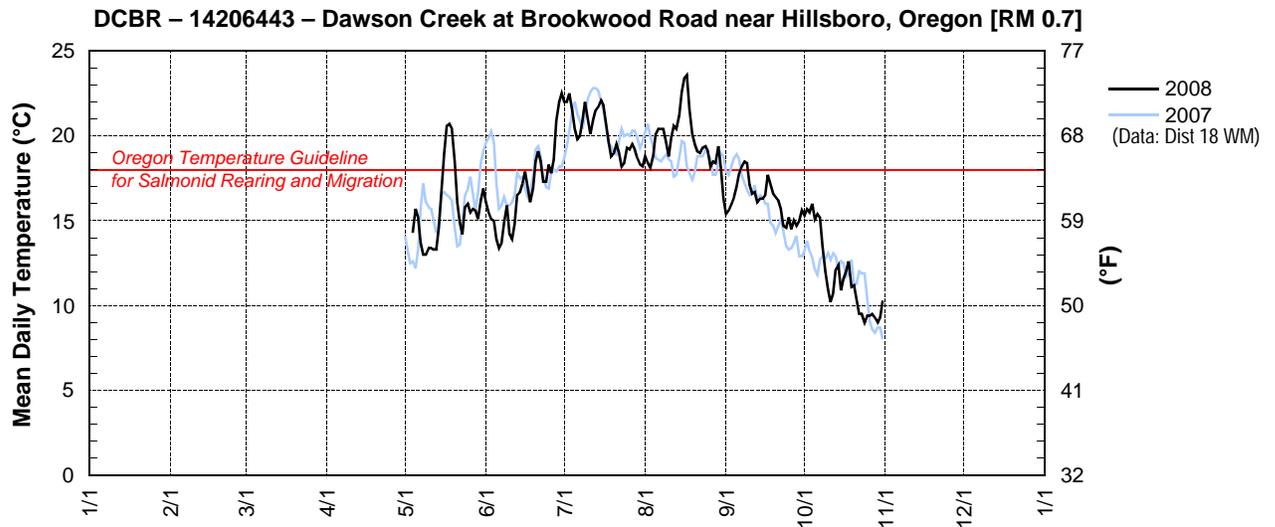
**DCBR – 14206443 – DAWSON CREEK AT BROOKWOOD ROAD NEAR HILLSBORO, OREGON [RM 0.7]**

Latitude: 45 31 27 Longitude: 122 56 01

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						16.1	22.0	18.8	15.4	15.3		
2						15.5	22.0	18.4	15.6	15.7		
3						15.1	22.5	18.1	16.0	15.5		
4					14.3	15.0	21.5	18.8	16.4	16.0		
5					15.7	13.9	20.4	20.1	17.0	15.1		
6					15.2	13.4	19.8	20.4	17.8	15.4		
7					13.7	13.7	20.0	20.4	18.2	15.2		
8					13.0	14.9	20.9	20.4	18.5	13.5		
9					13.0	15.9	22.0	19.6	18.4	12.0		
10					13.4	14.2	21.0	18.8	17.1	11.0		
11					13.4	13.9	20.1	19.9	16.6	10.2		
12					13.3	14.8	20.9	20.6	16.7	10.7		
13					13.3	16.5	21.5	20.4	16.1	12.1		
14					14.6	16.7	21.7	21.2	16.3	12.4		
15					17.0	17.2	22.1	22.6	16.3	10.9		
16					19.0	17.9	21.8	23.4	16.5	11.6		
17					20.6	17.0	20.8	23.6	17.7	12.0		
18					20.7	16.1	19.7	21.6	17.2	12.6		
19					20.4	16.9	18.8	20.1	16.6	11.1		
20					18.5	18.5	19.0	19.5	16.4	11.2		
21					16.1	19.1	19.5	19.1	16.2	10.4		
22					14.9	18.5	19.0	19.0	15.7	9.5		
23					14.2	17.3	18.2	19.3	14.7	9.5		
24					15.8	17.3	18.4	19.4	14.6	9.0		
25					16.0	18.3	19.3	19.1	15.2	9.4		
26					15.5	17.8	19.2	18.2	14.5	9.4		
27					15.7	18.6	19.5	18.5	15.0	9.5		
28					15.6	20.9	19.2	18.4	14.7	9.3		
29					15.1	22.0	18.7	19.4	15.0	9.0		
30		—			16.2	22.5	18.3	18.1	15.6	9.3		
31		—		—	16.9	—	18.2	16.3	—	10.3	—	
MEAN					e15.7	16.8	20.2	19.7	16.3	11.7		
MAX					e20.7	22.5	22.5	23.6	18.5	16.0		
MIN					e13.0	13.4	18.2	16.3	14.5	9.0		

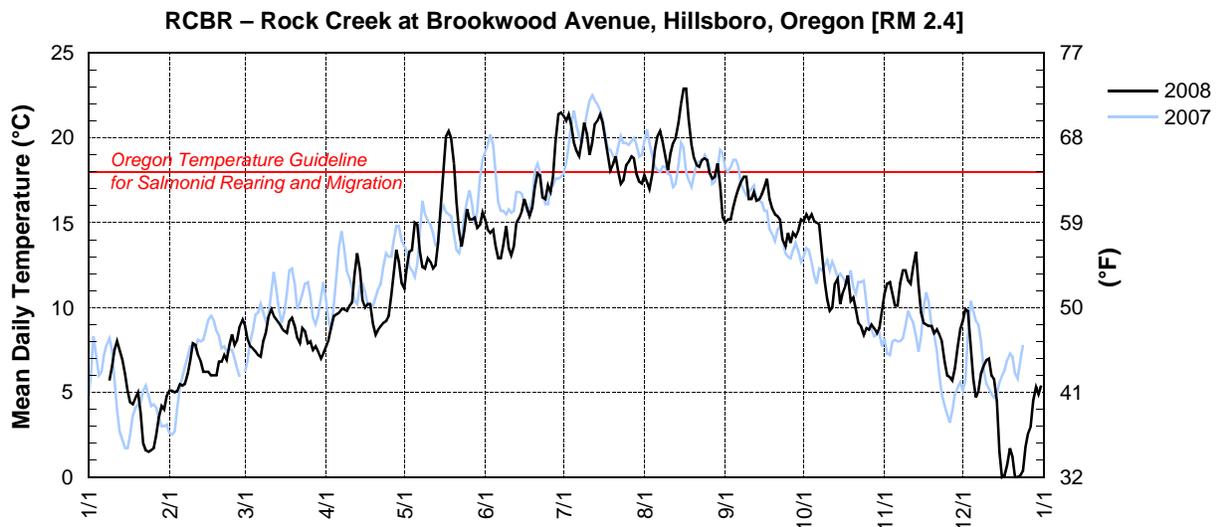
e=estimated value due to incomplete record



UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER  
**STATION NUMBER 453030122560101 ROCK CREEK AT BROOKWOOD AVENUE, HILLSBORO, OR.**  
 LATITUDE: 453029.5 LONGITUDE: 1225600.6

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1		5.1	9.0	7.7	11.1	15.2	21.3	17.8	15.0	15.1	10.8	9.1
2		5.1	8.2	8.1	12.4	14.6	21.0	17.4	15.2	15.5	11.4	9.9
3		5.0	7.7	8.7	13.3	14.4	21.4	17.0	15.2	15.3	11.5	9.8
4		5.1	7.6	9.5	13.4	14.6	20.9	17.9	15.9	15.5	10.9	7.8
5		5.4	7.4	9.6	15.0	13.6	19.7	19.3	16.5	15.1	10.2	5.9
6		5.4	7.2	9.7	14.9	12.9	19.2	20.1	17.0	15.0	10.1	4.7
7		5.5	7.1	9.9	13.3	12.9	18.9	20.4	17.4	15.0	11.4	5.1
8		6.1	8.0	9.9	12.4	13.7	19.8	19.8	17.7	13.4	12.2	6.0
9	5.7	6.9	8.5	9.8	12.3	14.8	20.9	18.9	17.7	11.7	12.2	6.6
10	6.5	7.9	9.5	10.1	12.9	13.5	20.3	18.1	16.4	10.5	11.6	6.9
11	7.5	7.8	9.9	10.3	12.7	13.1	19.0	19.1	16.4	9.8	11.4	7.0
12	8.0	7.2	9.5	11.9	12.3	13.5	19.7	19.7	16.9	10.0	12.4	6.0
13	7.5	6.8	9.3	13.2	12.5	15.0	20.8	20.0	16.3	11.3	13.4	5.8
14	7.0	6.2	9.1	12.2	13.8	15.3	21.0	20.8	16.4	11.7	11.4	4.5
15	6.2	6.2	8.8	10.4	16.0	15.7	21.4	22.0	16.7	10.2	9.7	1.5
16	5.1	6.3	8.7	10.0	18.3	16.4	20.9	22.9	17.1	10.8	9.2	0.0
17	4.4	6.0	8.5	10.2	20.1	16.0	19.9	23.0	17.6	11.3	9.0	0.1
18	4.3	6.0	9.2	10.2	20.5	15.4	19.0	21.2	16.4	11.9	8.9	0.6
19	4.7	6.0	9.4	9.0	20.0	15.9	18.1	19.6	15.8	10.5	8.9	1.7
20	5.0	6.8	8.9	8.4	18.6	17.1	18.5	18.8	15.6	10.6	8.5	1.2
21	3.9	6.8	8.3	8.7	16.2	17.9	18.9	18.4	15.4	9.9	8.7	0.0
22	2.1	7.3	7.9	8.9	14.5	17.8	18.0	18.3	15.2	9.1	8.4	0.0
23	1.6	6.9	8.8	9.1	13.6	16.6	17.3	18.7	14.0	8.9	8.0	0.1
24	1.5	7.8	8.6	9.2	14.5	16.4	17.5	18.8	13.6	8.4	6.8	0.4
25	1.6	8.4	8.0	9.5	15.8	17.2	18.4	18.7	14.4	8.8	6.0	1.8
26	1.7	7.9	8.0	10.7	15.2	16.8	18.6	17.9	13.8	8.7	5.9	2.6
27	2.5	8.1	7.6	12.1	15.2	17.7	18.9	17.7	14.4	9.0	5.7	3.0
28	3.4	8.9	7.6	13.4	15.3	19.7	18.8	17.7	14.2	8.8	6.4	4.5
29	4.2	9.3	7.4	12.7	14.7	21.4	17.9	18.5	14.6	8.5	7.7	5.3
30	4.0	—	7.0	11.5	14.9	21.5	17.4	17.2	15.2	8.8	8.7	4.9
31	4.8	—	7.3	—	15.6	—	17.3	15.4	—	9.8	—	5.4
MEAN	e4.4	6.7	8.3	10.2	14.9	15.9	19.4	19.1	15.8	11.3	9.6	4.1
MAX	e8.0	9.3	9.9	13.4	20.5	21.5	21.4	23.0	17.7	15.5	13.4	9.9
MIN	e1.5	5.0	7.0	7.7	11.1	12.9	17.3	15.4	13.6	8.4	5.7	0.0

<sup>†</sup> Provisional data—subject to revision; e= estimated value



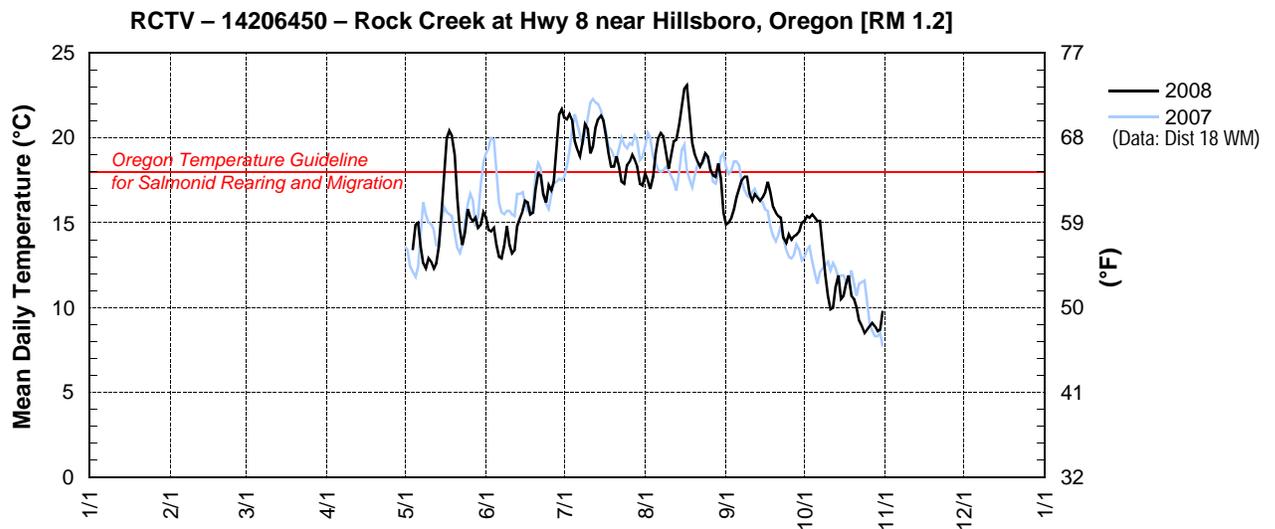
**RCTV – 14206450 – ROCK CREEK AT HWY 8 NEAR HILLSBORO, OREGON [RM 1.2]**

Latitude: 45 30 08 Longitude: 122 56 52

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						15.3	21.2	17.9	15.0	15.2		
2						14.6	21.1	17.5	15.1	15.5		
3						14.5	21.4	17.0	15.4	15.5		
4					13.4	14.7	21.0	17.7	15.9	15.7		
5					14.9	13.7	19.8	19.2	16.6	15.4		
6					15.0	13.0	19.3	20.1	17.1	15.2		
7					13.6	12.9	18.9	20.4	17.5	15.2		
8					12.6	13.6	19.7	20.1	17.7	13.8		
9					12.3	14.8	20.8	19.1	17.8	12.0		
10					12.9	13.7	20.5	18.2	16.8	10.8		
11					12.7	13.2	19.1	19.0	16.4	10.1		
12					12.3	13.4	19.5	19.8	16.8	10.2		
13					12.6	14.8	20.6	20.0	16.6	11.3		
14					13.6	15.3	21.1	20.8	16.4	12.0		
15					15.7	15.7	21.3	21.8	16.6	10.7		
16					18.1	16.3	21.0	22.9	16.9	10.8		
17					20.0	16.2	20.1	23.2	17.5	11.5		
18					20.4	15.5	19.1	21.5	16.9	12.1		
19					20.1	15.6	18.3	19.8	16.0	10.9		
20					19.0	17.0	18.3	19.1	15.7	10.7		
21					16.5	17.9	18.9	18.6	15.5	10.2		
22					14.6	17.8	18.3	18.3	15.4	9.4		
23					13.7	16.7	17.4	18.6	14.2	9.1		
24					14.4	16.2	17.3	19.1	13.9	8.7		
25					15.8	17.2	18.4	18.9	14.4	8.9		
26					15.3	16.9	18.6	18.1	14.1	9.0		
27					15.1	17.4	19.0	17.9	14.4	9.2		
28					15.3	19.4	18.7	17.8	14.4	9.1		
29					14.7	21.4	18.3	18.6	14.6	8.7		
30		—			14.9	21.7	17.3	17.7	15.2	8.9		
31		—		—	15.6	—	17.3	15.6	—7	10.0	—	
MEAN					e15.1	15.9	19.4	19.2	15.9	11.5		
MAX					e20.4	21.7	21.4	23.2	17.8	15.7		
MIN					e12.3	12.9	17.3	15.6	13.9	8.7		

e=estimated value due to incomplete record



**FRMO – 14206500 – TUALATIN RIVER AT FARMINGTON, OREGON [RM 33.3]**

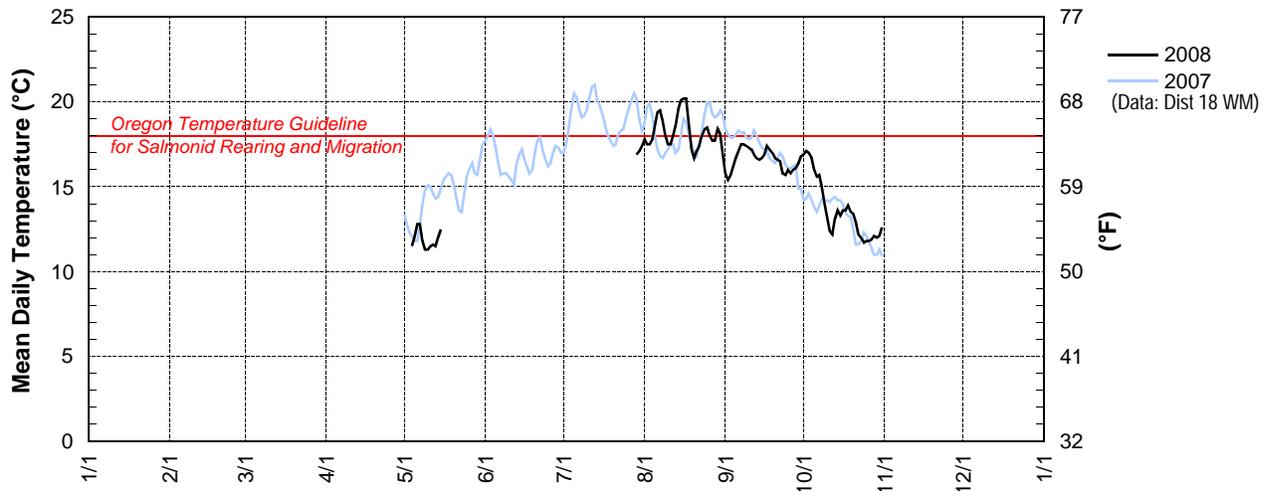
Latitude: 45 26 58 Longitude: 122 57 02

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1								17.8	15.8	16.9		
2								17.5	15.4	17.1		
3								17.5	15.7	17.0		
4					11.5			17.8	16.2	16.7		
5					12.1			18.6	16.7	16.0		
6					12.8			19.4	17.1	15.6		
7					12.8			19.5	17.5	15.7		
8					11.8			18.9	17.5	15.0		
9					11.3			18.0	17.4	14.0		
10					11.3			17.5	17.3	13.2		
11					11.5			17.5	17.2	12.4		
12					11.6			18.0	16.9	12.2		
13					11.5			18.6	16.7	13.1		
14					12.0			19.6	16.6	13.6		
15					e12.5			20.1	16.7	13.3		
16								20.2	16.9	13.6		
17								20.2	17.4	13.6		
18								18.7	17.2	13.9		
19								17.2	17.0	13.5		
20								16.7	16.7	13.4		
21								17.1	16.6	12.9		
22								17.4	16.5	12.2		
23								18.0	15.8	12.0		
24								18.4	15.7	11.7		
25								18.5	16.0	11.8		
26								18.0	15.8	11.8		
27								17.7	16.0	11.9		
28								17.7	16.1	12.1		
29							e16.9	18.4	16.4	12.0		
30		—						17.1	18.1	16.8	12.1	
31		—		—		—		17.4	17.0	—	12.6	—
MEAN					e11.8		e17.1	18.2	16.6	13.6		
MAX					e12.8		e17.4	20.2	17.5	17.1		
MIN					e11.3		e16.9	16.7	15.4	11.7		

e=estimated value due to incomplete record

**FRMO – 14206500 – Tualatin River at Farmington, Oregon [RM 33.3]**



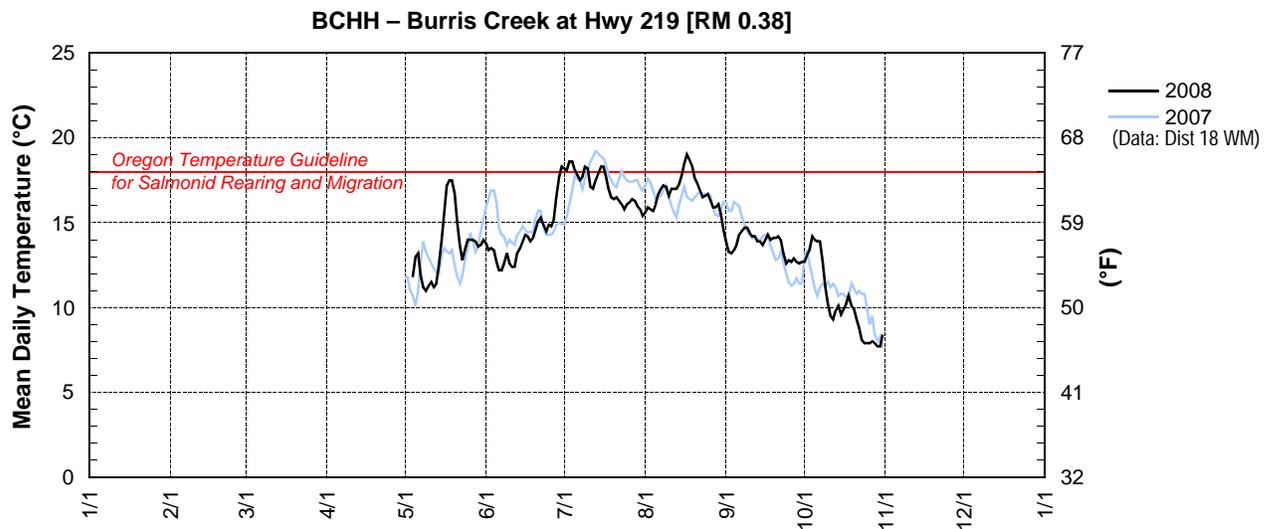
**BCHH – BURRIS CREEK AT HWY 219 [RM 0.38]**

Latitude: 45 25 34 Longitude: 122 57 40

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						13.8	18.2	15.6	13.9	12.7		
2						13.4	18.1	15.9	13.3	13.1		
3						13.5	18.6	15.8	13.2	13.4		
4					11.8	13.4	18.6	15.7	13.4	14.2		
5					13.0	12.7	18.1	16.1	13.7	14.0		
6					13.2	12.2	17.8	16.7	14.3	13.9		
7					11.9	12.2	17.5	17.0	14.5	13.9		
8					11.2	12.6	17.7	17.2	14.7	12.8		
9					11.0	13.2	18.3	17.1	14.7	11.2		
10					11.3	12.6	18.2	16.6	14.4	10.2		
11					11.5	12.4	17.1	17.0	14.2	9.5		
12					11.2	12.4	17.0	17.0	14.2	9.3		
13					11.4	13.2	17.5	17.0	13.9	9.8		
14					12.5	13.5	17.9	17.3	13.9	10.1		
15					14.0	13.9	18.3	17.8	13.7	9.6		
16					15.6	14.3	18.3	18.5	14.0	9.9		
17					17.2	14.2	17.7	19.0	14.3	10.2		
18					17.5	13.9	17.0	18.7	14.0	10.7		
19					17.5	14.1	16.5	18.3	14.1	10.1		
20					16.7	14.6	16.4	17.6	14.1	9.9		
21					15.0	15.1	16.5	17.3	14.2	9.3		
22					13.7	15.3	16.3	16.9	14.0	8.8		
23					12.8	14.9	16.1	16.5	13.2	8.1		
24					13.4	14.5	15.8	16.6	12.6	7.9		
25					14.0	14.9	16.1	16.7	12.8	7.9		
26					14.0	14.8	16.2	16.3	12.7	7.9		
27					14.0	15.2	16.4	15.9	12.9	8.0		
28					13.9	16.5	16.3	15.9	12.7	7.9		
29					13.6	17.7	16.0	16.1	12.6	7.7		
30		—			13.7	18.3	15.8	15.5	12.7	7.7		
31		—		—	14.0	—	15.4	14.6	—	8.4	—	
MEAN					e13.5	14.1	17.1	16.8	13.7	10.3		
MAX					e17.5	18.3	18.6	19.0	14.7	14.2		
MIN					e11.0	12.2	15.4	14.6	12.6	7.7		

e=estimated value due to incomplete record



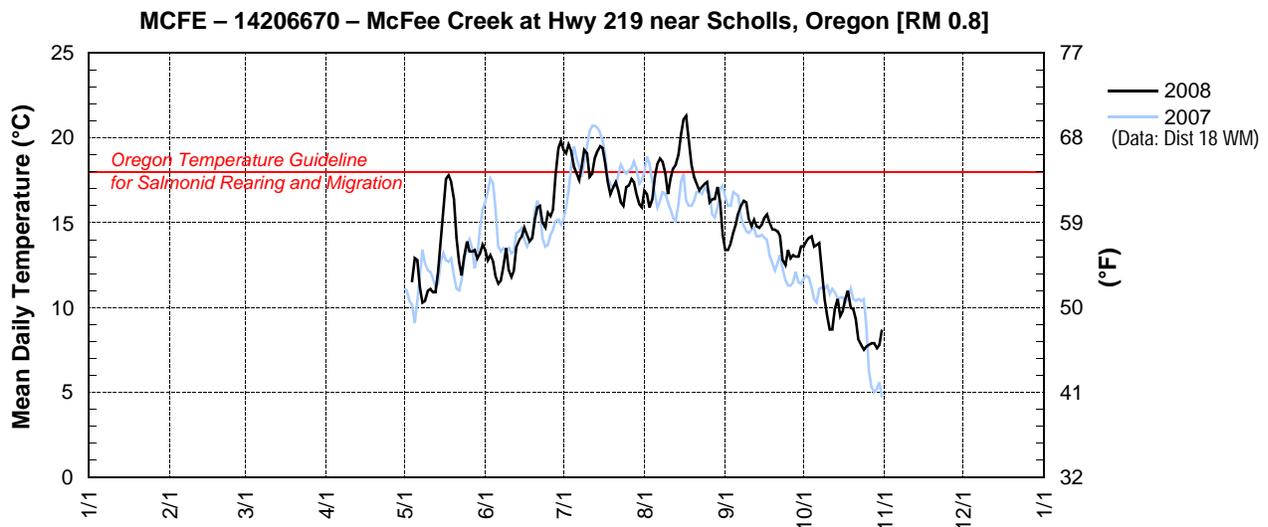
**MCFE – 14206670 – MCFEE CREEK AT HWY 219 NEAR SCHOLLS, OREGON [RM 0.8]**

Latitude: 45 24 19 Longitude: 122 56 19

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						13.4	19.3	16.9	13.4	13.6		
2						12.8	19.1	16.7	13.4	13.9		
3						13.1	19.6	15.9	13.8	14.1		
4					11.5	12.7	19.2	16.4	14.4	14.2		
5					12.9	11.8	18.3	17.7	14.9	13.6		
6					12.8	11.4	17.9	18.5	15.6	13.7		
7					11.2	11.6	17.5	18.8	16.0	13.8		
8					10.3	12.4	18.3	18.6	16.3	12.2		
9					10.4	13.5	19.3	17.9	16.2	10.5		
10					11.0	12.2	19.1	16.7	15.2	9.5		
11					11.1	11.8	17.7	17.6	14.8	8.7		
12					10.9	12.2	17.9	18.2	15.2	8.7		
13					10.9	13.6	18.8	18.4	14.8	9.9		
14					12.1	14.0	19.2	19.0	14.7	10.5		
15					14.3	14.2	19.5	20.2	14.9	9.5		
16					16.1	14.7	19.4	21.1	15.3	9.8		
17					17.6	14.3	18.5	21.3	15.5	10.5		
18					17.8	13.9	17.4	19.9	15.0	11.0		
19					17.4	14.1	16.7	18.4	14.6	10.0		
20					16.4	15.2	17.1	17.7	14.6	9.9		
21					14.1	15.9	17.4	17.3	14.5	9.3		
22					12.7	16.0	16.9	16.9	14.2	8.1		
23					11.9	15.0	16.2	17.1	12.8	7.8		
24					13.0	14.7	16.0	17.3	12.5	7.5		
25					13.9	15.6	17.1	17.4	13.4	7.7		
26					13.3	15.4	17.2	16.2	12.9	7.8		
27					13.3	15.8	17.6	16.4	13.1	7.9		
28					13.4	17.8	17.4	16.4	13.0	7.9		
29					12.9	19.4	16.7	17.1	13.0	7.6		
30		—			13.2	19.8	16.1	16.2	13.6	7.8		
31		—		—	13.7	—	15.9	14.3	—	8.7	—	
MEAN					e13.1	14.3	17.9	17.7	14.4	10.2		
MAX					e17.8	19.8	19.6	21.3	16.3	14.2		
MIN					e10.3	11.4	15.9	14.3	12.5	7.5		

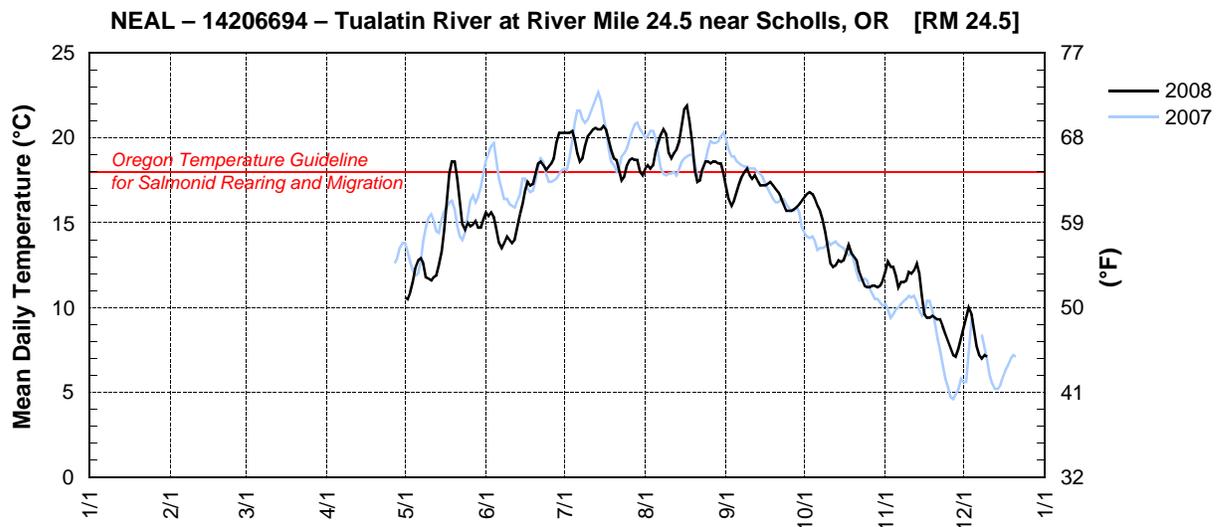
e=estimated value due to incomplete record



UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER  
**STATION NUMBER 14206694 TUALATIN RIVER AT RIVER MILE 24.5, NR SCHOLLS, OR**  
 LATITUDE: 452406 LONGITUDE: 1225338

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1					10.6	15.6	20.3	18.2	17.1	16.5	12.1	8.8
2					10.5	15.5	20.3	18.4	16.4	16.7	12.7	9.4
3					10.9	15.6	20.3	18.2	16.0	16.8	12.4	10.0
4					11.5	15.4	20.4	18.4	16.3	16.7	12.4	9.6
5					12.4	14.6	20.0	19.2	16.8	16.4	11.9	8.7
6					12.8	13.8	19.2	19.7	17.3	16.0	11.2	7.7
7					12.9	13.5	18.6	20.2	17.7	15.7	11.5	7.2
8					12.6	13.8	18.8	20.5	18.0	15.2	11.5	7.0
9					11.8	14.2	19.5	20.2	18.2	14.4	11.6	7.2
10					11.7	14.0	20.1	19.1	17.9	13.5	12.1	7.1
11					11.6	13.8	20.3	18.8	17.6	12.6	12.0	
12					11.8	14.0	20.5	19.1	17.8	12.4	12.2	
13					11.9	14.7	20.6	19.2	17.6	12.5	12.6	
14					12.5	15.4	20.5	19.8	17.2	12.8	12.0	
15					13.2	16.1	20.5	20.8	17.2	12.7	10.7	
16					14.5	16.9	20.7	21.7	17.2	12.8	9.6	
17					16.3	17.4	20.5	21.9	17.3	13.2	9.4	
18					17.8	17.2	20.0	21.0	17.4	13.7	9.4	
19					18.6	17.3	19.3	19.8	17.2	13.3	9.5	
20					18.6	17.8	18.8	18.2	17.0	13.0	9.4	
21					17.6	18.5	18.7	17.5	16.8	12.8	9.3	
22					16.4	18.7	18.2	17.5	16.6	12.1	9.3	
23					14.9	18.4	17.5	18.2	16.1	11.7	8.9	
24					14.6	18.1	17.7	18.6	15.7	11.3	8.4	
25					15.0	18.3	18.4	18.6	15.7	11.2	8.0	
26					14.8	18.5	18.7	18.5	15.7	11.2	7.6	
27					14.9	18.8	18.8	18.6	15.8	11.3	7.2	
28					15.1	19.7	18.7	18.6	15.9	11.3	7.1	
29					14.7	20.3	18.7	18.6	16.1	11.3	7.6	
30		—			14.7	20.3	18.1	18.5	16.3	11.3	8.2	
31		—			15.2	—	17.8	17.9	—	11.6	—	
MEAN					14.1	16.5	19.4	19.2	16.9	13.4	10.3	e8.4
MAX					18.6	20.3	20.7	21.9	18.2	16.8	12.7	e10.0
MIN					10.5	13.5	17.5	17.5	15.7	11.2	7.1	e7.0

<sup>†</sup> Provisional data—subject to revision; estimated value



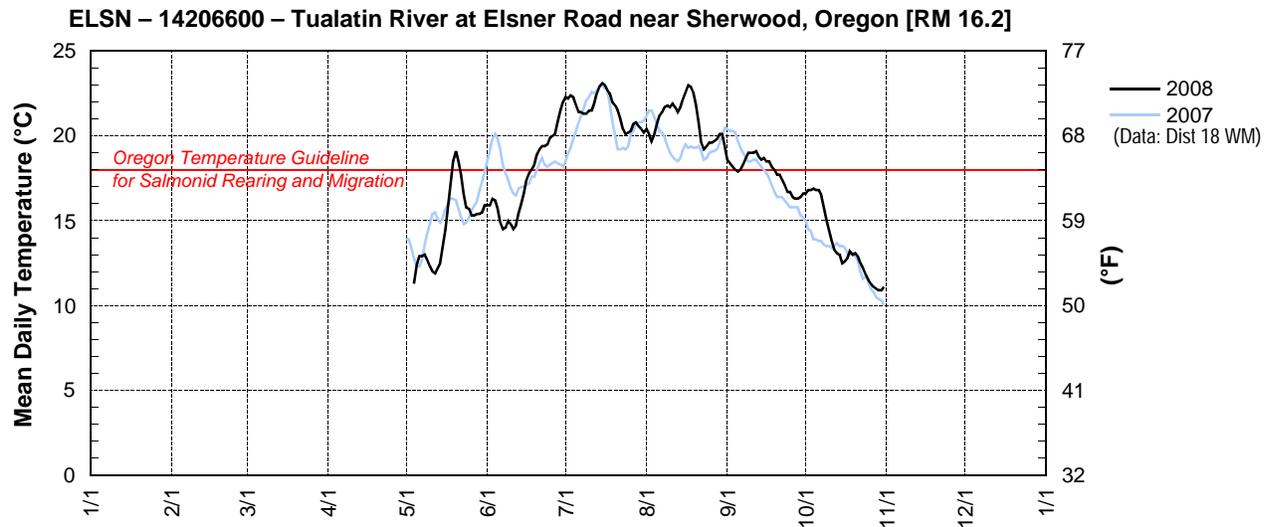
**ELSN – 14206600 – TUALATIN RIVER AT ELSNER ROAD NEAR SHERWOOD, OREGON [RM 16.2]**

Latitude: 45 23 17 Longitude: 122 51 03

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						15.9	22.3	20.4	18.6	16.6		
2						15.9	22.2	20.1	18.4	16.8		
3						16.3	22.4	19.7	18.2	16.8		
4					11.3	16.2	22.3	20.1	18.0	16.9		
5					12.4	15.7	21.8	20.7	17.9	16.8		
6					12.9	14.9	21.4	21.2	18.0	16.8		
7					12.9	14.5	21.4	21.4	18.3	16.5		
8					13.0	14.6	21.3	21.7	18.7	15.8		
9					12.7	15.0	21.3	21.8	19.0	15.0		
10					12.3	14.8	21.5	21.7	19.0	14.4		
11					12.0	14.5	21.5	21.9	19.0	13.8		
12					11.9	14.7	21.9	21.7	19.1	13.3		
13					12.2	15.4	22.5	21.4	18.8	13.1		
14					12.5	16.0	22.9	21.7	18.6	13.0		
15					13.6	16.6	23.1	22.2	18.7	12.5		
16					14.5	17.4	23.0	22.6	18.5	12.6		
17					15.8	17.8	22.7	23.0	18.5	12.8		
18					17.2	18.0	22.5	22.9	18.2	13.2		
19					18.5	18.3	22.0	22.5	18.0	13.0		
20					19.1	18.9	21.8	21.8	17.7	13.1		
21					18.5	19.2	21.5	20.8	17.7	12.9		
22					17.7	19.4	21.0	19.6	17.4	12.5		
23					16.6	19.4	20.4	19.2	17.1	12.2		
24					15.8	19.5	20.1	19.4	16.7	11.8		
25					15.7	19.9	20.2	19.6	16.7	11.5		
26					15.3	20.0	20.3	19.6	16.4	11.3		
27					15.3	20.1	20.7	19.7	16.3	11.1		
28					15.4	20.8	20.8	19.8	16.3	11.0		
29					15.4	21.5	20.6	20.1	16.4	10.9		
30		—			15.5	22.0	20.4	20.1	16.6	10.9		
31		—		—	15.9	—	20.2	19.4	—	11.1	—	
MEAN					e14.6	17.4	21.6	20.9	17.9	13.6		
MAX					e19.1	22.0	23.1	23.0	19.1	16.9		
MIN					e11.3	14.5	20.1	19.2	16.3	10.9		

e=estimated value due to incomplete record



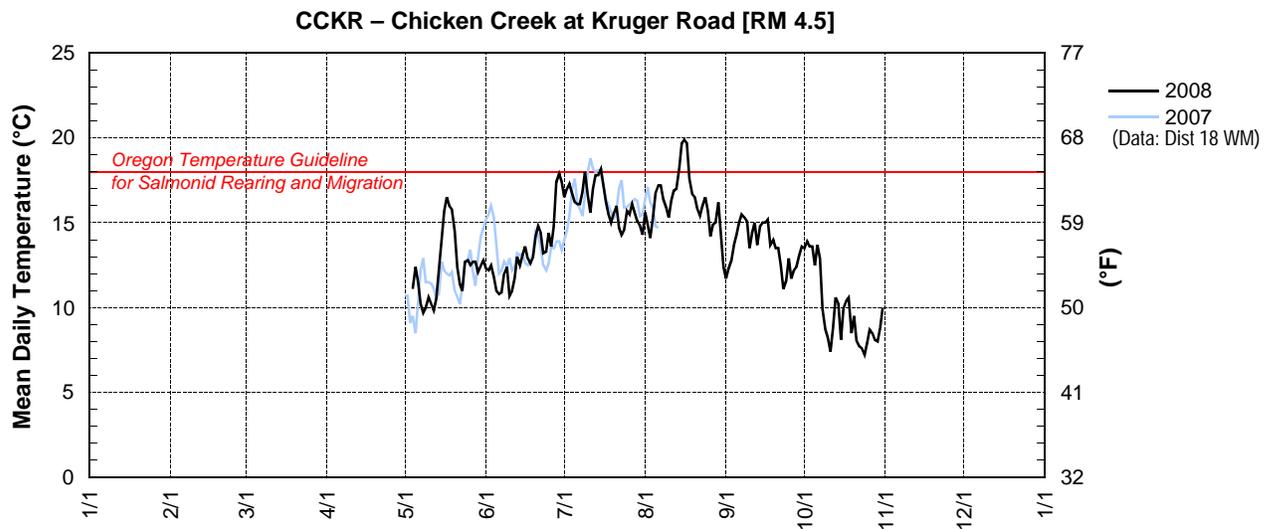
### CCKR – CHICKEN CREEK AT KRUGER ROAD [RM 4.5]

Latitude: 45 22 05 Longitude: 122 51 22

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						12.3	16.5	15.6	11.7	13.5		
2						12.2	17.0	14.9	12.3	13.9		
3						12.5	17.3	14.1	12.8	13.6		
4					11.1	11.8	16.7	15.4	13.7	13.6		
5					12.4	11.0	16.2	16.8	14.3	12.5		
6					11.5	10.8	16.1	17.2	15.0	13.7		
7					10.2	10.9	16.1	17.2	15.5	12.9		
8					9.7	12.0	16.8	16.4	15.3	9.9		
9					10.0	12.4	18.0	15.9	15.1	8.7		
10					10.6	10.7	16.6	15.3	13.5	8.2		
11					10.2	11.0	15.6	16.3	14.4	7.4		
12					9.8	11.7	17.0	16.9	15.0	8.8		
13					10.5	13.0	17.8	17.0	13.7	10.6		
14					12.3	12.5	17.8	18.2	14.8	10.2		
15					14.2	13.1	18.2	19.7	15.0	8.1		
16					15.7	13.6	17.2	19.9	15.0	10.0		
17					16.5	12.9	16.2	19.7	15.2	10.4		
18					16.0	12.6	15.5	17.6	13.7	10.6		
19					15.8	13.0	15.0	16.7	14.0	8.5		
20					14.5	14.2	15.6	16.5	13.5	9.5		
21					12.4	14.8	16.0	15.8	13.5	8.0		
22					11.4	14.4	14.7	15.4	12.5	7.7		
23					11.0	13.2	14.3	16.0	11.1	7.6		
24					12.7	13.3	14.6	16.5	11.6	7.2		
25					12.8	14.4	15.7	15.7	12.9	7.9		
26					12.5	13.6	15.5	14.2	11.7	8.7		
27					12.7	14.8	16.1	14.9	12.2	8.5		
28					12.7	17.4	15.6	15.0	12.4	8.1		
29					12.1	17.9	15.1	16.2	13.1	8.0		
30		—			12.5	17.4	14.8	14.1	13.6	8.8		
31		—		—	12.8	—	14.3	12.4	—	10.0	—	
<b>MEAN</b>					e12.3	13.2	16.1	16.2	13.6	9.8		
<b>MAX</b>					e16.5	17.9	18.2	19.9	15.5	13.9		
<b>MIN</b>					e9.7	10.7	14.3	12.4	11.1	7.2		

e=estimated value due to incomplete record



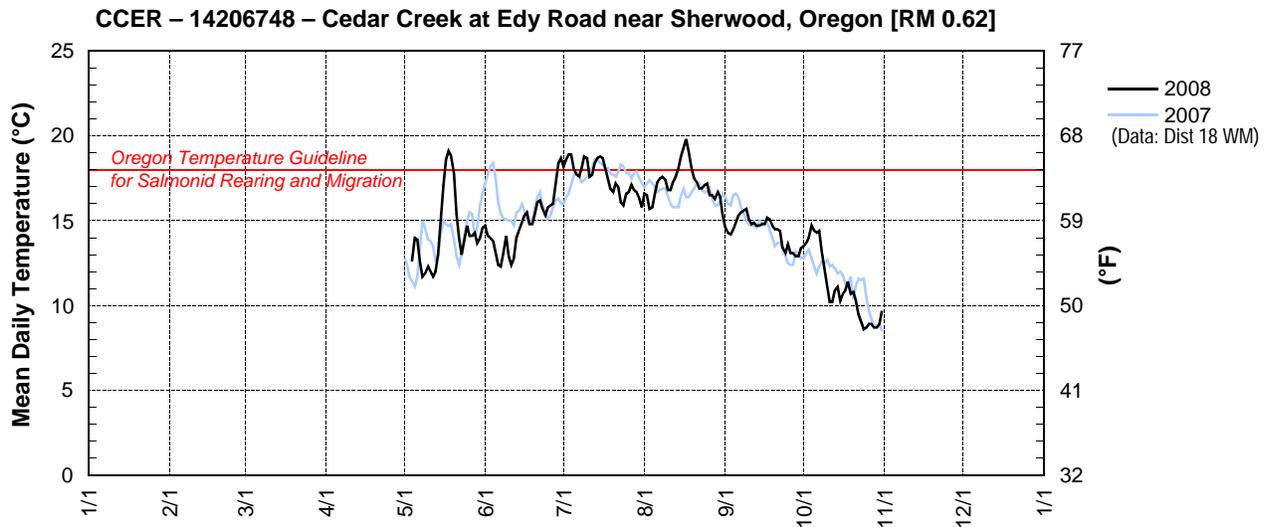
**CCER – 14206748 – CEDAR CREEK AT EDY ROAD NEAR SHERWOOD, OREGON [RM 0.62]**

Latitude: 45 22 05 Longitude: 122 51 22

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						14.7	18.2	16.6	14.6	13.5		
2						14.1	18.6	16.5	14.3	13.7		
3						14.0	18.9	15.7	14.2	14.0		
4					12.6	13.8	18.9	15.8	14.5	14.7		
5					14.0	13.1	18.0	16.6	14.9	14.4		
6					13.9	12.4	17.7	17.3	15.3	14.3		
7					12.6	12.3	17.6	17.5	15.5	14.4		
8					11.7	13.1	18.1	17.6	15.6	13.2		
9					11.9	14.1	18.8	17.4	15.7	12.1		
10					12.3	12.9	18.7	16.8	15.1	11.2		
11					12.0	12.4	17.6	16.8	14.8	10.2		
12					11.7	12.8	17.7	17.3	14.9	10.2		
13					12.0	14.0	18.4	17.6	14.7	10.9		
14					13.0	14.5	18.7	18.1	14.7	11.1		
15					15.1	14.9	18.8	18.8	14.8	10.3		
16					17.1	15.3	18.7	19.3	14.8	10.7		
17					18.6	15.5	18.1	19.8	15.2	10.9		
18					19.1	14.8	17.5	19.1	15.1	11.4		
19					18.8	14.8	16.9	18.1	14.7	10.7		
20					17.8	15.4	16.7	17.5	14.5	10.8		
21					15.4	16.1	17.2	17.3	14.5	10.3		
22					14.0	16.2	17.0	16.9	14.4	9.5		
23					13.0	15.7	16.1	16.9	13.4	9.1		
24					13.8	15.3	15.9	17.1	13.1	8.6		
25					14.7	15.8	16.6	17.2	13.6	8.7		
26					14.1	15.9	16.7	16.5	13.1	8.9		
27					14.1	16.0	17.1	16.5	13.1	8.9		
28					14.3	17.2	16.8	16.3	12.9	8.7		
29					13.7	18.4	16.7	16.7	12.9	8.7		
30		—			14.0	18.7	16.3	16.4	13.4	8.9		
31		—		—	14.6	—	15.8	15.3	—	9.7	—	
MEAN					e14.2	14.8	17.6	17.2	14.4	11.1		
MAX					e19.1	18.7	18.9	19.8	15.7	14.7		
MIN					e11.7	12.3	15.8	15.3	12.9	8.6		

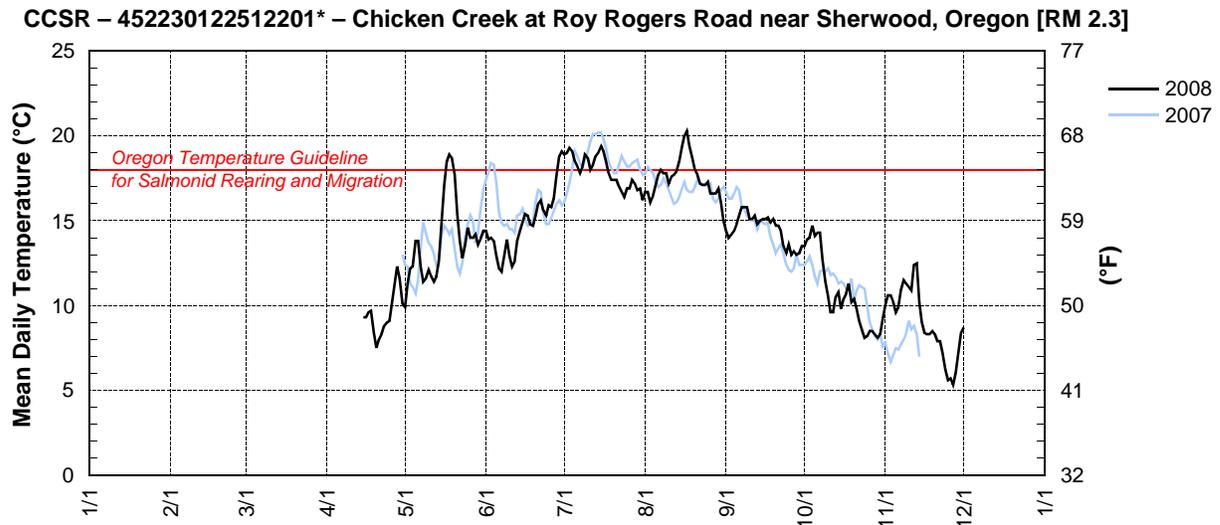
e=estimated value due to incomplete record



UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER  
**STATION NUMBER 452230122512201\* CHICKEN CREEK AT ROY ROGERS ROAD, SHERWOOD OR**  
 LATITUDE: 452230.09 LONGITUDE: 1225121.76

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1					9.8	14.4	18.9	16.7	14.4	13.5	10.0	8.7
2					11.2	13.9	19.0	16.7	14.0	13.9	10.6	
3					12.2	14.0	19.3	16.1	14.2	14.0	10.6	
4					12.3	13.8	19.1	16.5	14.4	14.7	10.2	
5					13.8	13.0	18.5	17.1	14.8	14.2	9.6	
6					13.8	12.2	18.2	17.7	15.3	14.3	9.9	
7					12.3	12.0	17.8	18.0	15.7	14.3	10.9	
8					11.4	12.8	18.2	17.8	15.9	12.8	11.5	
9					11.6	13.9	18.9	17.8	15.8	11.4	11.4	
10					12.1	12.9	18.7	17.2	15.1	10.6	11.1	
11					11.8	12.3	18.0	17.6	15.1	9.7	10.9	
12					11.4	12.6	18.3	17.7	15.3	9.6	12.4	
13					11.7	13.8	18.8	17.9	14.8	10.5	12.6	
14					12.6	14.4	19.0	18.5	15.0	10.8	10.2	
15					9.3	14.9	14.9	19.4	19.3	15.1	9.8	9.0
16					9.3	17.0	15.4	19.1	20.0	15.1	10.4	8.4
17					9.6	18.5	15.3	18.5	20.3	15.3	10.7	8.3
18					9.8	18.9	14.8	17.8	19.5	14.9	11.3	8.3
19					8.5	18.7	14.7	17.4	18.7	15.1	10.2	8.5
20					7.5	17.7	15.3	17.4	18.0	14.8	10.4	8.3
21					8.0	15.4	16.0	17.4	17.7	14.7	9.9	7.9
22					8.3	13.8	16.2	17.0	17.2	14.4	9.2	7.9
23					8.8	12.8	15.6	16.7	17.1	13.5	8.6	7.2
24					9.0	13.4	15.3	16.4	17.1	13.1	8.1	6.2
25					9.1	14.6	15.9	16.9	17.4	13.6	8.2	5.6
26					10.2	14.0	15.8	16.9	16.6	13.0	8.5	5.7
27					11.3	14.0	16.2	17.4	16.6	13.2	8.6	5.3
28					12.3	14.3	17.6	17.2	16.5	13.0	8.3	6.0
29					11.7	13.7	18.8	16.8	16.9	13.1	8.1	7.3
30		—			10.1	13.9	19.1	16.8	16.1	13.5	8.3	8.4
31		—			—	14.4	—	16.2	15.1	—	9.2	—
MEAN					e9.6	13.8	14.8	17.9	17.5	14.5	10.7	9.0
MAX					e12.3	18.9	19.1	19.4	20.3	15.9	14.7	12.6
MIN					e7.5	9.8	12.0	16.2	15.1	13.0	8.1	5.3

<sup>†</sup>Provisional data—subject to revision; estimated value



\*USGS #452230122512201 is equivalent to OWRD #14206750.

**SCRL – 14206905 – SYLVAN CREEK AT RALEIGHWOOD LANE NEAR WEST SLOPE, OREGON [RM 1.0]**

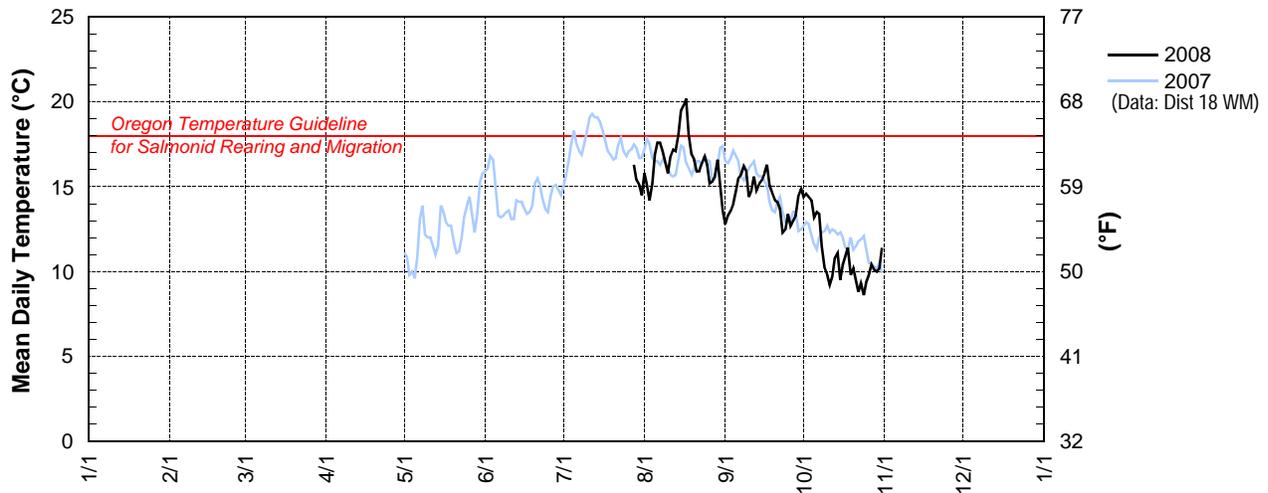
Latitude: 45 29 35 Longitude: 122 44 48

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1								15.8	12.8	14.4		
2								15.1	13.3	14.6		
3								14.2	13.6	14.4		
4								15.2	14.0	14.2		
5								16.9	14.7	13.2		
6								17.6	15.5	13.5		
7								17.6	15.7	13.4		
8								17.1	16.2	11.5		
9								16.4	15.9	10.2		
10								15.8	14.4	9.8		
11								16.8	14.8	9.2		
12								17.2	15.6	9.7		
13								17.1	14.8	10.8		
14								18.1	15.2	11.1		
15								19.5	15.4	9.5		
16								19.8	15.8	10.4		
17								20.2	16.3	10.9		
18								18.1	15.1	11.4		
19								16.9	14.6	9.8		
20								16.6	14.2	10.2		
21								15.9	14.1	9.5		
22								15.9	13.7	8.8		
23								16.4	12.3	9.3		
24								16.8	12.5	8.6		
25								16.3	13.4	9.4		
26								15.2	12.7	9.8		
27								15.3	13.0	10.4		
28							e16.3	15.6	13.3	10.1		
29							15.4	16.6	14.5	10.0		
30		—					15.1	15.0	14.9	10.2		
31		—		—		—	14.5	13.6	—	11.4	—	
MEAN							e15.3	16.6	14.4	11.0		
MAX							e16.3	20.2	16.3	14.6		
MIN							e14.5	13.6	12.3	8.6		

e=estimated value due to incomplete record

**SCRL – 14206905 – Sylvan Creek at Raleighwood Lane near West Slope, Oregon [RM 1.0]**



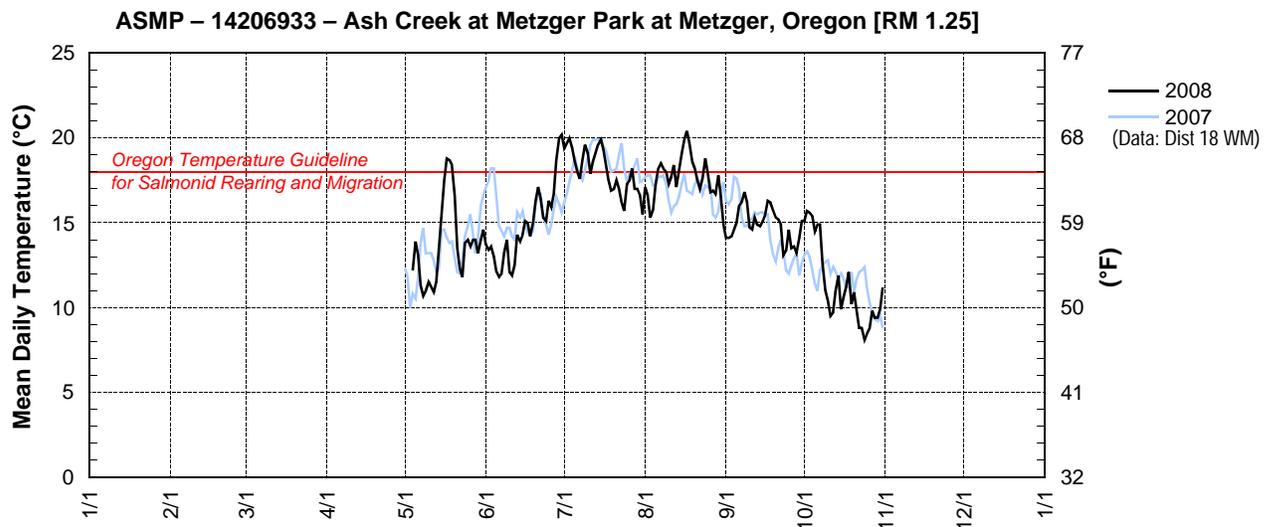
**ASMP – 14206933 – ASH CREEK AT METZGER PARK AT METZGER, OREGON [RM 1.25]**

Latitude: 45 27 00 Longitude: 122 45 45

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						13.7	19.4	17.1	14.1	15.1		
2						13.4	19.7	16.6	14.1	15.7		
3						13.6	20.0	15.3	14.2	15.6		
4					12.2	13.0	19.4	15.8	14.6	15.4		
5					13.9	12.1	18.6	17.3	15.0	14.5		
6					13.1	11.8	18.0	18.2	16.0	14.9		
7					11.3	12.0	17.6	18.5	16.2	14.9		
8					10.7	13.2	18.7	18.2	16.8	12.6		
9					11.0	14.0	19.6	18.0	16.2	11.0		
10					11.5	12.1	19.1	17.3	14.7	10.4		
11					11.2	11.9	17.9	17.7	14.6	9.5		
12					10.9	12.5	18.6	18.4	15.3	9.7		
13					11.5	14.3	19.1	17.1	14.9	11.0		
14					13.3	13.9	19.6	18.2	14.8	11.9		
15					15.7	14.3	19.9	19.1	15.1	9.9		
16					17.5	15.1	19.3	19.9	15.5	10.6		
17					18.8	15.0	18.4	20.4	16.3	11.2		
18					18.7	14.2	17.5	19.7	16.2	12.1		
19					18.4	15.0	16.9	18.6	15.7	10.2		
20					16.6	16.3	17.0	18.2	15.3	10.9		
21					13.5	17.1	17.5	17.5	15.2	9.9		
22					12.3	16.4	17.0	17.0	14.9	8.8		
23					11.8	15.3	16.2	17.6	13.1	8.8		
24					13.8	15.1	15.7	18.8	13.4	8.1		
25					14.0	16.3	17.3	17.9	14.6	8.5		
26					13.6	15.9	17.5	16.8	13.5	8.8		
27					14.0	16.7	18.2	16.9	13.6	9.8		
28					14.0	18.7	17.0	16.7	13.2	9.4		
29					13.2	20.0	17.0	17.8	14.1	9.4		
30		—			14.0	20.2	16.6	16.5	15.1	9.9		
31		—		—	14.6	—	15.5	14.9	—	11.2	—	
MEAN					e13.7	14.8	18.1	17.7	14.9	11.3		
MAX					e18.8	20.2	20.0	20.4	16.8	15.7		
MIN					e10.7	11.8	15.5	14.9	13.1	8.1		

e=estimated value due to incomplete record



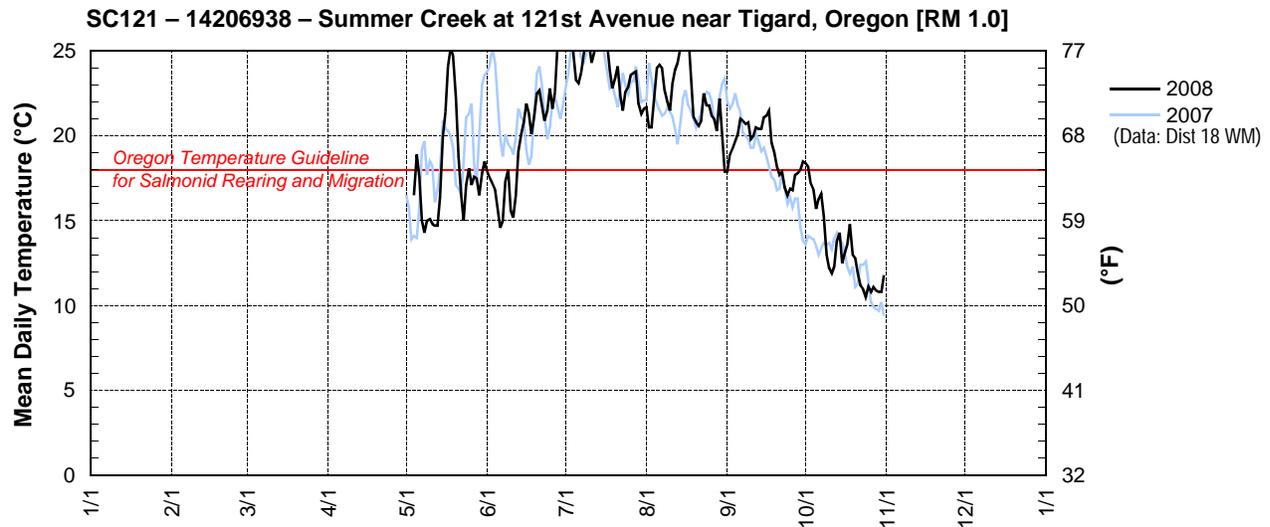
**SC121 – 14206938 – SUMMER CREEK AT 121ST AVENUE NEAR TIGARD, OREGON [RM 1.0]**

Latitude: 45 26 06 Longitude: 122 47 55

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						17.9	26.3	21.7	17.9	18.4		
2						17.5	26.3	20.5	18.9	18.2		
3						17.2	26.5	20.5	19.3	17.2		
4					16.5	16.8	25.0	22.2	19.7	16.8		
5					18.9	15.7	23.3	24.0	20.1	15.7		
6					17.6	14.6	23.1	24.2	21.0	16.3		
7					15.0	15.0	23.7	24.0	20.9	16.6		
8					14.3	17.3	24.8	22.7	20.7	15.3		
9					15.0	18.0	25.8	22.0	20.8	13.0		
10					15.1	15.6	25.4	21.5	19.8	12.2		
11					14.8	15.2	24.3	23.1	20.0	11.9		
12					14.7	16.5	24.9	23.9	20.5	12.3		
13					14.7	19.1	26.1	24.3	20.4	13.8		
14					16.4	20.1	26.3	25.2	20.4	14.3		
15					20.0	20.8	26.4	25.7	21.1	12.5		
16					21.4	21.9	26.1	26.6	21.2	13.1		
17					24.1	21.3	25.3	26.4	21.5	13.6		
18					25.2	20.1	23.9	23.6	19.6	14.8		
19					24.7	21.2	22.8	21.1	19.0	13.0		
20					22.2	22.5	23.4	20.8	18.2	12.8		
21					18.8	22.7	24.1	20.6	17.7	11.9		
22					16.6	21.8	22.4	20.9	17.9	11.2		
23					15.0	20.9	21.5	22.5	17.0	11.0		
24					17.1	21.5	22.6	21.8	16.5	10.5		
25					18.1	22.8	22.9	21.8	16.9	11.1		
26					17.1	21.6	23.6	21.2	16.8	10.8		
27					17.6	22.6	23.7	21.0	17.7	11.1		
28					17.5	25.3	23.8	20.3	17.8	10.9		
29					16.5	26.1	21.9	22.2	18.0	10.8		
30		—			17.8	26.2	21.3	20.2	18.5	10.8		
31		—		—	18.5	—	21.6	17.9	—	11.8	—	
MEAN					e17.8	19.9	24.2	22.4	19.2	13.3		
MAX					e25.2	26.2	26.5	26.6	21.5	18.4		
MIN					e14.3	14.6	21.3	17.9	16.5	10.5		

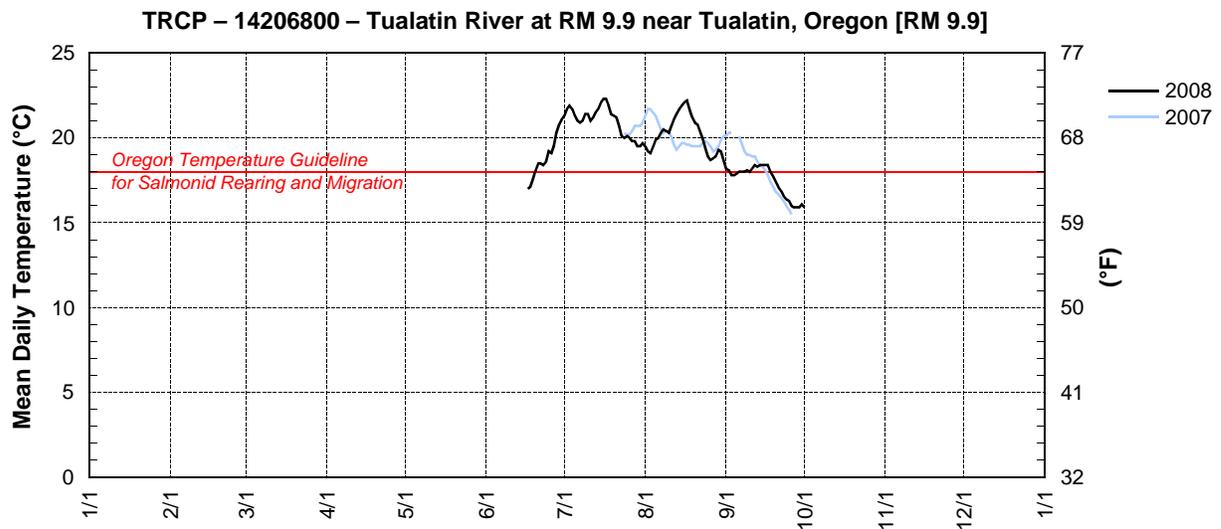
e=estimated value due to incomplete record



UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER  
**STATION NUMBER 14206800 TUALATIN RIVER AT RM 9.9 NEAR TUALATIN, OR**  
 LATITUDE: 452338 LONGITUDE: 1224612

Water Temperature, degrees Celsius, Calendar Year January to December 2008 Daily Mean Values												
Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1							21.3	19.5	18.2			
2							21.7	19.3	18.1			
3							21.9	19.1	17.9			
4							21.7	19.4	17.8			
5							21.3	19.9	17.9			
6							21.0	20.0	18.0			
7							20.9	20.3	18.0			
8							21.0	20.5	18.0			
9							21.4	20.4	18.1			
10							21.4	20.3	18.0			
11							21.0	20.7	18.2			
12							21.2	21.1	18.4			
13							21.5	21.4	18.3			
14							21.7	21.7	18.4			
15							22.1	21.9	18.4			
16							22.3	22.1	18.4			
17						17.0	22.3	22.2	18.4			
18						17.1	22.0	21.7	18.0			
19						17.6	21.4	21.2	17.7			
20						18.1	21.3	20.9	17.4			
21						18.5	21.3	20.8	17.1			
22						18.5	20.7	20.4	16.9			
23						18.4	20.1	20.0	16.6			
24						18.6	20.0	19.4	16.4			
25						19.2	20.1	18.9	16.3			
26						19.2	20.0	18.7	16.0			
27						19.5	19.8	18.8	15.9			
28						20.3	19.8	18.9	15.9			
29						20.8	19.5	19.3	15.9			
30		—				21.0	19.5	19.2	16.1			
31		—		—		—	19.7	18.7	—		—	
<b>MEAN</b>						e19.0	21.0	20.2	17.5			
<b>MAX</b>						e21.0	22.3	22.2	18.4			
<b>MIN</b>						e17.1	19.5	18.7	15.9			

<sup>†</sup> Provisional data—subject to revision; estimated value



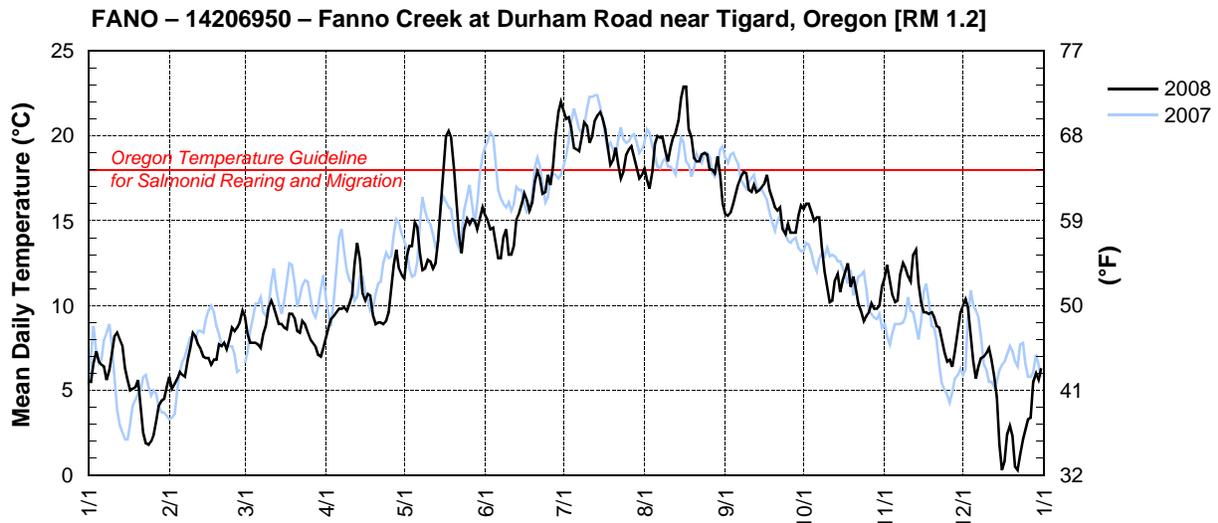
**STATION NUMBER 14206950 FANNO CREEK AT DURHAM, OR**

LATITUDE: 452413 LONGITUDE: 1224513

**Water Temperature, degrees Celsius, Calendar Year January to December 2008 Daily Mean Values**

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1	5.5	5.7	9.4	8.1	11.6	15.3	21.5	18.1	15.4	15.7	11.6	10.0
2	5.5	5.1	8.4	8.6	12.8	15.0	21.0	17.4	15.3	16.0	12.4	10.4
3	6.6	5.4	7.8	9.2	13.5	14.5	21.1	16.9	15.5	16.0	11.4	9.9
4	7.3	5.7	7.8	9.4	13.5	14.6	20.6	17.8	16.0	15.5	10.6	8.3
5	6.8	6.1	7.8	9.6	14.9	13.7	19.4	19.5	16.6	15.0	10.2	6.7
6	6.5	5.9	7.7	9.7	14.6	12.8	19.2	20.0	17.2	15.2	10.3	5.7
7	6.4	5.8	7.5	9.8	13.1	12.8	19.1	19.9	17.6	15.2	11.8	6.3
8	5.6	6.8	8.3	9.9	12.1	13.9	19.9	19.9	17.9	13.6	12.5	6.9
9	6.2	7.5	8.7	9.7	12.1	14.5	20.8	19.2	17.8	12.0	12.2	7.0
10	7.1	8.4	9.9	10.1	12.7	13.0	20.6	18.5	16.9	11.2	11.7	7.2
11	8.2	8.2	10.3	10.5	12.6	12.9	19.6	19.3	16.7	10.2	11.3	7.5
12	8.4	7.7	9.9	12.5	12.2	13.5	20.0	19.9	17.1	10.2	12.9	6.9
13	8.1	7.4	9.5	13.7	12.5	15.1	20.8	20.2	16.7	11.5	13.4	6.0
14	7.6	7.0	8.9	12.8	13.7	15.5	21.2	20.9	16.8	11.9	11.3	4.6
15	6.3	6.9	8.9	10.7	16.1	16.0	21.4	22.1	17.0	10.8	10.2	1.8
16	5.6	6.9	8.7	10.3	18.3	16.6	21.0	22.9	17.2	11.4	9.6	0.3
17	5.0	6.5	8.6	10.7	20.0	16.3	20.4	22.9	17.7	12.0	9.6	0.7
18	5.1	6.8	9.5	10.6	20.3	15.6	19.4	20.4	16.8	12.6	9.5	2.4
19	5.2	6.8	9.5	9.4	19.9	16.1	18.3	19.9	16.3	11.2	9.6	2.9
20	5.6	7.7	9.2	8.9	18.2	17.3	18.6	18.7	15.8	11.7	9.3	2.3
21	4.1	7.6	8.5	9.0	16.1	17.9	19.3	18.5	15.6	11.0	8.8	0.5
22	2.5	7.8	8.4	9.0	14.1	17.5	18.4	18.4	15.8	10.1	8.7	0.3
23	1.9	7.4	9.1	8.9	13.1	16.6	17.5	18.9	14.5	9.7	8.0	1.2
24	1.8	8.0	8.9	9.1	14.4	16.6	17.9	19.0	14.2	9.2	7.2	2.1
25	2.0	8.7	8.4	9.6	15.1	17.7	18.9	18.9	14.8	9.4	6.7	2.7
26	2.4	8.5	8.1	10.9	14.8	17.1	19.2	18.0	14.3	9.6	6.8	3.3
27	3.2	8.7	7.8	12.4	15.1	18.1	19.4	18.0	14.3	10.1	6.4	3.3
28	4.1	9.0	7.7	13.3	15.0	20.0	18.8	17.8	14.3	9.8	7.3	5.5
29	4.4	9.7	7.1	12.2	14.5	21.4	18.3	18.8	15.3	9.8	8.5	6.0
30	4.4	—	7.0	11.8	15.2	21.9	17.5	17.8	15.9	10.0	9.5	5.6
31	5.2	—	7.5	—	15.8	—	17.7	16.0	—	11.1	—	6.3
MEAN	5.3	7.2	8.5	10.3	14.8	16.1	19.6	19.2	16.2	11.9	10.0	4.8
MAX	8.4	9.7	10.3	13.7	20.3	21.9	21.5	22.9	17.9	16.0	13.4	10.4
MIN	1.8	5.1	7.0	8.1	11.6	12.8	17.5	16.0	14.2	9.2	6.4	0.3

<sup>†</sup> Provisional data—subject to revision



**HCTP – 14206958 – HEDGES CREEK AT TUALATIN COMMUNITY PARK AT TUALATIN, OREGON [RM 0.3]**

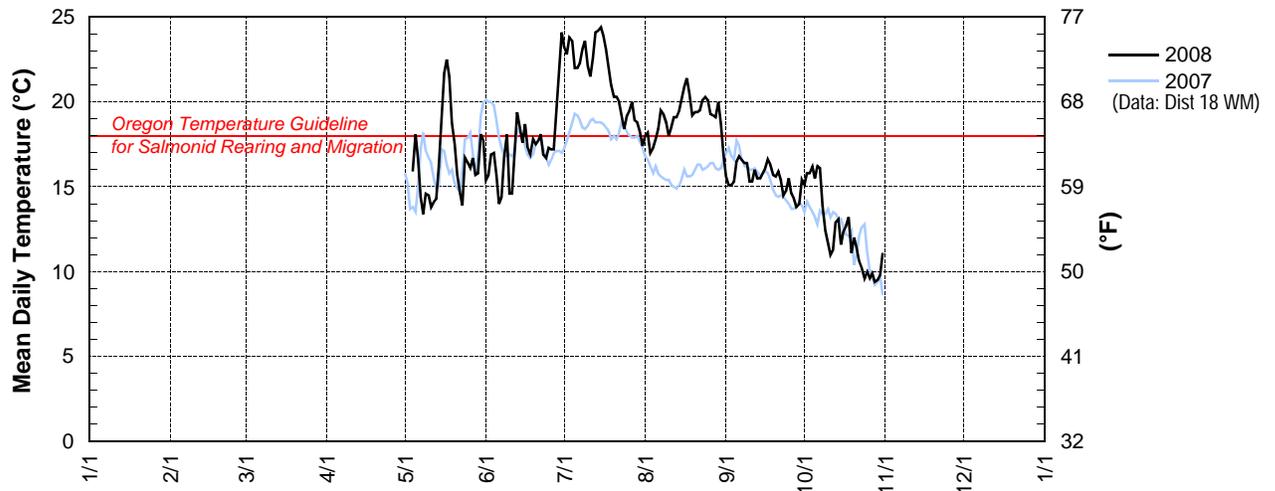
Latitude: 45 23 08 Longitude: 122 45 37

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						15.4	23.2	18.0	15.6	15.1		
2						15.7	22.8	18.2	15.1	15.8		
3						16.9	23.8	17.0	15.1	15.8		
4					15.9	17.0	23.6	17.3	15.3	16.2		
5					18.1	15.7	22.0	17.8	16.5	15.5		
6					16.6	14.0	22.0	18.4	16.8	16.2		
7					14.4	14.4	22.3	19.5	16.6	16.1		
8					13.4	16.7	23.1	19.3	16.4	13.9		
9					14.6	18.1	23.6	18.8	16.4	12.4		
10					14.5	14.6	22.1	18.0	15.3	11.7		
11					13.8	14.6	21.5	18.5	15.3	11.0		
12					14.1	16.8	22.6	19.1	16.0	11.3		
13					14.3	19.4	24.1	19.1	15.5	12.9		
14					16.2	18.4	24.2	19.5	15.5	13.1		
15					19.4	17.6	24.4	20.2	15.8	11.6		
16					21.7	18.7	23.9	20.9	16.1	12.4		
17					22.5	17.3	23.1	21.4	16.6	12.7		
18					21.5	16.9	22.1	20.5	16.3	13.2		
19					18.8	17.8	21.0	19.2	15.7	11.1		
20					17.5	17.5	20.3	19.4	15.6	12.0		
21					15.7	17.7	20.3	19.4	15.9	11.4		
22					14.7	18.1	20.0	19.5	15.4	10.6		
23					13.9	16.9	19.2	20.1	14.5	10.2		
24					16.7	16.7	18.4	20.3	14.8	9.6		
25					16.4	17.3	19.2	20.1	15.5	10.0		
26					16.1	17.2	19.5	19.3	14.6	9.6		
27					16.7	17.2	20.0	19.2	14.3	9.9		
28					15.7	19.2	18.9	19.1	13.8	9.4		
29					15.8	22.1	18.8	20.0	14.0	9.5		
30		—			18.1	24.1	18.2	18.7	15.4	9.8		
31		—		—	17.7	—	17.4	16.9	—	11.0	—	
MEAN					e16.6	17.3	21.5	19.1	15.5	12.3		
MAX					e22.5	24.1	24.4	21.4	16.8	16.2		
MIN					e13.4	14.0	17.4	16.9	13.8	9.4		

e=estimated value due to incomplete record

**HCTP – 14206958 – Hedges Creek at Tualatin Community Park at Tualatin, Oregon [RM 0.3]**



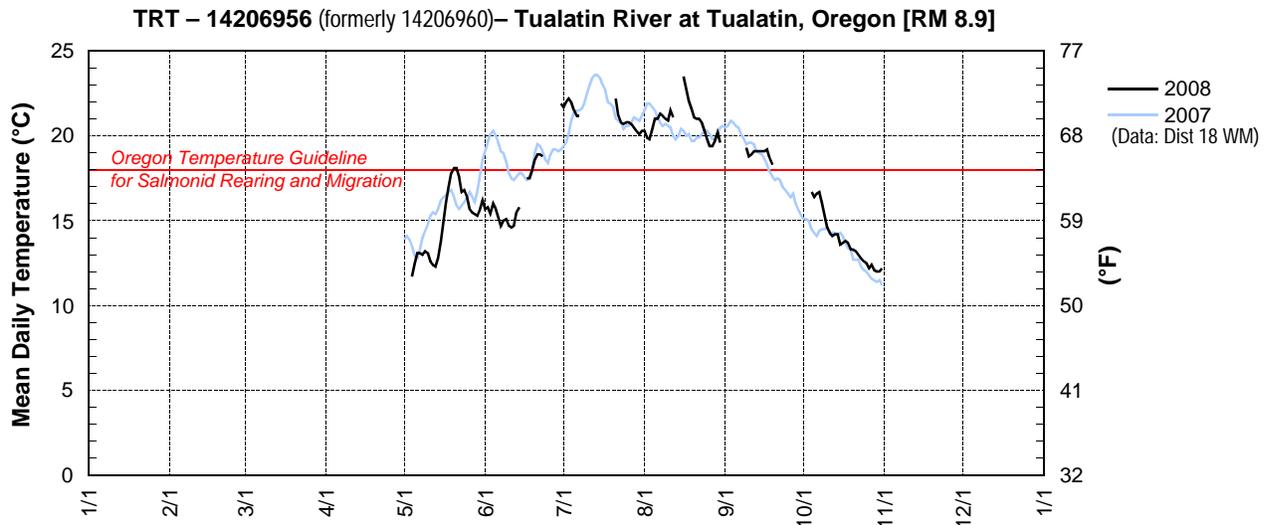
**TRT – 14206956 (formerly 14206960) – TUALATIN RIVER AT TUALATIN, OREGON [RM 8.9]**

Latitude: 45 23 14 Longitude: 122 45 46

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						15.7	21.7	20.3				
2						15.8	22.0	19.9				
3						15.4	22.2	19.8				
4					11.7	16.0	22.0	20.4		e16.7		
5					12.5	15.7	21.5	21.0		16.4		
6					13.1	15.2	21.2	21.0		16.6		
7					13.1	14.7	e21.2	21.3		16.7		
8					13.0	15.0		21.2		16.1		
9					13.2	15.1		21.0	e19.3	15.3		
10					13.1	14.7		20.9	18.8	14.6		
11					12.6	14.6		21.5	18.9	14.3		
12					12.4	14.7		e21.1	19.1	14.1		
13					12.3	15.5			19.1	14.2		
14					12.8	e15.8			19.1	14.2		
15					13.8				19.1	13.6		
16					14.9			e23.5	19.1	13.7		
17					16.1	e17.5		22.8	19.2	13.8		
18					17.0	17.5		22.1	18.7	13.7		
19					17.8	18.0		21.6	e18.3	13.3		
20					18.1	18.6		21.1		13.3		
21					18.1	18.9	e22.2	21.0		13.2		
22					17.6	18.9	21.2	21.0		13.0		
23					16.7	e18.8	20.8	20.8		12.8		
24					16.8		20.7	20.3		12.6		
25					16.4		20.8	19.8		12.5		
26					15.7		20.8	19.4		12.2		
27					15.5		20.7	19.4		12.4		
28					15.4		20.5	19.7		12.1		
29					15.3		20.3	20.2		12.0		
30		—			15.7	e21.9	20.1	e19.6		12.0		
31		—		—	16.2	—	20.3		—	12.2	—	
MEAN					e14.8	e16.5	e21.1	e20.8	e19.0	e13.8		
MAX					e18.1	e18.9	e22.2	e22.8	e19.2	e16.7		
MIN					e11.7	e14.6	e20.1	e19.4	e18.7	e12.0		

e=estimated value due to incomplete record



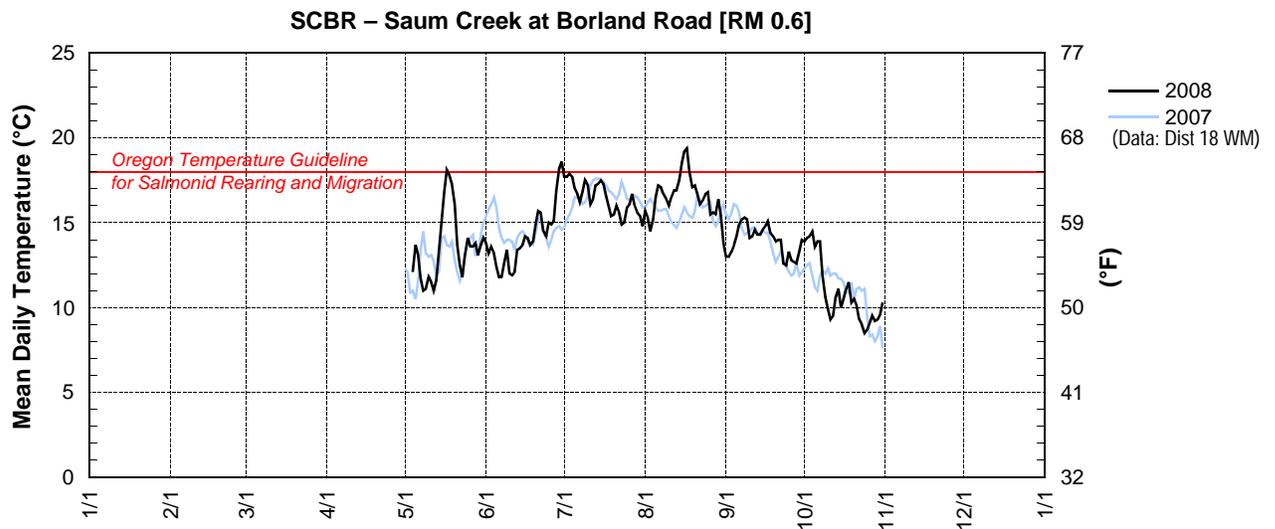
**SCBR – SAUM CREEK AT BORLAND ROAD [RM 0.6]**

Latitude: 45 22 32 Longitude: 122 43 22

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						13.8	17.7	15.7	13.0	13.9		
2						13.2	17.7	15.3	13.0	14.1		
3						13.6	17.9	14.5	13.3	14.2		
4					12.1	13.2	17.7	15.2	13.7	14.5		
5					13.7	12.4	17.0	16.5	14.2	13.6		
6					13.1	11.8	16.7	17.2	14.9	13.9		
7					11.7	11.8	16.2	17.1	15.2	13.9		
8					11.0	12.6	16.8	16.7	15.3	11.9		
9					11.1	13.4	17.5	16.4	15.2	10.6		
10					11.8	12.0	17.2	16.0	14.1	9.9		
11					11.5	11.9	16.1	16.5	14.2	9.3		
12					11.0	12.1	16.4	16.9	14.6	9.5		
13					11.6	13.4	17.2	16.9	14.3	10.6		
14					13.1	13.5	17.3	17.5	14.3	11.1		
15					15.1	13.7	17.5	18.5	14.6	10.0		
16					16.8	14.2	17.3	19.2	14.8	10.5		
17					18.1	14.1	16.6	19.4	15.1	11.1		
18					17.8	13.7	16.0	18.0	14.4	11.5		
19					17.3	13.9	15.4	17.1	14.2	10.3		
20					16.1	14.9	15.5	17.2	13.9	10.5		
21					13.7	15.7	16.0	16.7	14.0	10.1		
22					12.5	15.6	15.6	16.1	14.0	9.3		
23					11.8	14.5	14.9	16.3	12.6	9.0		
24					13.1	14.2	15.0	16.7	12.5	8.5		
25					14.1	15.0	15.9	16.8	13.3	8.7		
26					13.6	14.9	16.1	15.5	12.8	9.1		
27					13.6	15.1	16.7	15.6	12.7	9.5		
28					13.8	16.9	16.0	15.5	12.6	9.2		
29					13.1	18.2	15.6	16.4	13.3	9.3		
30		—			13.7	18.6	15.4	15.4	14.0	9.6		
31		—		—	14.1	—	14.8	13.8	—	10.3	—	
MEAN					e13.5	14.1	16.4	16.5	14.0	10.9		
MAX					e18.1	18.6	17.9	19.4	15.3	14.5		
MIN					e11.0	11.8	14.8	13.8	12.5	8.5		

e=estimated value due to incomplete record



**LOCS – 14206990 – TUALATIN RIVER AT OSWEGO CANAL NEAR LAKE OSWEGO, OREGON [RM 6.7]**

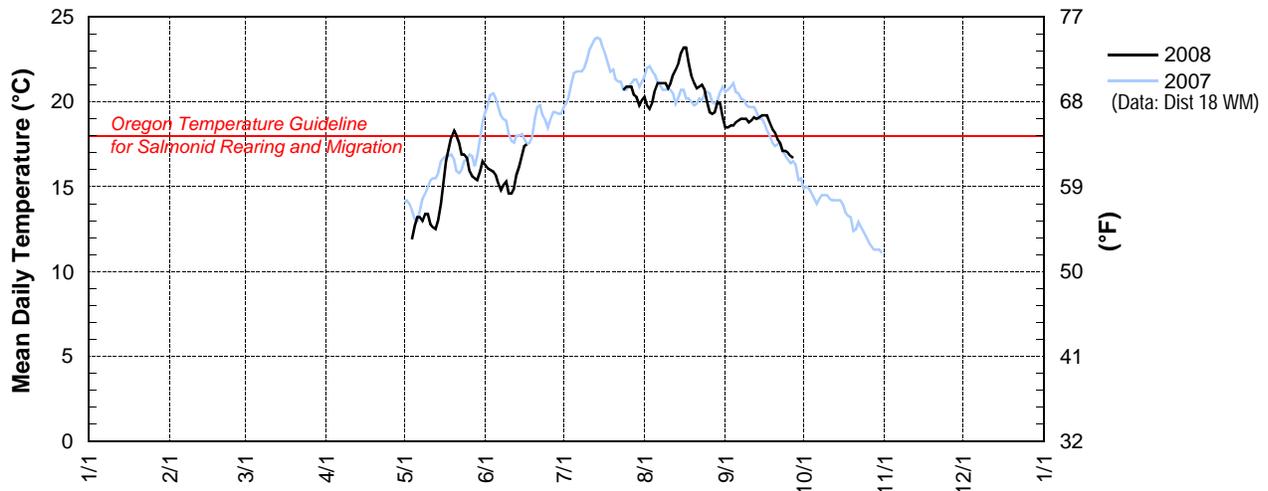
Latitude: 45 22 57 Longitude: 122 43 17

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						16.3		20.3	18.5			
2						16.1		19.8	18.5			
3						16.0		19.6	18.6			
4					11.9	15.9		20.0	18.6			
5					12.7	15.7		20.7	18.8			
6					13.2	15.2		21.1	18.9			
7					13.2	14.8		21.1	19.0			
8					13.0	15.1		21.1	19.0			
9					13.4	15.3		21.1	19.0			
10					13.4	14.6		20.8	18.8			
11					12.8	14.6		21.1	18.9			
12					12.6	14.9		21.6	19.1			
13					12.5	15.7		21.9	19.0			
14					13.0	16.2		22.3	19.1			
15					14.0	16.8		22.9	19.2			
16					15.3	17.4		23.2	19.2			
17					16.5	e17.5		23.2	19.2			
18					17.2			22.3	18.8			
19					17.9			21.5	18.4			
20					18.3			21.1	18.2			
21					18.0			20.8	17.8			
22					17.6			20.9	17.6			
23					16.9			21.0	17.1			
24					16.9		e20.7	20.7	17.1			
25					16.7		20.9	20.0	17.0			
26					15.9		20.9	19.4	16.8			
27					15.6		20.9	19.3	e16.7			
28					15.5		20.4	19.4				
29					15.4		20.3	20.0				
30		—			15.9		19.8	19.9				
31		—		—	16.5	—	20.1	19.1	—		—	
MEAN					e14.9	e15.8	e20.5	20.9	e18.4			
MAX					e18.3	e17.4	e20.9	23.2	e19.2			
MIN					e11.9	e14.6	e19.8	19.1	e16.8			

e=estimated value due to incomplete record

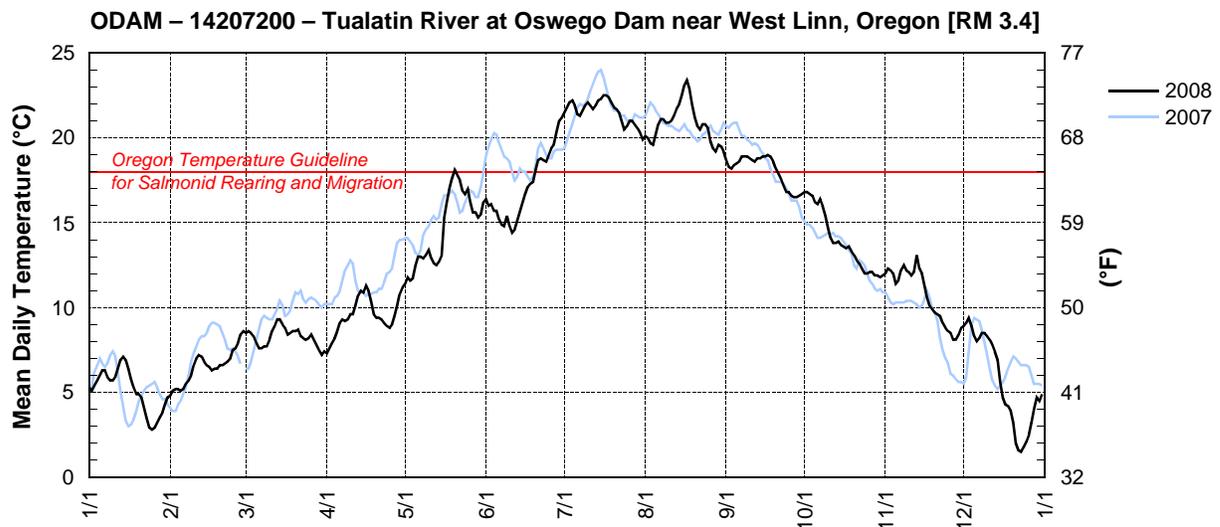
**LOCS – 14206990 – Tualatin River at Oswego Canal near Lake Oswego, Oregon [RM 6.7]**



UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER  
**STATION NUMBER 14207200 TUALATIN RIVER AT OSWEGO DAM, NEAR WEST LINN, OR.**  
 LATITUDE: 452124 LONGITUDE: 1224102

Water Temperature, degrees Celsius, Calendar Year January to December 2008 Daily Mean Values												
Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT <sup>†</sup>	NOV <sup>†</sup>	DEC <sup>†</sup>
1	5.3	4.8	8.5	7.3	11.4	16.4	21.5	20.2	18.7	16.8	12.0	8.9
2	5.1	5.1	8.6	7.6	11.8	16.0	21.8	20.0	18.3	16.8	12.3	9.1
3	5.4	5.2	8.5	7.9	11.6	16.1	22.1	19.7	18.2	16.7	12.2	9.4
4	5.7	5.2	8.3	8.2	11.6	15.7	22.2	19.6	18.4	16.6	12.0	8.9
5	6.0	5.1	7.9	8.6	12.5	15.7	21.9	20.2	18.5	16.2	11.4	8.3
6	6.2	5.2	7.6	9.1	13.0	15.2	21.4	20.8	18.6	16.1	11.6	8.0
7	6.3	5.4	7.6	9.3	13.1	14.9	21.3	21.1	18.9	16.4	12.1	8.2
8	5.9	5.7	7.7	9.2	12.9	14.7	21.6	21.1	18.9	16.1	12.5	8.5
9	5.7	6.0	7.7	9.3	13.1	15.4	21.8	20.9	18.9	15.4	12.2	8.5
10	5.6	6.6	8.1	9.6	13.5	14.9	22.1	20.9	18.8	14.8	12.1	8.3
11	5.9	7.0	8.6	9.6	12.9	14.4	21.9	21.0	18.7	14.1	11.9	8.1
12	6.4	7.2	8.9	10.1	12.6	14.6	21.8	21.3	18.6	13.8	12.1	7.8
13	6.9	7.1	9.3	10.7	12.5	15.1	21.9	21.7	18.8	13.8	13.1	7.4
14	7.1	6.9	9.3	11.0	12.7	15.7	22.2	22.0	18.8	13.9	12.3	6.9
15	6.9	6.6	9.0	10.9	13.1	16.2	22.3	22.5	18.9	13.7	12.0	5.7
16	6.4	6.5	8.8	11.3	15.3	16.7	22.5	23.1	18.9	13.6	11.3	4.7
17	5.8	6.3	8.4	11.0	16.2	17.1	22.5	23.4	19.0	13.5	10.6	4.3
18	5.3	6.4	8.5	10.4	17.0	17.3	22.4	22.9	18.9	13.6	10.1	4.2
19	4.9	6.4	8.6	9.6	17.6	17.4	22.1	21.9	18.6	13.3	9.9	3.9
20	4.9	6.6	8.6	9.4	18.1	18.0	21.8	21.2	18.2	13.1	9.7	3.2
21	4.7	6.6	8.7	9.4	17.8	18.7	21.7	20.7	17.9	12.8	9.6	2.0
22	4.1	6.7	8.3	9.3	17.5	18.8	21.5	20.5	17.6	12.6	9.5	1.6
23	3.5	6.8	8.2	9.1	16.9	18.7	21.0	20.8	17.2	12.3	9.2	1.5
24	2.9	7.0	8.1	8.9	16.6	18.6	20.5	20.8	16.8	12.0	8.8	1.8
25	2.8	7.5	8.2	8.8	17.0	18.9	20.7	20.6	16.8	12.0	8.6	2.1
26	2.9	7.6	8.4	9.0	16.2	19.4	21.0	19.8	16.6	12.1	8.5	2.5
27	3.2	7.9	8.0	9.5	15.6	19.6	21.1	19.4	16.5	12.1	8.1	3.2
28	3.5	8.3	7.8	10.1	15.6	20.3	20.8	19.3	16.5	11.9	8.1	4.0
29	3.8	8.6	7.5	10.8	15.3	21.0	20.6	19.5	16.6	11.9	8.4	4.7
30	4.3	—	7.2	11.2	15.5	21.2	20.3	19.6	16.7	11.8	8.8	4.5
31	4.7	—	7.4	—	16.1	—	19.9	19.2	—	11.9	—	4.9
<b>MEAN</b>	5.1	6.5	8.3	9.5	14.6	17.1	21.6	20.8	18.1	13.9	10.7	5.6
<b>MAX</b>	7.1	8.6	9.3	11.3	18.1	21.2	22.5	23.4	19.0	16.8	13.1	9.4
<b>MIN</b>	2.8	4.8	7.2	7.3	11.4	14.4	19.9	19.2	16.5	11.8	8.1	1.5

<sup>†</sup> Provisional data—subject to revision



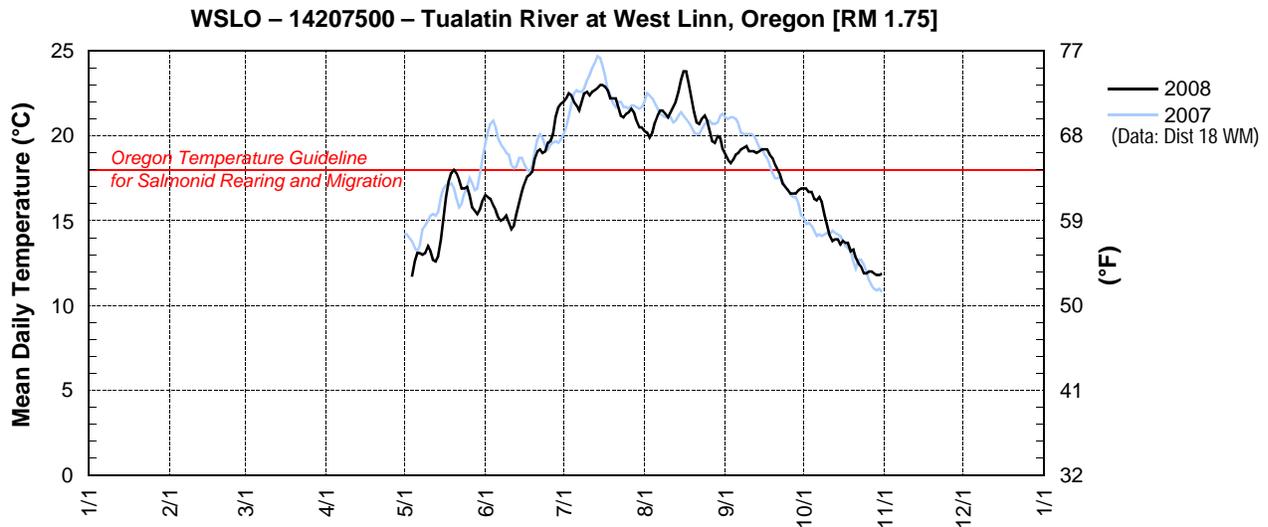
**WSLO – 14207500 – TUALATIN RIVER AT WEST LINN, OREGON [RM 1.75]**

Latitude: 45 22 57 Longitude: 122 43 17

Source Agency: WEST Consultants for Clean Water Services

Day	2008 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						16.5	22.0	20.3	18.9	16.9		
2						16.4	22.2	20.2	18.6	16.9		
3						16.3	22.5	19.9	18.4	16.7		
4					11.7	15.9	22.4	20.2	18.6	16.7		
5					12.6	15.6	22.0	20.8	18.9	16.3		
6					13.1	15.2	21.8	21.2	19.0	16.2		
7					13.1	15.0	21.5	21.5	19.2	16.4		
8					13.0	15.1	22.0	21.5	19.3	16.1		
9					13.1	15.3	22.5	21.3	19.4	15.3		
10					13.5	14.9	22.6	21.1	19.1	14.7		
11					13.2	14.5	22.4	21.4	19.1	14.1		
12					12.7	14.7	22.6	21.7	19.1	13.8		
13					12.6	15.4	22.7	22.0	19.0	13.9		
14					12.9	16.1	22.8	22.6	19.1	13.9		
15					13.9	16.7	23.0	23.3	19.2	13.6		
16					15.2	17.2	23.0	23.8	19.2	13.8		
17					16.4	17.6	22.9	23.8	19.2	13.7		
18					17.3	17.7	22.7	23.1	18.9	13.7		
19					17.8	17.9	22.2	22.2	18.7	13.2		
20					18.0	18.7	22.2	21.4	18.3	13.3		
21					17.8	19.1	22.2	20.8	18.0	12.8		
22					17.4	19.2	21.7	20.7	17.7	12.5		
23					16.9	19.0	21.2	21.0	17.2	12.3		
24					16.9	19.1	21.1	21.2	17.0	11.9		
25					17.0	19.6	21.3	20.9	16.8	11.9		
26					16.5	19.7	21.4	20.3	16.6	12.0		
27					15.8	20.1	21.6	19.7	16.6	12.0		
28					15.6	21.1	21.4	19.6	16.6	11.9		
29					15.4	21.7	20.9	20.0	16.8	11.8		
30		—			15.7	21.9	20.5	19.9	16.9	11.8		
31		—		—	16.2	—	20.5	19.2	—	11.9	—	
MEAN					e14.9	17.4	22.0	21.2	18.3	13.9		
MAX					e18.0	21.9	23.0	23.8	19.4	16.9		
MIN					e11.7	14.5	20.5	19.2	16.6	11.8		

e=estimated value due to incomplete record



# Appendix G

## Hagg Lake Monitoring 2008 Data

The following data are provisional and have not been fully reviewed or edited.

## HAGG LAKE MONITORING PROGRAM 2008 — DATA LIST

DATA TABLE	PAGE
<b><i>Hagg Lake Tributaries</i></b>	
Benthic Invertebrate Index of Biological Integrity (BIBI)	G-3
Benthic community indicators of biological condition	G-3
Benthic invertebrate density	G-4
<b><i>Hagg Lake monitoring was discontinued in 2007 for the following:</i></b>	
Petroleum hydrocarbons	
Physical and chemical data, including field data	
Bacteriological data	
Phytoplankton density and biovolume	
Zooplankton density and zooplankton length frequency	
<b><i>Hagg Lake tributary monitoring for the following was discontinued in 2007:</i></b>	
Physical and chemical data, including field data	
Bacteriological data	

## HAGG LAKE MONITORING 2008 — BENTHIC INVERTEBRATE INDEX OF BIOLOGICAL INTEGRITY

[Metric code: a '+' indicates metric value generally decreases with declining biological integrity; a '-' indicates metric value generally increases with declining biological integrity. Condition categories: L= low, M=medium, H=high. Sample collected 11/4/2008.]

Metric	Scoggins Ck		Tanner Ck	
	Value	Score	Value	Score
+ Total number of taxa	54	5	41	5
+ Number of <i>Ephemeroptera</i> taxa	11	5	8	3
+ Number of <i>Plecoptera</i> taxa	11	5	6	3
+ Number of <i>Tricoptera</i> taxa	9	3	7	3
+ Number of long-lived taxa	4	3	4	3
+ Number of intolerant taxa	4	5	1	1
- Percent tolerant taxa	30.51	3	35.23	3
+ Percent predator	3.97	1	3.91	1
+ Number of clinger taxa	35	5	30	5
- Percent Dominance (3 taxa)	49.3	5	60.87	3
<b>BIBI TOTAL SCORE</b>		<b>40</b>		<b>30</b>
<b>BIOLOGICAL CONDITION CATEGORY</b>		<b>H</b>		<b>M</b>

Categories based on comparison with unimpacted Puget Lowland and Willamette Valley streams. Scores indicate: 1-low, 3-moderate, 5-high. Maximum IBI score=50. BIBI scores: 0-24=L, 25-39=M, >40=H. Based on average/summation of 3 replicates, not on each individual replicate. Riffle habitat. D-Frame net; 5 point composite sample; total area= 1 square meter; 500 micron mesh; 500 organism subsample minimum. Based on single composite sample.

## HAGG LAKE MONITORING 2008 — BENTHIC COMMUNITY INDICATORS OF BIOLOGICAL CONDITION

[Metric code: a '+' indicates metric value generally decreases with declining biological integrity; a '-' indicates metric value generally increases with declining biological integrity. Condition: L= low, M=medium, H=high. Sample collected 11/4/2008.]

Metric	Scoggins Ck		Tanner Ck	
	Value	Condition	Value	Condition
+ Total abundance (number/m <sup>2</sup> )	649	M	460	L
+ EPT taxa richness	31	M	21	M
+ Predator richness	13	M	12	M
+ Scraper richness	14	M	12	M
+ Shredder richness	8	M	8	M
+ Percent intolerant taxa	0.6	L	0.22	L
- Hilsenhoff Biotic Index	4.49	M	5.04	L
- Percent <i>Baetis tricaudatus</i>	30.2	L	31.96	L
- Percent collector	57.15	L	56.1	L
- Percent Parasite	1.23	H	1.74	H
- Percent <i>Oligochaeta</i>	1.23	H	4.35	H
- Number of tolerant taxa	2	H	6	M
- Percent <i>Simuliidae</i>	9.86	M	11.3	L
- Percent <i>Chironomidae</i>	10.17	M	2.61	H

Condition based on comparisons with a Pacific Northwest montane stream with high biological integrity. (A montane is the biome characterized by moist cool upland slopes below timberline and dominated by large coniferous trees.)

**HAGG LAKE MONITORING 2008 — BENTHIC INVERTEBRATE DENSITY (SHEET 1 OF 2)**

[Sample collected November 14, 2008]

TAXON	SCOGGINS CK (RM 8.0)		TANNER CK (RM 1.6)		
	Abundance (number/m <sup>2</sup> )	Percent of Total	Abundance (number/m <sup>2</sup> )	Percent of Total	
<b>NON-INSECTS</b>	<i>Acari</i>	8	1.23	8	1.74
	<i>Hydra</i>	—	—	1	0.22
	<i>Juga</i>	—	—	4	0.87
	<i>Oligochaeta</i>	8	1.23	20	4.35
	TOTAL NON-INSECTS	16	2.47	33	7.17
<b>EPHEMEROPTERA</b>	<i>Ameletus</i>	2	0.31	3	0.65
	<i>Attenella delantala</i>	6	0.92	1	0.22
	<i>Baetis tricaudatus</i>	196	30.20	147	31.96
	<i>Cinygmula</i>	49	7.55	81	17.61
	<i>Dipheter hageni</i>	2	0.31	3	0.65
	<i>Drunella coloradensis</i>	4	0.62	—	—
	<i>Drunella doddsi</i>	1	0.15	—	—
	<i>Epeorus</i>	34	5.24	8	1.74
	<i>Ephemerella excrucians</i>	40	6.16	2	0.43
	<i>Paraleptophlebia</i>	12	1.85	12	2.61
	<i>Rhithrogena</i>	60	9.24	—	—
	TOTAL EPHEMEROPTERA	406	62.56	257	55.87
	<b>PLECOPTERA</b>	<i>Calineuria californica</i>	1	0.15	—
Capniidae		36	5.55	37	8.04
<i>Hesperoperla pacifica</i>		—	—	2	0.43
<i>Isoperla</i>		5	0.77	—	—
<i>Paraperla</i>		1	0.15	1	0.22
Perlodidae		5	0.77	2	0.43
<i>Pteronarcys</i>		2	0.31	—	—
<i>Skwala</i>		1	0.15	—	—
<i>Sweltsa</i>		3	0.46	1	0.22
Taeniopterygidae		3	0.46	—	—
<i>Yoraperla</i>		1	0.15	—	—
<i>Zapada cinctipes</i>		5	0.77	3	0.65
TOTAL PLECOPTERA		63	9.71	46	10.00
<b>TRICHOPTERA</b>	<i>Glossosoma</i>	5	0.77	5	1.09
	<i>Hydropsyche</i>	7	1.08	9	1.96
	<i>Lepidostoma</i>	1	0.15	2	0.43
	<i>Lepidostoma-panel case larvae</i>	—	—	2	0.43
	Limnephiliidae	2	0.31	2	0.43
	<i>Micrasema</i>	1	0.15	—	—
	<i>Parapsyche elsis</i>	1	0.15	—	—
	<i>Rhyacophila</i>	1	0.15	—	—
	<i>Rhyacophila Betteni Group</i>	3	0.46	2	0.43
	<i>Rhyacophila pellisa/valuma</i>	—	—	2	0.43
TOTAL TRICHOPTERA	22	3.39	24	5.22	

HAGG LAKE MONITORING 2008 — BENTHIC INVERTEBRATE DENSITY (CONTINUED)  
(SHEET 2 OF 2)

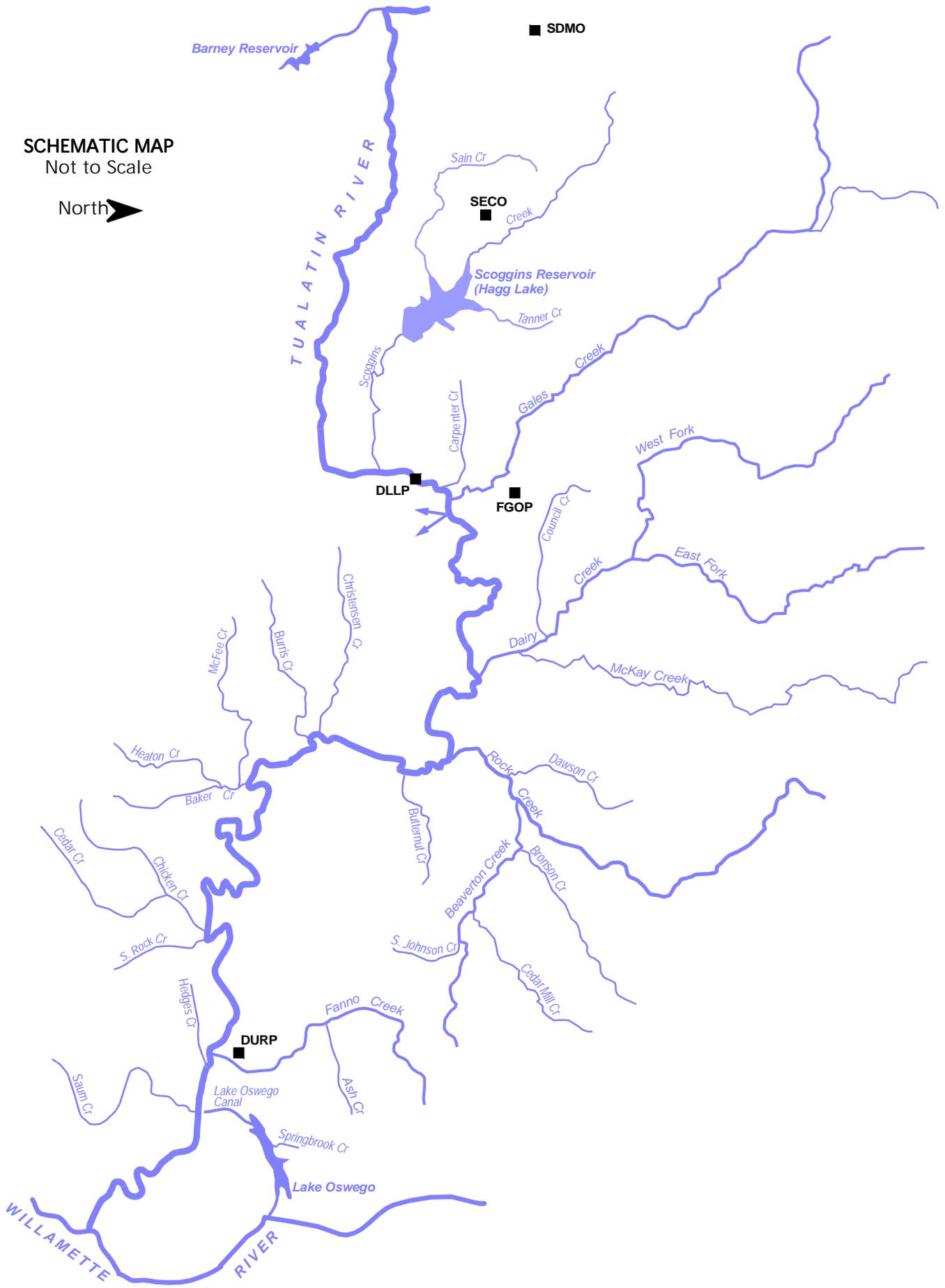
TAXON	SCOGGINS CK (RM 8.0)		TANNER CK (RM 1.6)		
	Abundance (number/m <sup>2</sup> )	Percent of Total	Abundance (number/m <sup>2</sup> )	Percent of Total	
COLEOPTERA	<i>Heterlimnius</i>	6	0.92	20	4.35
	<i>Lara avara</i>	—	—	1	0.22
	<i>Narpus</i>	—	—	1	0.22
	<i>Optioservus</i>	2	0.31	8	1.74
	<i>Zaitzevia</i>	—	—	—	—
	TOTAL COLEOPTERA	8	1.23	30	6.52
DIPTERA	<i>Antocha</i>	1	0.15	1	0.22
	<i>Ceratopogoninae</i>	1	0.15	—	—
	<i>Chelifera/Metachela</i>	—	—	1	0.22
	<i>Dicranota</i>	—	—	3	0.65
	<i>Forcipomyiinae</i>	1	0.15	—	—
	<i>Glutops</i>	—	—	—	—
	<i>Limnophila</i>	—	—	1	0.22
	<i>Pericoma</i>	1	0.15	—	—
	<i>Simulium</i>	64	9.86	52	11.30
	TOTAL DIPTERA	68	10.48	58	12.61
CHIRONOMIDAE	<i>Brillia</i>	24	3.70	1	0.22
	<i>Chironomidae-pupae</i>	6	0.92	2	0.43
	<i>Cladotanytarsus</i>	—	—	1	0.22
	<i>Cryptochironomus</i>	—	—	1	0.22
	<i>Eukiefferiella Brehmi Group</i>	1	0.15	—	—
	<i>Eukiefferiella Tiroloensis Group</i>	3	0.46	—	—
	<i>Limnophyes</i>	—	—	1	0.22
	<i>Micropsectra</i>	1	0.15	—	—
	<i>Orthocladius</i>	1	0.15	—	—
	<i>Parakiefferiella</i>	1	0.15	—	—
	<i>Parametricnemus</i>	4	0.62	—	—
	<i>Polypedilum</i>	1	0.15	—	—
	<i>Rheocricotopus</i>	1	0.15	—	—
	<i>Rheotanytarsus</i>	1	0.15	—	—
	<i>Stempellinella</i>	1	0.15	—	—
	<i>Tanytarsus</i>	4	0.62	—	—
	<i>Thienemannimyia Complex</i>	2	0.31	1	0.22
	<i>Tvetenia Bavarica Group</i>	16	2.47	5	1.09
	TOTAL CHIRONOMIDAE	66	10.17	12	2.61
	TOTAL BENTHIC INVERTEBRATES	649	100.00	460	100.00

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## Appendix H

### Precipitation Data

# PRECIPITATION MONITORING STATIONS — LOCATIONS



**PRECIPITATION SITES — ALPHABETICAL LISTING BY SITE CODE**

<b>SITE CODE</b>	<b>SITE NAME</b>	<b>Elevation (ft)</b>	<b>PAGE</b>
DLLP	Dilley Precipitation Station	170	H-8
DURP	Durham Wastewater Treatment Plant Precipitation Station	140	H-12
FGOP	Forest Grove Precipitation Station (Verboort)	180	H-10
SDMO	Saddle Mountain Precipitation Station	3250	H-4
SECO	Sain Creek Precipitation Station	2000	H-6

## SDMO – SADDLE MOUNTAIN PRECIPITATION STATION

Elevation: 3250 ft

Source Agency: Natural Resources Conservation Service

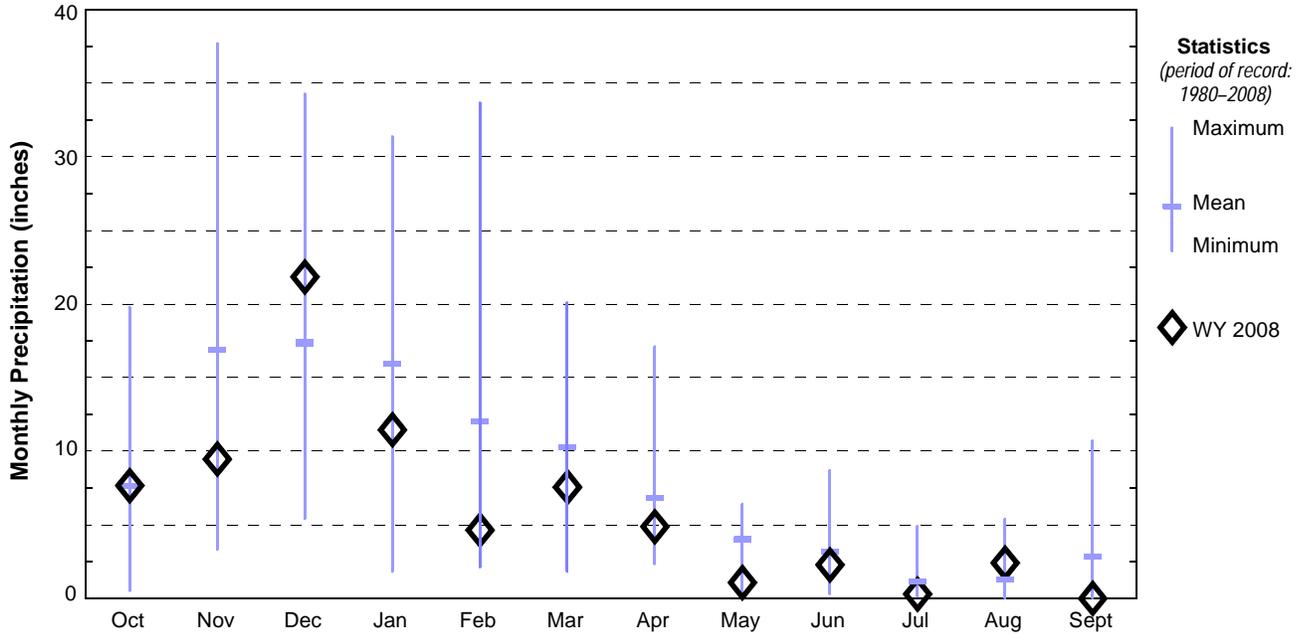
Latitude: 45 31 48 Longitude: 123 22 12

<http://www.wcc.nrcs.usda.gov/cgibin/tab.pl?state=OR>

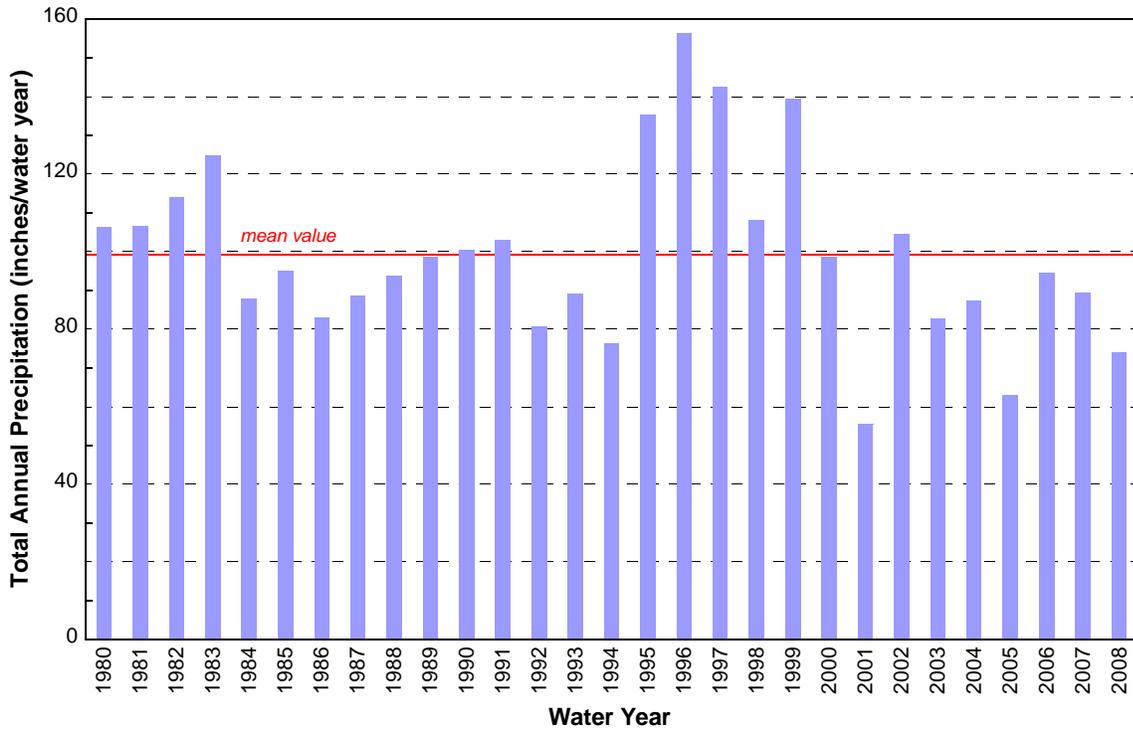
Water Year*	Total Monthly Precipitation (inches)											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1980	10.8	7.5	19.2	19.3	11.2	10.1	6.5	6.4	8.7	1.0	0.6	4.9
1981	4.2	19.3	26.8	5.2	18.6	7.5	7.9	4.1	7.2	0.4	0.7	4.4
1982	13.0	14.9	26.6	19.3	17.2	7.5	7.2	0.0	2.0	1.1	1.9	3.3
1983	13.4	16.7	21.5	17.3	15.2	11.5	7.1	4.3	4.7	4.9	3.4	4.7
1984	1.7	23.3	11.8	8.3	12.6	8.1	6.3	6.4	3.8	0.6	1.1	3.8
1985	11.4	28.6	12.9	1.8	10.2	11.8	4.8	1.5	4.3	0.2	1.4	5.9
1986	12.2	11.1	5.4	15.8	13.4	7.2	5.7	3.2	1.1	1.4	0.2	6.2
1987	5.3	20.2	11.1	17.1	7.7	16.0	2.3	4.9	1.1	1.7	0.2	0.9
1988	0.7	10.8	22.2	14.1	9.6	15.0	7.8	6.1	2.4	2.0	0.3	2.7
1989	2.5	28.5	11.4	14.9	10.2	17.4	5.3	2.8	1.7	1.9	2.0	0.0
1990	5.8	9.6	8.6	31.4	20.8	7.0	6.4	3.3	4.9	0.4	0.8	1.5
1991	11.4	18.7	10.0	12.7	12.7	12.1	15.3	4.4	2.7	1.0	1.2	0.6
1992	2.8	14.4	11.8	19.1	8.8	1.8	10.5	2.4	1.2	1.4	1.1	5.3
1993	6.8	13.8	16.2	10.8	3.3	12.4	13.7	6.4	3.2	1.6	0.9	0.0
1994	2.7	3.3	18.8	11.0	15.2	9.3	5.5	3.6	4.2	0.9	0.5	1.2
1995	14.7	20.9	31.0	19.7	13.5	14.8	6.8	1.5	4.3	3.0	1.3	3.7
1996	8.5	34.8	21.7	21.2	32.6	6.0	17.1	6.4	2.0	1.2	1.0	3.7
1997	11.6	16.9	34.3	17.2	7.3	20.1	8.3	5.9	5.3	2.1	2.6	10.7
1998	19.8	15.3	9.3	24.2	14.7	10.4	3.3	6.1	1.6	0.2	0.4	2.7
1999	7.7	25.9	28.7	20.3	33.7	12.9	2.8	5.0	0.9	0.2	1.3	0.0
2000	6.1	23.6	18.6	17.7	10.1	6.3	2.9	4.9	6.0	0.1	0.6	1.6
2001	4.3	5.6	9.2	5.5	4.8	6.2	6.1	5.2	3.3	1.4	3.1	0.7
2002	6.6	23.0	20.3	21.7	7.5	10.7	7.6	2.9	3.6	0.2	0.3	0.1
2003	0.5	5.8	17.2	21.5	5.4	19.5	7.5	2.3	0.3	0.3	0.4	1.9
2004	9.4	12.1	13.5	15.0	8.7	5.4	4.4	4.9	2.7	0.1	5.4	5.7
2005	7.4	5.0	10.9	9.3	2.1	11.0	6.5	5.8	2.2	1.0	0.4	1.4
2006	9.4	12.4	18.2	29.8	6.1	7.3	3.5	3.0	2.0	0.7	0.0	2.1
2007	1.9	37.7	15.1	9.0	10.3	4.9	3.7	0.5	2.0	0.9	1.1	2.1
2008	7.7	9.5	21.9	11.5	4.7	7.6	4.9	1.1	2.3	0.3	2.4	0.0
<b>MIN</b>	0.5	3.3	5.4	1.8	2.1	1.8	2.3	0.0	0.3	0.1	0.0	0.0
<b>MAX</b>	19.8	37.7	34.3	31.4	33.7	20.1	17.1	6.4	8.7	4.9	5.4	10.7
<b>MEAN</b>	7.60	16.87	17.39	15.92	12.01	10.27	6.82	3.98	3.16	1.11	1.26	2.82

\*Water Year (WY) begins October 1st of the previous calendar year and ends September 30th of current year.

SDMO – Saddle Mountain Precipitation Station



SDMO – Saddle Mountain Precipitation Station



## SECO – SAIN CREEK PRECIPITATION STATION

Elevation: 2000 ft

Source Agency: Natural Resources Conservation Service

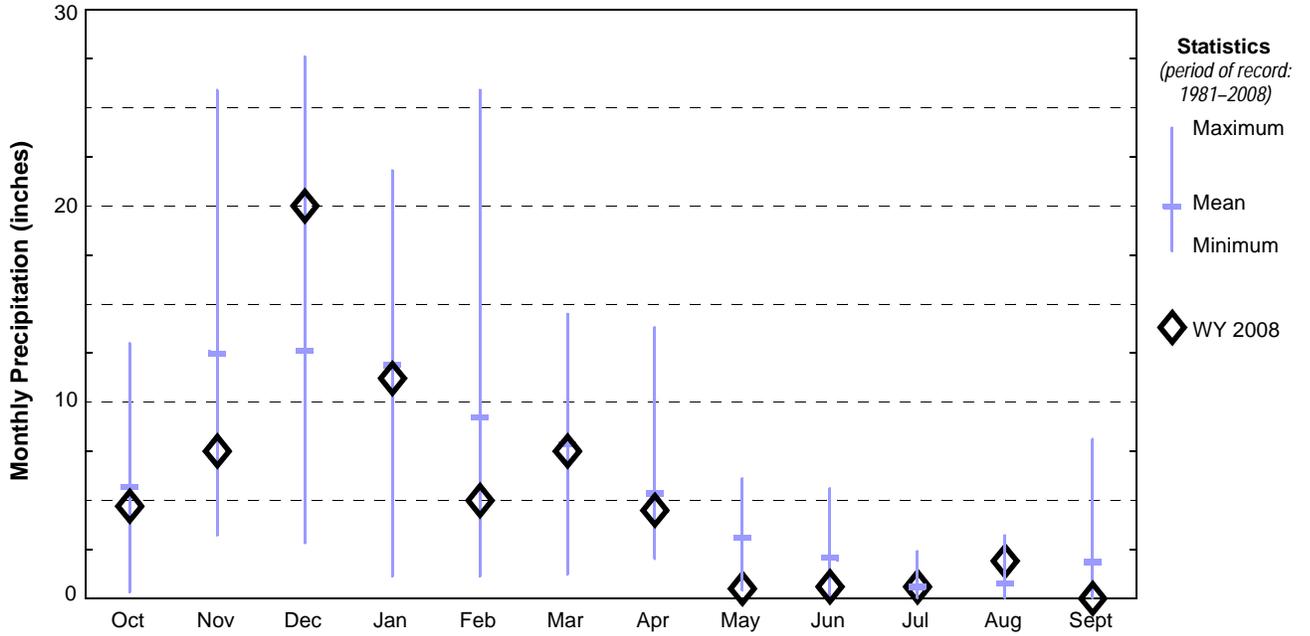
Latitude: 45 31 12 Longitude: 123 16 48

<http://www.wcc.nrcs.usda.gov/cgibin/tab.pl?state=OR>

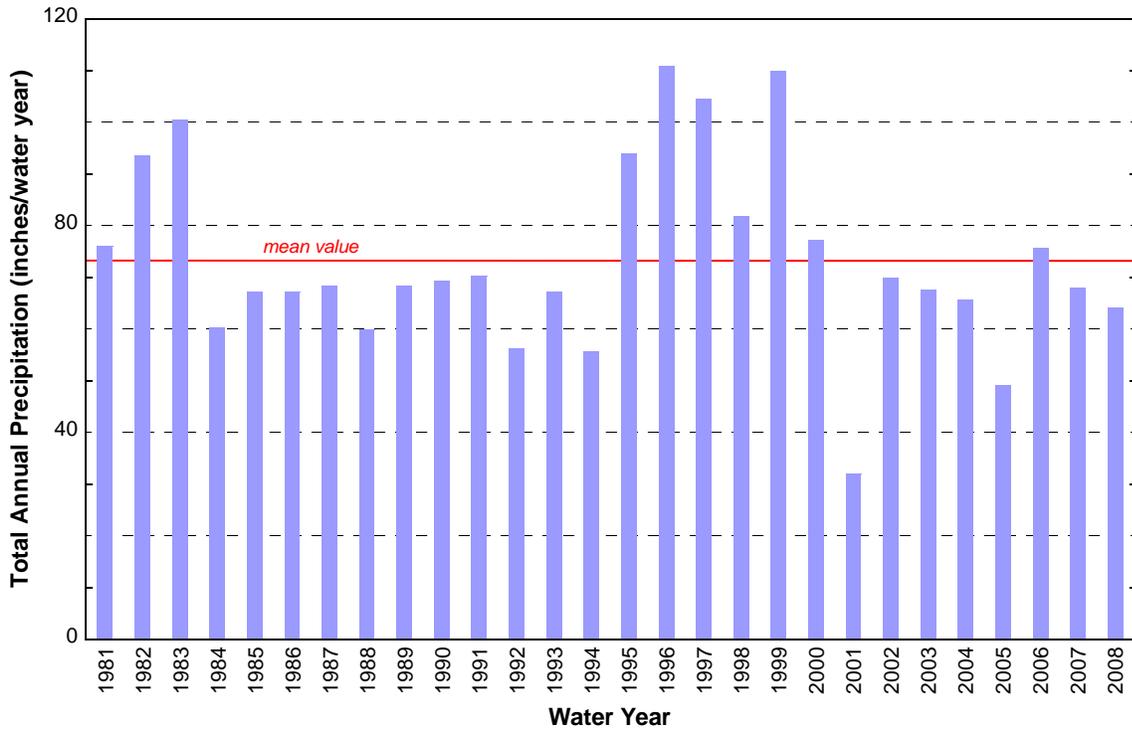
Water Year*	Total Monthly Precipitation (inches)											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1981	2.3	13.5	17.8	5.8	12.8	5.3	6.0	3.6	5.6	0.0	0.2	3.0
1982	10.3	11.8	20.8	13.2	14.9	7.9	6.4	0.7	2.0	1.1	1.9	2.4
1983	11.1	11.4	17.0	15.5	17.3	14.5	6.3	2.5	3.1	1.6	0.0	0.1
1984	1.4	16.7	3.5	3.5	12.1	9.1	2.5	5.3	3.3	0.0	0.0	2.8
1985	10.4	22.6	7.0	1.1	4.0	7.9	4.3	1.4	3.5	0.1	1.6	3.2
1986	9.3	4.9	2.8	13.2	15.1	2.9	5.2	6.1	0.2	1.0	0.2	6.3
1987	4.5	15.3	8.4	12.4	6.4	12.3	3.6	3.3	0.4	1.2	0.2	0.3
1988	0.7	6.8	15.8	12.2	2.8	9.1	4.4	4.0	2.0	0.7	0.0	1.4
1989	1.3	21.5	7.4	9.1	7.3	11.6	3.7	1.7	1.9	0.9	1.7	0.1
1990	4.5	6.2	5.8	21.8	14.5	6.4	3.2	2.6	2.5	0.3	0.7	0.8
1991	8.4	10.9	6.1	7.4	9.1	8.3	12.9	2.8	2.1	0.8	0.8	0.5
1992	2.5	9.7	8.4	12.2	6.7	1.2	9.2	1.1	1.1	0.6	0.4	3.1
1993	5.0	9.3	11.9	8.9	2.0	8.8	9.9	5.7	2.7	2.4	0.5	0.0
1994	1.7	4.5	12.7	8.5	10.7	5.9	4.2	3.1	2.4	0.1	0.2	1.6
1995	13.0	13.4	16.6	16.0	9.3	11.2	5.2	1.9	2.9	1.1	0.8	2.5
1996	6.6	24.6	15.7	15.3	21.9	3.4	13.8	4.8	1.4	0.4	0.4	2.6
1997	8.4	12.7	27.6	13.3	4.7	13.7	5.6	4.8	3.4	0.4	1.9	8.1
1998	13.0	12.0	6.4	19.8	12.0	8.5	2.5	5.1	0.8	0.0	0.2	1.5
1999	5.6	20.5	22.3	16.1	25.9	11.1	2.0	4.0	1.0	0.2	1.2	0.0
2000	4.6	18.3	15.4	13.5	8.5	5.3	2.6	3.8	4.0	0.0	0.2	0.9
2001	2.9	3.7	6.4	3.2	3.1	3.7	3.7	2.4	1.1	0.3	1.2	0.2
2002	3.8	16.7	13.3	14.9	5.1	6.6	5.1	2.0	2.0	0.1	0.0	0.3
2003	0.3	7.8	16.5	15.8	4.3	14.1	5.9	1.4	0.0	0.0	0.0	1.5
2004	5.8	7.3	12.0	12.2	7.6	3.9	4.7	2.3	2.0	0.2	3.2	4.4
2005	5.6	3.2	8.3	8.4	1.1	8.5	4.9	5.3	2.5	0.4	0.2	0.6
2006	9.1	10.4	14.7	21.8	3.7	6.9	3.3	3.1	1.5	0.2	0.0	0.9
2007	1.8	25.9	12.0	6.1	9.5	4.0	3.2	0.4	1.1	1.2	0.9	1.9
2008	4.7	7.5	20.0	11.2	5.0	7.5	4.5	0.5	0.6	0.6	1.9	0.0
<b>MIN</b>	0.3	3.2	2.8	1.1	1.1	1.2	2.0	0.4	0.0	0.0	0.0	0.0
<b>MAX</b>	13.0	25.9	27.6	21.8	25.9	14.5	13.8	6.1	5.6	2.4	3.2	8.1
<b>MEAN</b>	5.66	12.47	12.59	11.87	9.19	7.84	5.31	3.06	2.04	0.57	0.73	1.82

\*Water Year (WY) begins October 1st of the previous calendar year and ends September 30th of current year.

SECO – Sain Creek Precipitation Station



SECO – Sain Creek Precipitation Station



**DLLP – DILLEY PRECIPITATION STATION (ID# 352325)**

Elevation: 170 ft

Source Agency: Oregon Climate Service

Latitude: 45 29 Longitude: 123 07

<http://www.ocs.oregonstate.edu> or [www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?or2325](http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?or2325)

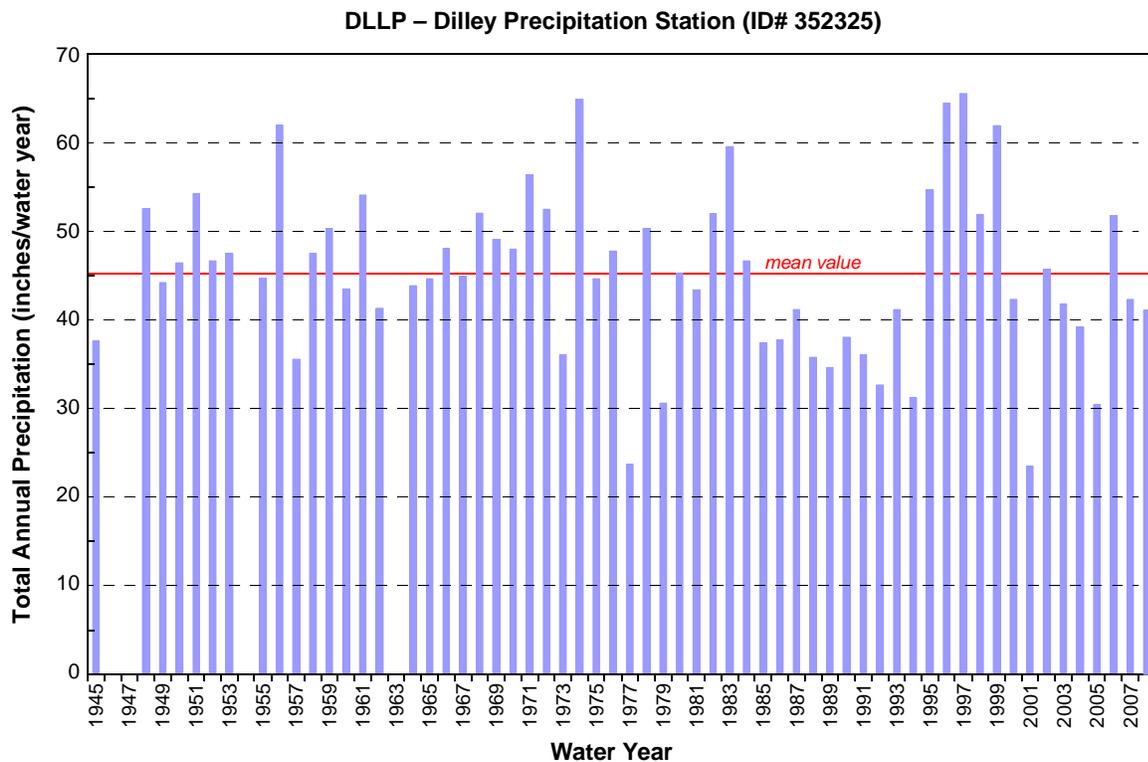
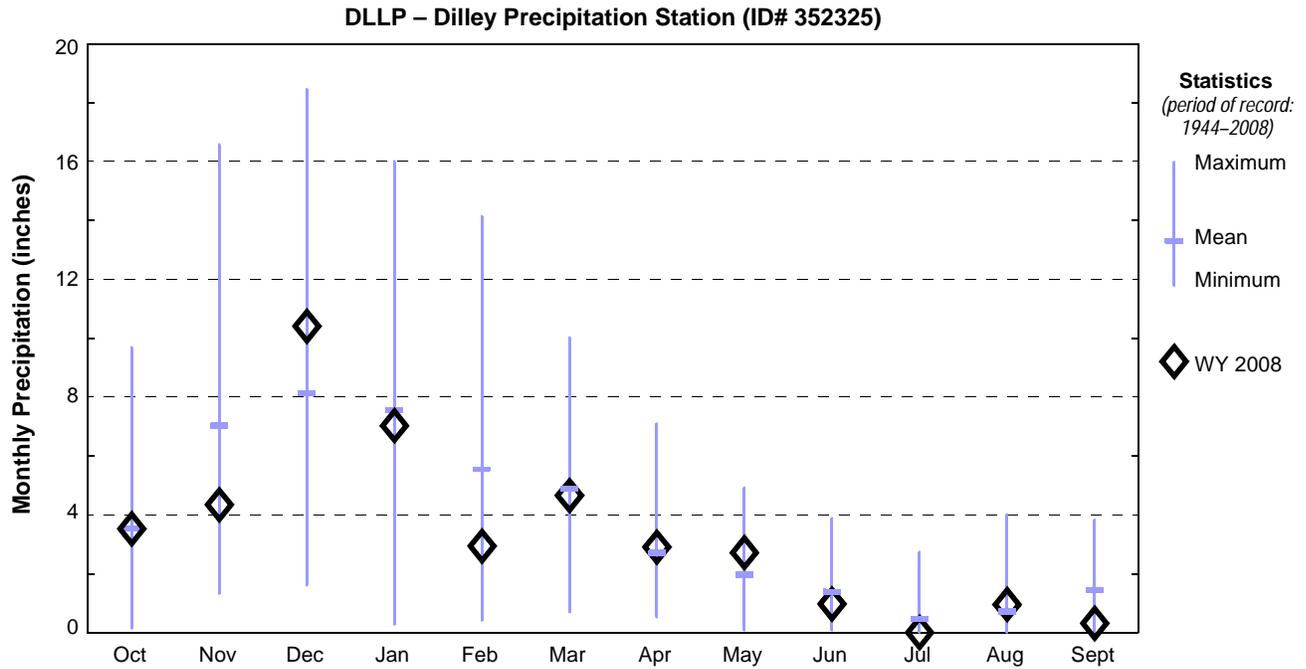
Water Year*	Total Monthly Precipitation (inches)											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1944			4.08	5.12	3.98	3.22	3.93	0.94	0.74	1.06	0.20	2.80
1945	1.56	5.5	2.74	4.13	6.99	7.18	2.09	3.71	0.22	0.20	0.13	3.17
1946	1.45	11.82	7.56	7.21	7.61	6.09	1.41	1.51	1.74			
1947		10.27	5.38	5.47	4.46	4.69	1.30	0.09	3.12	0.86	0.50	1.28
1948	9.68	4.08	4.99	7.28	7.52	4.55	3.97	4.92	0.90	0.59	1.35	2.72
1949	2.52	8.69	10.59	2.06	11.83	2.99	0.55	2.98	0.55	0.82	0.03	0.58
1950	2.48	7.55	5.93	10.43	6.58	6.77	1.46	0.48	2.19	0.54	0.84	1.13
1951	9.62	9.55	8.93	11.03	5.01	4.74	0.88	1.67	0.15	0.11	0.15	2.38
1952	6.96	7.89	9.70	7.08	5.65	4.20	1.35	0.77	2.62	0.00	0.03	0.38
1953	0.61	2.29	9.28	14.98	4.86	5.36	2.74	2.87	1.25	0.10	1.51	1.60
1954	3.55	7.37	7.48	13.80	7.32	2.95	3.26	1.33	2.06	0.56		1.97
1955	3.92	7.61	7.66	4.41	4.36	5.55	4.56	0.77	1.78	1.41	0.00	2.65
1956	6.97	10.49	12.90	13.36	4.43	7.27	0.64	1.42	1.29	0.03	1.32	1.84
1957	4.83	1.98	4.69	3.02	5.77	7.09	2.09	3.03	1.52	0.27	0.47	0.75
1958	3.55	3.77	10.90	9.29	8.50	2.62	4.24	1.05	2.96	0.02	0.00	0.59
1959	2.34	8.74	6.09	12.18	5.10	4.42	1.76	2.55	2.57	0.92	0.08	2.75
1960	2.71	4.44	4.86	6.56	6.94	7.27	4.65	4.37	0.43	0.00	0.74	0.53
1961	4.24	10.95	3.64	7.05	11.15	10.02	2.94	2.36	0.24	0.48	0.52	0.46
1962	5.98	4.95	7.67	1.61	4.14	5.78	4.79	2.43	0.44	0.00	1.43	2.08
1963		11.23	3.48	1.91	5.39	6.65	4.03	2.82	1.94	1.01	1.64	1.42
1964	3.68	7.10	5.24	16.01	1.47	5.23	1.34	0.85	1.53	0.66	0.54	0.23
1965	1.87	9.80	14.38	9.04	2.72	0.69	2.21	1.14	0.91	1.02	0.87	0.00
1966	1.92	8.73	9.87	9.62	2.67	8.47	0.66	1.28	1.84	1.10	0.46	1.39
1967	3.62	6.98	11.57	10.14	1.83	6.07	2.63	0.64	0.76	0.00	0.00	0.65
1968	6.35	3.28	7.17	7.94	9.00	5.53	1.41	3.01	2.10	0.11	4.01	2.08
1969	5.45	7.48	12.91	9.61	4.33	1.21	2.19	1.72	2.01	0.02	0.00	2.14
1970	4.64	3.26	11.18	14.21	5.81	3.12	2.64	1.26	0.57	0.01	0.00	1.26
1971	4.01	5.89	14.28	8.96	4.74	8.29	3.68	1.22	1.61	0.13	0.36	3.19
1972	3.21	8.35	10.45	8.19	4.90	7.32	4.41	1.39	0.56	0.28	0.25	3.12
1973	0.61	4.78	11.33	5.37	2.18	3.40	1.57	1.40	1.27	0.05	0.76	3.30
1974	3.36	16.59	12.01	11.25	6.75	8.51	2.96	1.46	0.65	1.25	0.00	0.07
1975	1.32	7.50	8.64	8.99	7.00	4.86	1.75	1.94	0.62	0.44	1.60	0.00
1976	6.42	5.16	8.59	6.85	7.20	5.54	2.31	1.30	0.39	0.82	2.41	0.79
1977	1.30	1.32	1.60	1.05	2.98	4.46	0.51	2.50	1.12	0.60	3.07	3.18
1978	2.94	7.21	11.39	7.37	5.92	2.27	3.70	2.67	0.99	0.99	1.65	3.23
1979	0.71	3.85	3.77	3.06	8.00	2.49	2.41	2.07	0.58	0.13	0.94	2.54
1980	6.67	3.93	7.50	8.14	6.25	4.02	3.70	1.21	2.24	0.22	0.06	1.36
1981	1.63	8.35	11.43	2.65	5.17	2.98	2.17	1.96	3.00	0.15	0.05	3.83
1982	5.90	5.89	12.15	5.82	7.75	3.89	4.83	0.44	1.31	0.36	1.24	2.40
1983	4.87	5.36	11.31	7.40	12.20	8.23	2.49	1.40	1.65	2.74	1.38	0.54
1984	1.32	13.07	6.87	2.70	5.95	4.29	3.95	3.36	3.88	0.00	0.00	1.21
1985	4.63	12.83	3.87	0.27	3.18	4.56	1.20	0.36	2.94	0.45	1.45	1.63
1986	3.97	3.95	2.77	8.38	7.35	3.81	1.59	1.99	0.37	0.85	0.00	2.74
1987	3.31	6.52	5.47	8.25	5.18	7.47	1.72	1.85	0.19	0.85	0.15	0.20
1988	0.20	3.66	10.41	8.14	1.16	3.67	2.6	2.23	2.27	0.07	0.17	1.16
1989	0.14	10.98	3.81	4.14	3.51	7.05	0.81	1.62	0.78	0.36	0.93	0.51
1990	2.47	4.02	3.47	10.42	7.14	2.08	1.71	2.98	1.82	0.27	0.93	0.72
1991	4.14	4.15	3.36	3.97	4.46	5.07	6.36	2.19	1.39	0.29	0.39	0.24
1992	1.91	6.26	4.91	6.62	3.97	1.19	4.79	0.07	0.80	0.31	0.51	1.28
1993	2.79	5.44	7.42	5.39	0.78	5.00	6.76	3.79	1.95	1.76	0.08	0.00
1994	1.26	1.49	9.12	5.67	6.45	3.14	1.41	0.89	0.95	0.00	0.24	0.58
1995	4.64	8.12	10.29	10.56	5.02	6.53	3.74	1.29	1.76	0.45	0.49	1.74
1996	3.41	9.78	10.09	9.69	12.68	2.46	7.09	4.84	1.12	0.6	0.26	2.43
1997	5.37	8.05	18.46	9.63	2.51	8.29	2.98	2.65	2.38	0.47	1.38	3.33
1998	6.58	8.36	3.54	12.10	7.66	5.20	1.76	4.82	1.05	0.09	0.00	0.73
1999	3.24	13.00	10.81	10.29	14.15	4.85	1.90	1.71	0.76	0.02	1.14	0.04
2000	2.55	10.10	7.10	7.81	5.46	3.25	1.52	2.15	1.21	0.00	0.22	0.89
2001	3.09	2.46	4.20	2.17	1.98	2.25	1.72	1.60	1.84	0.32	1.27	0.54
2002	2.91	10.26	10.66	9.00	3.61	4.04	1.93	1.14	1.32	0.19	0.07	0.57
2003	0.59	3.35	12.22	8.61	3.69	7.41	4.24	0.46	0.07	0.01	0.32	0.79
2004	2.87	4.10	9.01	7.70	5.21	2.32	2.24	1.25	1.21	0.00	1.66	1.56
2005	3.80	2.53	3.89	4.25	0.41	5.97	2.79	4.26	1.84	0.29	0.13	0.24
2006	4.16	7.58	11.79	14.09	3.38	4.21	2.58	2.26	0.92	0.17	0.00	0.63
2007	1.01	15.05	8.03	4.03	4.62	2.48	2.32	1.22	0.83	0.82	0.63	1.21
2008	3.80	4.35	10.41	7.03	2.93	4.66	2.91	2.72	0.97	0.00	0.96	0.32

\*Water Year (WY) begins October 1st of the previous calendar year and ends September 30th of current year.

**DLLP – DILLEY PRECIPITATION STATION (ID# 352325) – CONTINUED**

Stats	Total Monthly Precipitation (inches)											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MIN	0.14	1.32	1.60	0.27	0.41	0.69	0.51	0.07	0.07	0.00	0.00	0.00
MAX	9.68	16.59	18.46	16.01	14.15	10.02	7.09	4.92	3.88	2.74	4.01	3.83
MEAN	3.51	7.02	8.12	7.55	5.52	4.88	2.69	1.95	1.37	0.45	0.70	1.43

\*Water Year (WY) begins October 1st of the previous calendar year and ends September 30th of current year.



## FGOP – FOREST GROVE PRECIPITATION STATION (VERBOORT)

Elevation: 180 ft

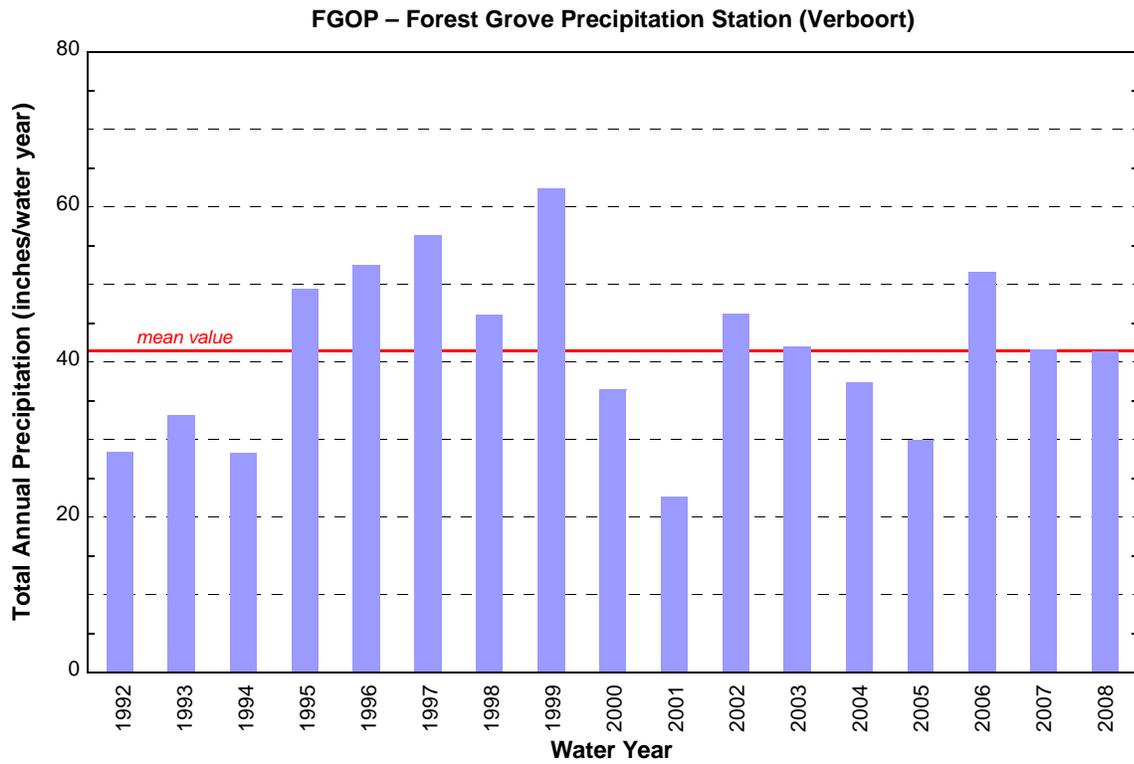
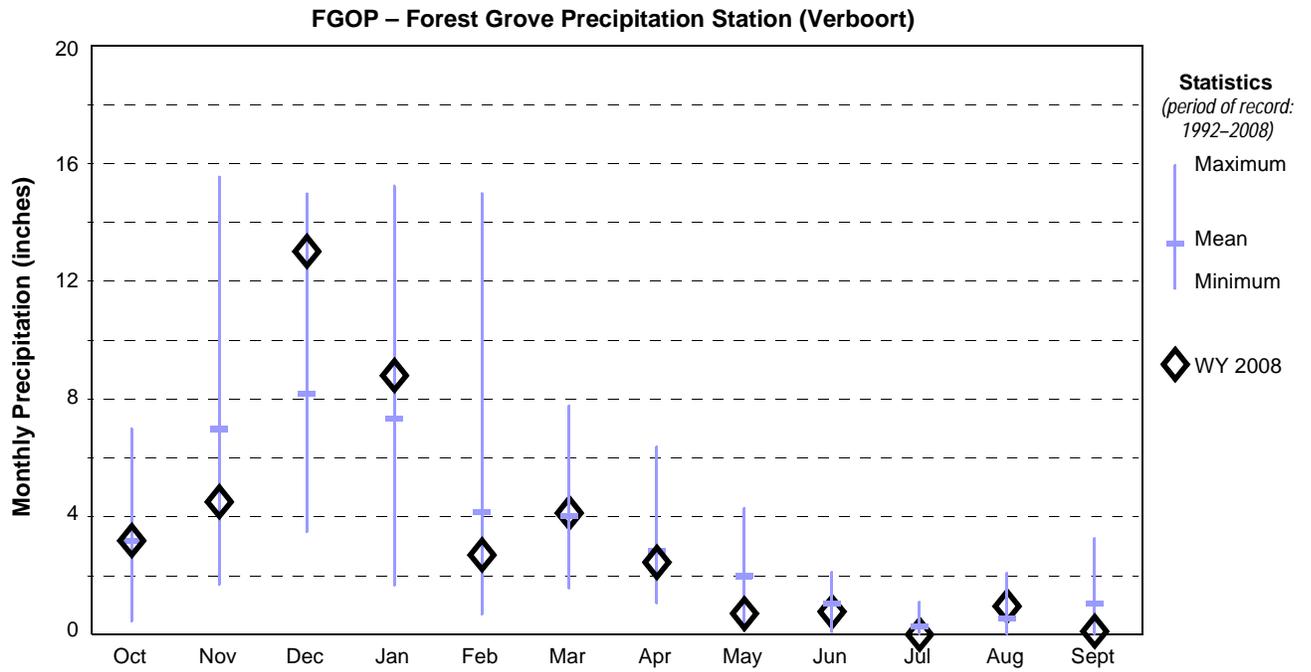
Source Agency: US Bureau of Reclamation – Agrimet

Latitude: 45 33 11 Longitude: 123 05 01

<http://www.usbr.gov/pn/agrimet/wxdata.html>

Water Year*	Total Monthly Precipitation (inches)											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1992	1.5	5.1	3.7	5.9	3.6	1.6	4.4	0.1	0.9	0.3	0.3	1.1
1993	2.4	4.2	6.0	3.2	2.2	4.2	4.9	4.2	0.6	1.1	0.1	0.0
1994	1.1	1.7	7.6	5.0	5.8	2.3	1.5	1.3	1.0	0.0	0.2	0.8
1995	6.3	7.5	7.6	9.7	4.1	5.8	3.1	1.6	1.2	0.5	0.5	1.6
1996	3.1	11.7	8.6	9.1	3.6	2.3	6.4	4.1	0.9	0.5	0.3	2.0
1997	4.5	8.0	15.0	7.6	1.8	7.8	3.3	1.8	1.8	0.2	1.3	3.3
1998	7.0	7.1	3.5	9.1	7.2	4.6	1.4	4.3	1.1	0.1	0.0	0.8
1999	3.4	13.7	9.8	9.7	15.0	5.4	1.7	1.7	1.0	0.4	0.7	0.0
2000	2.8	7.8	5.9	7.7	4.0	2.4	1.1	2.1	1.6	0.1	0.1	0.9
2001	3.1	2.6	4.3	1.7	1.7	2.1	1.7	1.1	2.1	0.4	1.2	0.6
2002	2.8	11.2	9.7	9.3	3.5	4.6	1.6	1.2	1.2	0.2	0.0	0.9
2003	0.4	3.0	12.2	10.1	3.2	6.2	5.1	0.6	0.1	0.0	0.4	0.7
2004	3.5	4.6	7.9	6.1	5.2	1.9	2.6	1.1	0.8	0.0	2.1	1.5
2005	3.8	2.8	4.4	2.5	0.7	6.0	2.6	4.1	1.6	0.2	0.1	1.3
2006	4.3	7.4	11.4	15.2	2.2	4.4	2.2	2.9	0.7	0.2	0.1	0.6
2007	1.0	15.6	8.6	3.9	4.2	2.5	2.1	0.8	0.6	0.6	0.5	1.3
2008	3.1	4.5	13.0	8.8	2.7	4.1	2.5	0.7	0.8	0.0	1.0	0.1
<b>MIN</b>	0.4	1.7	3.5	1.7	0.7	1.6	1.1	0.1	0.1	0.0	0.0	0.0
<b>MAX</b>	7.0	15.6	15.0	15.2	15.0	7.8	6.4	4.3	2.1	1.1	2.1	3.3
<b>MEAN</b>	3.18	6.97	8.18	7.32	4.15	4.00	2.82	1.97	1.05	0.28	0.52	1.03

\*Water Year (WY) begins October 1st of the previous calendar year and ends September 30th of current year.



**DURP – DURHAM WASTEWATER TREATMENT PLANT PRECIPITATION STATION**

Elevation: 140 ft

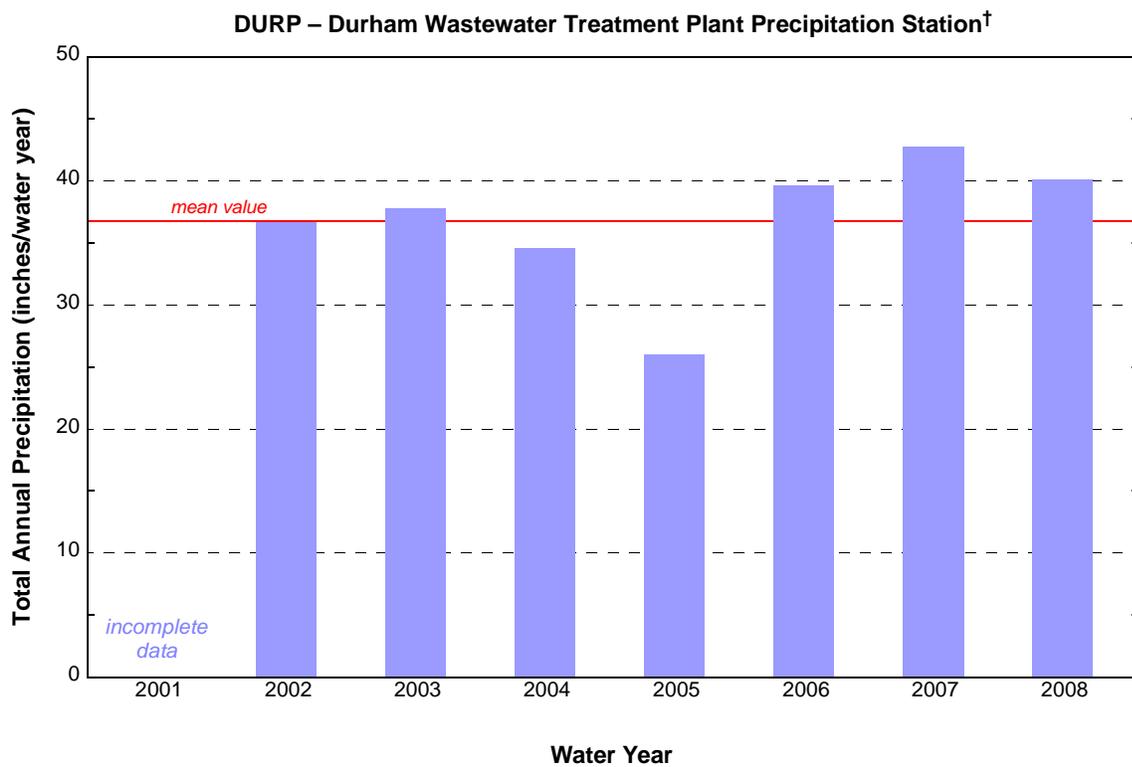
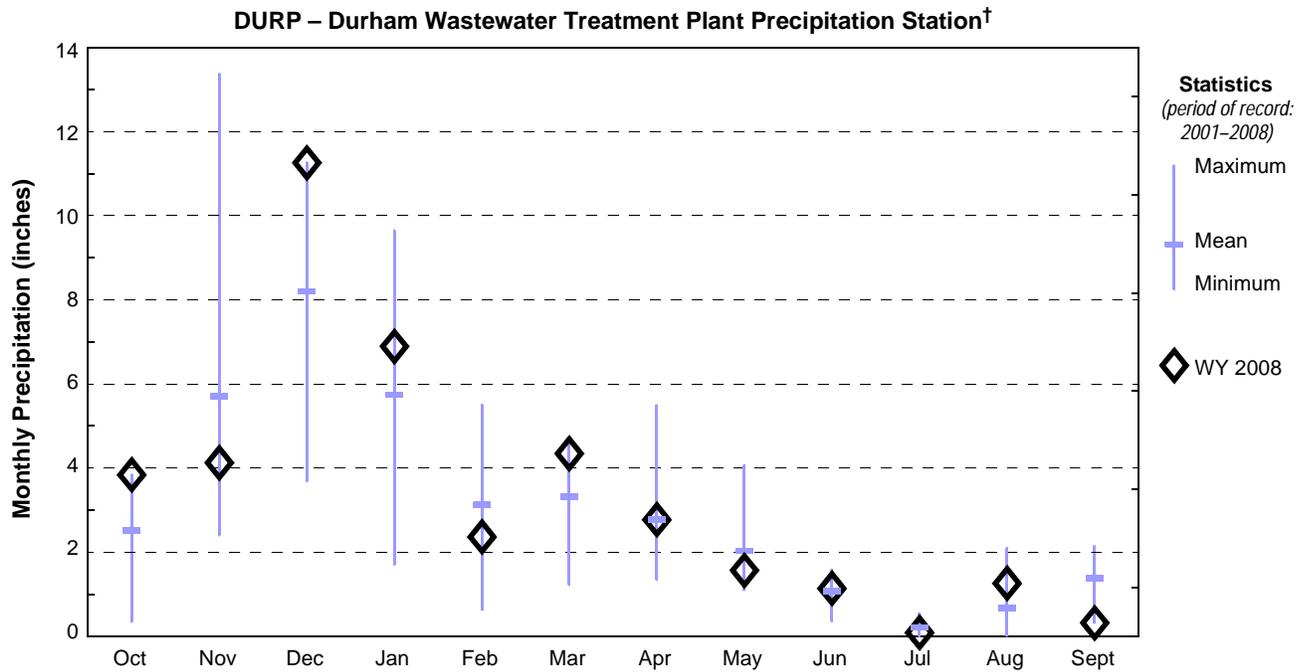
Latitude: 45 23 59 Longitude: 122 45 45

Source Agency: US Geological Survey

Water Year*	Total Monthly Precipitation (inches) <sup>†</sup>											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
<b>2001</b>									1.5	0.8	0.7	0.7
<b>2002</b>	3.8	6.9	5.9	5.4	3.4	3.5	2.1	1.6	1.3	0.5	0.2	2.2
<b>2003</b>	0.4	2.6	10.4	8.1	3.2	4.7	5.5	1.3	0.4	0.0	0.4	0.9
<b>2004</b>	2.5	4.7	8.9	4.8	4.7	1.2	1.3	1.1	1.3	0.0	2.1	1.8
<b>2005</b>	3.1	2.4	3.7	1.7	0.6	3.5	3.1	4.1	1.6	0.4	0.0	1.8
<b>2006</b>	2.9	5.8	9.7	9.7	2.1	2.7	2.1	3.0	0.9	0.0	0.0	0.6
<b>2007</b>	1.1	13.4	7.5	3.6	5.5	3.2	2.6	1.6	0.9	0.5	0.7	2.0
<b>2008</b>	3.9	4.1	11.3	6.9	2.4	4.4	2.8	1.6	1.2	0.1	1.3	0.3
<b>MIN</b>	0.4	2.4	3.7	1.7	0.6	1.2	1.3	1.1	0.4	0.0	0.0	0.3
<b>MAX</b>	3.9	13.4	11.3	9.7	5.5	4.7	5.5	4.1	1.6	0.5	2.1	2.2
<b>MEAN</b>	2.52	5.71	8.20	5.75	3.13	3.32	2.78	2.03	1.07	0.21	0.67	1.37

\*Water Year (WY) begins October 1st of the previous calendar year and ends September 30th of current year.

<sup>†</sup>The USGS adjusted all historical values for precipitation at the Durham Wastewater Treatment Plant in 2006 to correct for systematic undercatch of rainfall.



†The USGS adjusted all historical values for precipitation at the Durham Wastewater Treatment Plant in 2006 to correct for systematic undercatch of rainfall.

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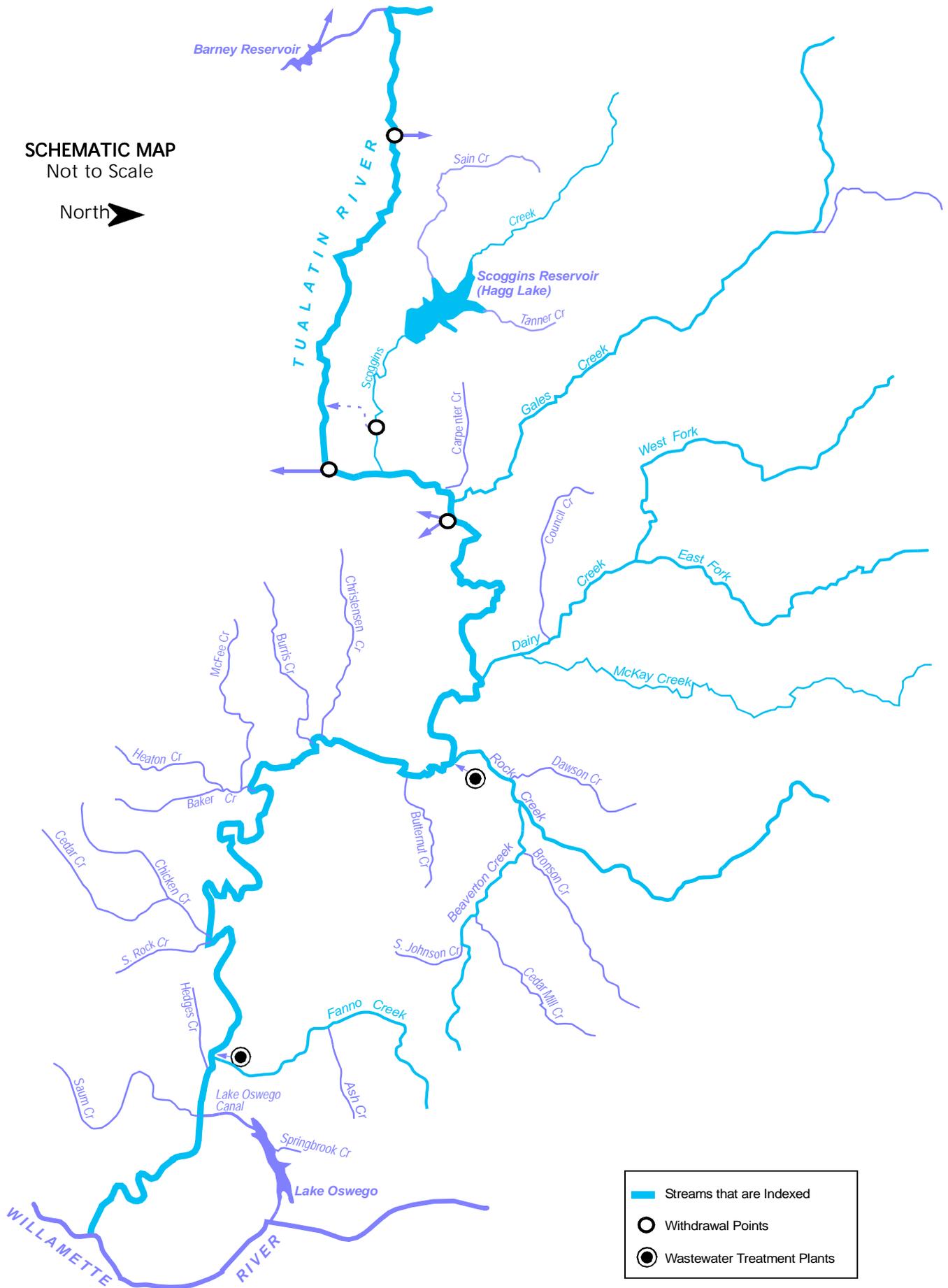
# Appendix I

## River Mile Indices

STREAMS INDEXED

**SCHEMATIC MAP**  
Not to Scale

North 



## STREAMS INDEXED

STREAM NAME	HYDROLOGIC UNIT CODE	PAGE
Tualatin River	211400300	I-4
Fanno Creek	2114003000180	I-7
Rock Creek	2114003000420	I-8
Beaverton Creek	2114003000420060	I-9
Dairy Creek	2114003000480	I-10
McKay Creek	2114003000480020	I-11
East Fork Dairy Creek	2114003000480080	I-12
West Fork Dairy Creek	2114003000480090	I-13
Gales Creek	2114003000560	I-14
Scoggins Creek	2114003000640	I-15

## TUALATIN RIVER — RIVER MILE INDEX

HUC: 211400300

[Elevation measured relative to 0.00 gage datum; Abbreviations: RB= right bank, LB= left bank, HUC= Hydrologic Unit Code]

River Mile	Bank	Description	Drainage Area (square miles)	Elevation (feet)
0.00		Mouth of Tualatin River at Willamette River (LB of Willamette River @ River Mile 28.5)	712	
0.20		Weiss Bridge – Petes Mtn Rd.		
1.60	RB	Fields Creek (HUC: 02114003000010)		
1.69		State Hwy 212 Bridge (Fields Bridge)		
1.75	LB	West Linn Stream Gage Station – USGS #14207500	706	85.61
2.40	LB	Tate Creek (HUC: 02114003000020)		
3.45		Lake Oswego Corp. Diversion Dam		
4.25		Interstate 205 Bridge		
4.56	LB	Wilson Creek (HUC: 02114003000080)		
5.34	LB	Boat Launch		
5.36	LB	ShIPLEY Creek (HUC: 02114003000100)		
5.38		ShIPLEY Bridge– Stafford Rd. NWS Wire Weight Gage		
5.62	LB	Pecan Creek (HUC: 02114003000120)		
6.02	RB	Athey Creek (HUC: 02114003000123)		
6.70	RB	Saum Creek (HUC: 02114003000130)		
6.70	LB	Oswego Canal Diversion River Elevation Recording Gage #14206990, Headgate, and Canal Recording Gage #14207000		
7.36	LB	Boat Launch – Dogwood Drive		
7.67	RB	Browns Ferry Park Canoe Launch		
7.83		Clackamas County – Washington County Boundary (Underground Cable Crossing Sign)		
8.18		Interstate 5 Bridge		
8.60		Boones Ferry Road Bridge		
8.64	RB	Hedges Creek (HUC: 02114003000150)		
8.90	RB	Tualatin Park Boat Launch		
8.91	RB	Southern Pacific RR Bridge Tualatin River at Tualatin Elevation Recording Station #14206956 (formerly #14206960)		
9.32	LB	Fanno Creek (HUC: 02114003000180) <i>[Index on page I-13]</i>	26.8	
9.33	LB	Durham Wastewater Treatment Plant Outfall		
9.34		Oregon Electric RR Bridge		
9.80	LB	Cook Park Boat Launch		
11.50	LB	US Hwy. 99W Bridge (Pacific Highway) Canoe Launch(access from southeast of bridge)		
12.68		Overhead BPA Transmission Line; Vancouver–Eugene		
12.80	LB	Rivermeade Boat Launch (Private)		
15.20	RB	Rock Creek–South (HUC: 02114003000250)	13.7	
15.50	RB	Chicken Creek (HUC: 02114003000270)		
16.09	RB	Chicken Creek Drainage Ditch		
16.22	RB	Shamberg Bridge (Elsner Road) Rated Staff Gage for Stream Flow		

## TUALATIN RIVER — RIVER MILE INDEX

HUC: 211400300

[Elevation measured relative to 0.00 gage datum; Abbreviations: RB= right bank, LB= left bank, HUC= Hydrologic Unit Code]

River Mile	Bank	Description	Drainage Area (square miles)	Elevation (feet)
21.12		Overhead BPA Transmission Line; Big Eddy–Keeler		
26.90		State Hwy. 210 bridge (Scholls)		
28.20	RB	McFee Creek (HUC: 02114003000310)		
30.76	LB	Unnamed Stream (HUC: 02114003000320) (Jacktown)		
31.62	RB	Burriss Creek (HUC: 02114003000330)		
31.92	RB	Christensen Creek (HUC: 02114003000350)		
33.30		Harris Bridge (State Highway 208)	568	100.42
	LB	Farmington Recording Stream Gage #14206500		
35.68	LB	Butternut Creek (HUC: 02114003000380)		
37.38	LB	Gordon Creek (HUC: 02114003000400)		
38.08	LB	Rock Creek Wastewater Treatment Plant Outfall		
38.09	LB	Rock Creek (HUC: 02114003000420)	74.6	
		Beaverton Creek (HUC:02114003000420060)	36	
38.44	LB	Rood Bridge Small Watercraft Launch		
		Rood Bridge Road Bridge		
	LB	Recording Stream Gage #14206295		105.16
40.44	RB	Davis Creek (HUC: 02114003000430)		
41.64		Minter Bridge Road Bridge		
43.88	LB	Jackson Slough		
		Jackson Bottom Wetlands		
	LB	Hillsboro Wastewater Treatment Plant Effluent Outfall		
44.40		State Highway 219 Bridge		
	RB	Recording Stream Gage #14206241		
44.73	LB	Dairy Creek (HUC: 02114003000480) <i>[Index on page I-9]</i>	226	
		McKay Creek (LB) (HUC: 02114003000480020) <i>[Index on page I-10]</i>	63.4	
		East Fork Dairy Creek (HUC: 02114003000480080) <i>[Index on page I-11]</i>		
		West Fork Dairy Creek (HUC: 02114003000480090) <i>[Index on page I-12]</i>		
51.54		Golf Course Road Bridge		
	RB	Golf Course Recording Stream Gage #14204800		
53.74		LaFollett Road (Bridge removed)		
55.24	LB	Forest Grove Wastewater Treatment Plant Outfall		
		Fern Hill Wetlands		
55.32		Fernhill Road Bridge		
56.10		Springhill Pump Plant Intake		
56.80	LB	Gales Creek (HUC: 02114003000560) <i>[Index on page I-8]</i>	78.6	
57.38	LB	Carpenter Creek (HUC: 02114003000580)		
57.84	LB	Dilley Creek (HUC: 02114003000600)		
58.04	LB	Johnson Creek (HUC: 02114003000602)		
58.82		Springhill Road Bridge	125	147.57
	LB	Tualatin River at Dilley Stream Gage; USGS #14203500		
59.02	LB	O'Neil Creek (HUC: 02114003000620)		
60.00	LB	Scoggins Creek (HUC: 02114003000640) <i>[Index on page I-7]</i>		
60.80	RB	Wapato Creek (HUC: -02114003000670)		
		Wapato Creek Improvement District Return Flow		
62.00	RB	Wapato Improvement District Headgate)		
62.24		Southern Pacific RR Bridge		

## TUALATIN RIVER — RIVER MILE INDEX

HUC: 211400300

[Elevation measured relative to 0.00 gage datum; Abbreviations: RB= right bank, LB= left bank, HUC= Hydrologic Unit Code]

River Mile	Bank	Description	Drainage Area (square miles)	Elevation (feet)
62.25		State Highway 47 Bridge (Gaston) New Tualatin River at Gaston Recording Stream Gage #14202510		
62.30		Bates Road Bridge		
62.80	LB	Black Jack Creek (HUC: 02114003000700)		
62.90		Overhead BPA Transmission Line; Forest Grove–McMinnville		
63.13		TVID Patten Valley Pump Station Outfall #1		
63.87	RB	Discontinued Tualatin River at Gaston Recording Stream Gage	48.5	
64.26		TVID Patten Valley Pump Station Outfall #2		
65.34	RB	Williams Canyon (HUC: 02114003000730)		
65.90		Mt. Richmond Road Bridge		
67.30	LB	Hering Creek (HUC: 02114003000760)		
67.83		South Road Bridge (Cherry Grove)		
68.44	RB	Roaring Creek (HUC: 02114003000790)		
69.42		Little Lee Falls		
70.70	LB	Raines Bridge– Tualatin River below Lee Falls Rated Staff Gage for Stream Flow		
71.07		Lee Falls		
73.28		Haines Falls		
73.30	LB	City of Hillsboro Haines Falls Intake		
74.00	LB	Lee Creek (LB–02114003000860)		
74.05	RB	Patten Creek (HUC: 02114003000870)		
75.70	LB	Sunday Creek (HUC: 02114003000900)		
76.60	LB	Maple Creek (HUC: –02114003000940)		
76.95		Ki–A–Cut Falls		
78.00	RB	Barney Reservoir Aqueduct Outfall		
79.3+		Headwaters of Tualatin River		

## FANNO CREEK — STREAM MILE INDEX

HUC: 2114003000180

[Abbreviations: RB= right bank, LB= left bank, HUC= Hydrologic Unit Code, ISWR= Instream Water Right]

River Mile	Bank	Description
0.00		Confluence with the Tualatin River (HUC: 02114003000) at River Mile 9.32
0.86		Oregon Electric RR Bridge
1.19		Durham Road Bridge USGS Gage #14206950
2.00	LB	Ball Creek (HUC: 02114003000180020)
2.12		Bonita Street Bridge – Rated Staff Gage
3.28		SW Hall Blvd Bridge
3.95		SW Ash Avenue Bridge
4.28		SW Main St Bridge
4.30		State Hwy 99W Bridge
4.49		SW Grant Ave Bridge
5.07		SW Tiederman Ave. Bridge
5.08	RB	Summer Creek (HUC: 02114003000180070) Rated Staff Gage at Fowler School
5.32		SW Tigard Ave Bridge
5.53		SW North Dakota St Bridge
5.54	LB	Ash Creek (HUC: 02114003000180080) Rated Staff Gage at Greenburg Road
6.38		Scholls Ferry Road Bridge
7.30		Tuckerwood – Rated Staff Gage
7.66		SW Hall Blvd Bridge
8.40		SW Denny Rd Bridge
8.60		Oregon Electric RR Bridge
8.70		State Hwy 217 Bridge
9.42		Scholls Ferry Road Bridge Rated Staff Gage
9.66		SW 92nd Ave Bridge
9.90		SW Bohmann Parkway Bridge
10.16		SW 86th Ave Bridge
10.78		SW Nicol Road Bridge
11.76		Olson Road Bridge
11.96	RB	Sylvan Creek (HUC: 02114003000180190)
11.98		SW Beaverton–Hillsdale Hwy (State Hwy 10)
12.10		Washington County – Multnomah County Line
12.58		SW 56th Ave Bridge USGS Gage #14206900
12.81		SW Shattuck Road Bridge
13.22		SW 45th Ave Bridge
13.23	RB	Ivey Creek (HUC: 02114003000180250)
13.32		SW 43rd Ave Bridge
13.38		SW 42nd Ave Bridge
13.48		SW 39th Ave Bridge
13.98		SW Beaverton–Hillsdale Hwy (State Hwy 10)
14.10		SW 30th Ave Bridge

## ROCK CREEK — STREAM MILE INDEX

HUC: 2114003000420

[Abbreviations: RB= right bank, LB= left bank, HUC= Hydrologic Unit Code]

River Mile	Bank	Description
0.8		River Road Bridge
1.2		Southern Pacific RR Bridge
1.2+		State Highway 8 Bridge – Rated Staff Gage for Stream Flow
2.4		SW Brookwood Avenue Bridge
3.1	RB	Dawson Creek
4.4	LB	Beaverton Creek
4.5		Baseline Road Bridge
4.9		NW Quatama Road Bridge – Rated Staff Gage for Stream Flow
5.5		Oregon Electric RR Bridge
5.7		NW 216th Avenue Bridge
6.7		NW Cornell Road Bridge
7.8		US Highway 26 Bridge
9.0		West Union Road Bridge – Rated Staff Gage for Stream Flow
9.3	RB	Holcomb Creek
10.0		NW 185th Avenue Bridge
10.9	LB	Abbey Creek
11.0		Germantown Road Bridge
11.9		Cornelius Pass Road Bridge
13.0		Old Cornelius Pass Road Bridge
14.1		Burlington Northern RR Bridge
15.1		Rated Staff Gage for Stream Flow
16.4		Rock Creek Road Bridge
16.5		Van Raden Reservoir
19.1		Headwaters

## BEAVERTON CREEK — STREAM MILE INDEX

HUC: 2114003000420060

[Abbreviations: RB= right bank, LB= left bank, HUC= Hydrologic Unit Code]

River Mile	Bank	Description
0.00		Confluence with Rock Creek (LB, HUC: 02114003000480080260) @ River Mile 4.3
0.40		Southwest Baseline Road
1.16		Southwest 216th Avenue Road Bridge— Rated Staff Gage for Stream Flow
2.20	RB	Bronson Creek (HUC: 02114003000420060010)
3.32	RB	Willow Creek (HUC: 02114003000420060050)
4.90		Southwest 170th Avenue Road Bridge— Rated Staff Gage for Stream Flow
5.47	LB	Unnamed Stream (HUC: 02114003000420060096)
6.06	LB	Johnson Creek (HUC: 02114003000420060100)
6.30	LB	Unnamed Stream (HUC: 02114003000420060120)
6.66		Oregon Electric Railroad
7.45		Cedar Hills Boulevard
7.90	RB	Reasoners Creek (HUC: 02114003000420060130)
8.75+		Headwaters

## DAIRY CREEK — STREAM MILE INDEX

HUC: 02114003000480

[Abbreviations: RB= right bank, LB= left bank, HUC= Hydrologic Unit Code]

River Mile	Bank	Description
0.00		Confluence with Tualatin River (HUC: 0211400300) @ River Mile 44.73
1.65		Southern Pacific RR Bridge
2.06		State Highway 8 Bridge Dairy Creek at TV Hwy Recording Stream Gage #14206200
2.20		Oregon Electric RR Bridge
2.26	LB	McKay Creek (HUC: 02114003000480020)
3.53	RB	Council Creek (HUC: 02114003000480040)
6.02		Susbauer Road Bridge (County Road 196)
7.39		BPA Power Line Crossing
8.51		Cornelius–Schefflin Road Bridge (County Road 2161) Rated Staff Gage for Stream Flow
10.55		Confluence of East Fork Dairy Ck (HUC: 02114003000480080) & West Fork Dairy Ck (02114003000480090)

## MC KAY CREEK — STREAM MILE INDEX

HUC: 2114003000480020

[Abbreviations: RB= right bank, LB= left bank, HUC= Hydrologic Unit Code]

River Mile	Bank	Description
0.00		Confluence with Dairy Creek (HUC: 02114003000480) @ River Mile 2.26
1.31		Padgett Road Bridge (County Road 2245)
2.25		Hornecker Road Bridge (County Road 2393) Rated Staff Gage for Stream Flow
2.30		Southern Pacific RR Crossing
4.32		Glencoe Road Bridge (County Road A-146½) Rated Staff Gage for Stream Flow
4.46		BPA Transmission Line Crossing
5.34	LB	Waible Creek (HUC: 02114003000480020040)
6.30		NW Old Scotch Church Road Bridge (County Road A-66)
8.00		US Hwy 26 Bridge – Sunset Highway
9.36		NW West Union Road Bridge (County Road 2496) City of North Plains to West
9.38		Southern Pacific RR Crossing
10.94	LB	Jackson Creek (HUC: 02114003000480020100)
12.80		NW Shadybrook Road Bridge (County Road A-110)
15.56		NW Collins Road Bridge (County Road 1889) Rated Staff Gage for Stream Flow
16.56	RB	Brunswick Canyon (HUC: 02114003000480020179)
16.66	LB	East Fork McKay Creek (HUC: 02114003000480020180)
24.0+		Headwaters

## EAST FORK DAIRY CREEK — STREAM MILE INDEX

HUC: 2114003000480080

[Abbreviations: RB= right bank, LB= left bank, HUC= Hydrologic Unit Code, ISWR= Instream Water Right]

River Mile	Bank	Description
0.00		Confluence with West Fork Dairy Creek (HUC: 02114003000480090) @ River Mile 10.56 of Dairy Creek (HUC: 02114003000480)
1.24		Roy Road Bridge (County Road A-159) Rated Staff Gage for Stream Flow
2.34		Port of Tillamook Bay RR Bridge
3.04	RB	Bledsoe Creek (HUC: 02114003000480080030)
3.20		Harrington Road Bridge (County Road 1989)
4.80		SP&S RR Bridge
5.56		US Highway 26 Bridges
6.91		Mountaindale Road Bridge (County Road 12)
6.97	LB	Baker Creek (HUC: 02114003000480080080)
8.44		Dairy Creek Road Bridge (County Road 2067) Rated Staff Gage for Stream Flow
8.55		East Fork Dairy Creek at Mountaindale, OR – Former USGS Gage #14205500 (10/40–9/51) Drainage Area = 43.0 square miles
9.62		NW Uebel Road Bridge (County Road 304)
12.50		Murphy Lane Bridge (Private) Rated Staff Gage for Stream Flow
12.82	RB	Big Canyon (HUC: 02114003000480080150)
13.00		<b>ISWR: C-59525 5/25/66</b>
13.95	RB	Murtaugh Creek (HUC: 02114003000480080170)
14.04	LB	Meadow Brook Creek (HUC: 02114003000480080180)
14.17		Meacham Road Bridge (County Road 742)
15.55	LB	Plentywater Creek (HUC: 02114003000480080200) <b>ISWR: C-59527 5/25/66</b>
16.52	RB	Denny Creek (HUC: 02114003000480080210) <b>ISWR: C-59526 5/25/66</b>
16.56		Bacona Road Bridge (County Road 422) Snooseville Corner
17.21		Greener Road Bridge (County Road 1990)
17.34	LB	Rock Creek (HUC: 02114003000480080260)
17.50		Little Bend Park
17.60		Fern Flat Road Crossing (County Road 241)
18.15	LB	Panther Creek (HUC: 02114003000480080280)
18.31		Fern Flat Road Crossing (County Road 241)
18.84	RB	Roundy Creek (HUC: 02114003000480080290)
19.10	RB	Campbell Creek (HUC: 02114003000480080310)
21.30		Washington County – Columbia County Boundary
21.48		BPA Power Line Crossing
22.0+		Headwaters

## WEST FORK DAIRY CREEK — STREAM MILE INDEX

HUC: 2114003000480090

[Abbreviations: RB= right bank, LB= left bank, HUC= Hydrologic Unit Code]

River Mile	Bank	Description
0.00		Confluence with East Fork Dairy Creek (HUC: 02114003000480080) @ River Mile 10.56 of Dairy Creek (HUC: 02114003000480)
1.96		Evers Road Bridge (County Road A-187) Rated Staff Gage for Stream Flow
2.09	RB	Lousignant Canal (HUC: 02114003000480090010)
2.82		State Highway 47 Bridge
5.28		Greenville Road Bridge (County Road A-159)
6.20		State Highway 6 Bridge
6.22	RB	Cedar Canyon Creek (HUC: 02114003000480090110)
7.53		Cedar Canyon Road Bridge (County Road 1938) City of Banks to SE
7.70		State Hwy 47 Bridge – Rated Staff Gage for Stream Flow West Fork Dairy Creek at Banks, OR –Former USGS Gage #14205000 (10/40 – 9/43) Drainage Area = 47.5 square miles
7.72		Port of Tillamook Bay RR Bridge
9.30		US Highway 26 Bridge
10.60		NW Green Mountain Road Bridge (County Road 127)
11.02	LB	Garrigus Creek (HUC: 02114003000480090180)
12.19		NW Turk Road Bridge (County Road 233)
12.36	RB	Kuder Creek (HUC: 02114003000480090190)
12.90		NW Pihl Road Bridge (County Road 1045) Community of Manning
13.33		Port of Tillamook Bay RR Bridge
13.48		Port of Tillamook Bay RR Bridge
13.58	LB	Witcher Creek (HUC: 02114003000480090200)
14.37		Port of Tillamook Bay RR Bridge
14.50		US Highway 26 Bridge
15.00		NW Fisher Road Bridge (County Road 394)
15.11	LB	Mendenhall Creek (HUC: 02114003000480090220)
15.58	RB	Burgholzer Creek (HUC: 02114003000480090230)
15.60		US Highway 26 Bridge
16.00		Community of Buxton – ½ mile east
17.02	LB	Williams Creek (HUC: 02114003000480090240)
17.98	RB	Cummings Creek (HUC: 02114003000480090250)
18.10		State Highway 47 Bridge
18.85		Port of Tillamook Bay RR Bridge
22+		Headwaters

## GALES CREEK — STREAM MILE INDEX

HUC: 2114003000560

[Abbreviations: RB= right bank, LB= left bank, HUC= Hydrologic Unit Code, ISWR= Instream Water Right]

River Mile	RB	Description
0.00		Confluence with Tualatin River (HUC: 0211400300) @ River Mile 56.80 <i>ISWR: C-59523 5/25/66</i>
1.63		Southern Pacific RR Bridge
1.75		Forest Grove Bypass Bridge – State Highway 47 to State Highway 8
2.36		State Highway 47 Bridge Gales Creek Recording Stream Gage #14204530
3.66		Ritchey Road Bridge (County Road 461)
6.53	RB	Prickett Creek (HUC: 02114003000560090)
6.98		Stringtown Road Bridge (County Road A-176)
7.70	RB	Roderick Creek (HUC: 02114003000560110)
8.56		Roderick Road Bridge (County Road 395) Gales Creek near Forest Grove Oregon – Former USGS Gage #14204500 (10/40-9/56 & 10/70-9/81)
8.94	RB	Godfrey Creek (HUC: 02114003000560130)
9.22	LB	Kelly Creek (HUC: 02114003000560120)
10.68	RB	Clear Creek (HUC: 02114003000560150)
11.44	RB	Iler Creek (HUC: 02114003000560170)
11.46		NW Gales Creek Road (County Road 1312) Community of Gales Creek
11.47	RB	Fir Creek (HUC: 02114003000560190)
12.00		<i>ISWR: C-59509 5/25/66</i> above this point
12.36		Clapshaw Hill Road Bridge (County Road 2037) Rated Staff Gage for Stream Flow
12.40	LB	Little Beaver Creek (HUC: 02114003000560200) <i>ISWR: C-59512 5/25/66</i>
12.92		Parson Road Bridge
14.44	RB	White Creek (HUC: 02114003000560210)
14.68		NW Wilson River Highway Bridge (State Highway 6)
15.74	RB	Lyda Creek (HUC: 02114003000560230)
16.26	RB	Bateman Creek (HUC: 02114003000560250)
17.50		Gales Creek near Gales Creek, OR – Former USGS Gage #1420400 (10/35-9/45 & 10/639/70)
18.00	LB	Beaver Creek (HUC: 02114003000560280) Community of Glenwood <i>ISWR: C-59524 5/25/66</i>
18.45		NW Timber Road Bridge (County Road 374)
18.65		Wilson River Highway Bridge (State Highway 6)
19.70		Wilson River Highway Bridge (State Highway 6)
19.88	LB	Coffee Creek (HUC: 02114003000560300)
20.07	LB	Finger Creek (HUC: 02114003000560305)
20.70	RB	South Fork Gales Creek (HUC: 02114003000560310) <i>ISWR: C-59514 5/25/66</i>
21.60	LB	North Fork Gales Creek (HUC: 02114003000560320) <i>ISWR: C-59513 5/25/66</i>
22.76	RB	Low Divide Creek (HUC: 02114003000560330) Gales Creek Forest Park
23.20		Gales Creek near Glenwood, OR – USGS Gage #14203750 (7/94 – present)

## SCOGGINS CREEK — STREAM MILE INDEX

HUC: 2114003000640

[Abbreviations: RB= right bank, LB= left bank, HUC= Hydrologic Unit Code]

River Mile	Bank	Description
0.00		Confluence with Tualatin River (HUC: 0211400300) @ River Mile 60.00
0.94		RR Bridge
1.00		State Highway 47 Bridge
1.70		Old State Highway 47 Bridge
1.71		Scoggins Creek near Gaston, OR – Former USGS Gage #14203000 (10/1940 – 9/1974) Drainage Area = 43.3 square miles
4.80		Scoggins Creek below Henry Hagg Lake, near Gaston, OR – USGS Gage #14202980 (1/1975 –present) Drainage Area = 38.8 square miles
5.10		Scoggins Dam
7.00	RB	Sain Creek (HUC: 02114003000640170)
7.62	LB	Tanner Creek (HUC: 02114003000640200)
8.40	LB	Wall Creek (HUC: 02114003000640220)
9.00		Lake Loop Road Bridge
9.30		Scoggins Creek above Henry Hagg, near Gaston, OR – Gage #14202850 (10/1972 – present) Drainage Area = 15.9 square miles
10.52	LB	Parson Creek (HUC: 02114003000640240)
15.50	LB	Fisher Creek (HUC: 02114003000640300)

