TUALATIN RIVER FLOW MANAGEMENT TECHNICAL COMMITTEE

Tualatin Valley Irrigation District—
Irrigation Water

Joint Water Commission—
Municipal Water Supply

Clean Water Services—
Stormwater and Municipal Wastewater Management

2012 Annual Report

prepared by
Bernie Bonn for

Clean Water Services

Photo Credits:
top right: Blueberry field being irrigated, Washington County, Oregon
center right: Sign outside Joint Water Commission Fernhill Road Treatment Plant
bottom right: Sign outside Clean Water Services Rock Creek Wastewater Treatment Facility
photographs taken July 2008 by Bernie Bonn

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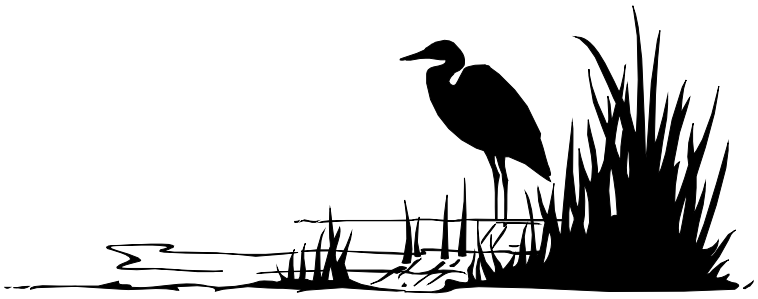
2012 Annual Report



Prepared by:

Bernie Bonn

For:

Clean Water Services

In cooperation with:

Oregon Water Resources Department, District 18 Watermaster

FLOW MANAGEMENT TECHNICAL COMMITTEE MEMBERS

Niki Iverson, Chair	*City of Hillsboro Water Department*
Cole Beaman	*Oregon Water Resources Department*
John Goans	*Tualatin Valley Irrigation District*
Darrell Hedin (retired in 2012)	*Oregon Water Resources Department*
Raj Kapur	*Clean Water Services*
Scott Porter	*Washington County — Emergency Management System*
Mark Rosenkranz	*Lake Oswego Corporation*
Randy Smith	*City of Forest Grove*
Todd Winter	*Washington County Parks — Hagg Lake*
Jean Woll	*Joint Water Commission*

ACRONYMS USED IN THIS REPORT

FULL NAME	ACRONYM
Facilities	
Spring Hill Pumping Plant	SHPP
Wastewater Treatment Facility	WWTF
Organization	
Barney Reservoir Joint Ownership Commission	BRJOC
Clean Water Services	CWS
Joint Water Commission	JWC
Lake Oswego Corporation	LOC
Oregon Department of Environmental Quality	ODEQ
Oregon Department of Transportation	ODOT
Oregon Water Resources Department	OWRD
Tualatin Valley Irrigation District	TVID
Tualatin Valley Water District	TVWD
Bureau of Reclamation	BOR
U.S. Geological Survey	USGS
Other	
Total Maximum Daily Load	TMDL
Wasteload Allocation	WLA

FULL NAME	ACRONYM
Units of Measurement	
Acre-Feet	ac-ft
Cubic Feet per Second	cfs
Micrograms per liter	µg/L
Milligrams per Liter	mg/L
Million Gallons per Day	MGD
Pounds	lbs
River Mile	RM
Water Year	WY
Water Quality Parameters	
Biochemical Oxygen Demand	BOD
Dissolved Oxygen	DO
Sediment Oxygen Demand	SOD

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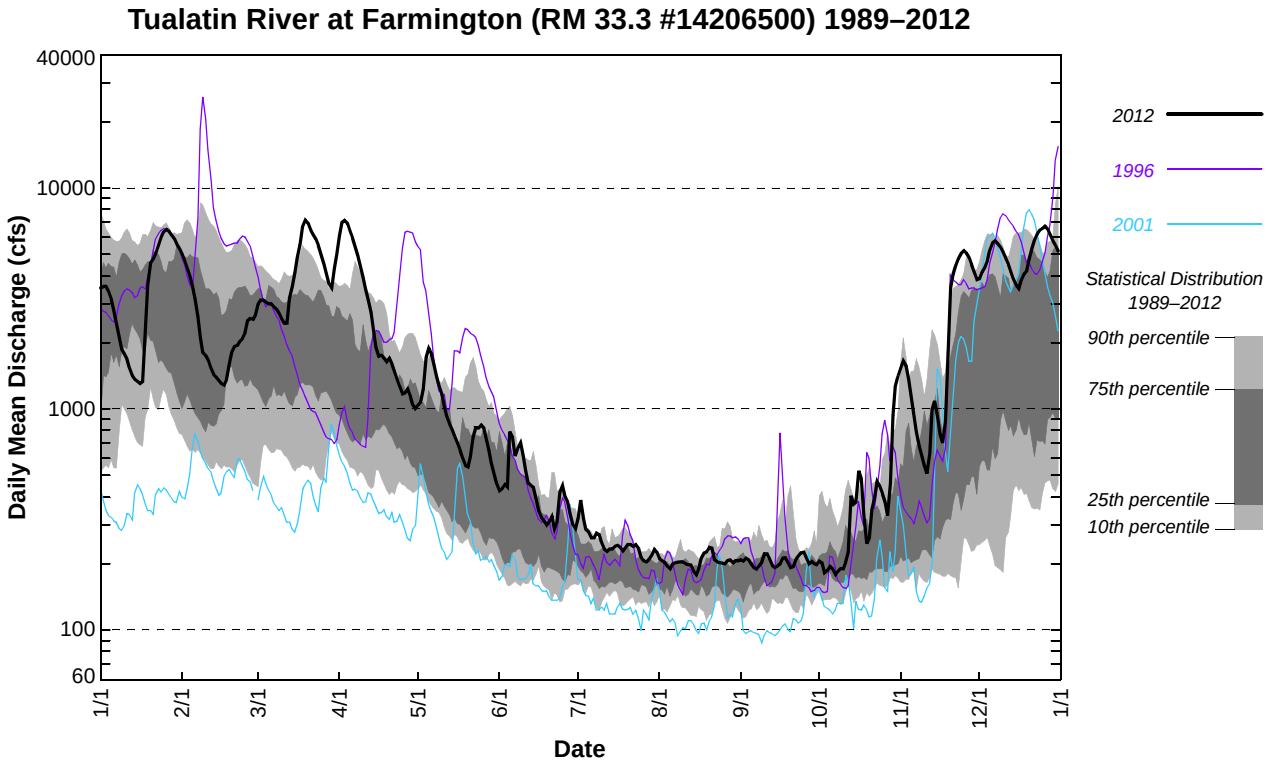
2012 SUMMARY

This is the twenty-fourth 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 2012 include:

- Scoggins Reservoir filled.
- Barney Reservoir filled despite being drawn down in 2011 to the lowest level since 1998. The drawdown through the summer and early fall of 2011 was to allow for repair work.
- March 2012 was very wet with record rainfall for the area, including at the Dilley station which has records going back to 1944.
- As in the past several years a cool, generally wet spring delayed regulation of river flow until late June (municipal use) and early July (irrigation)



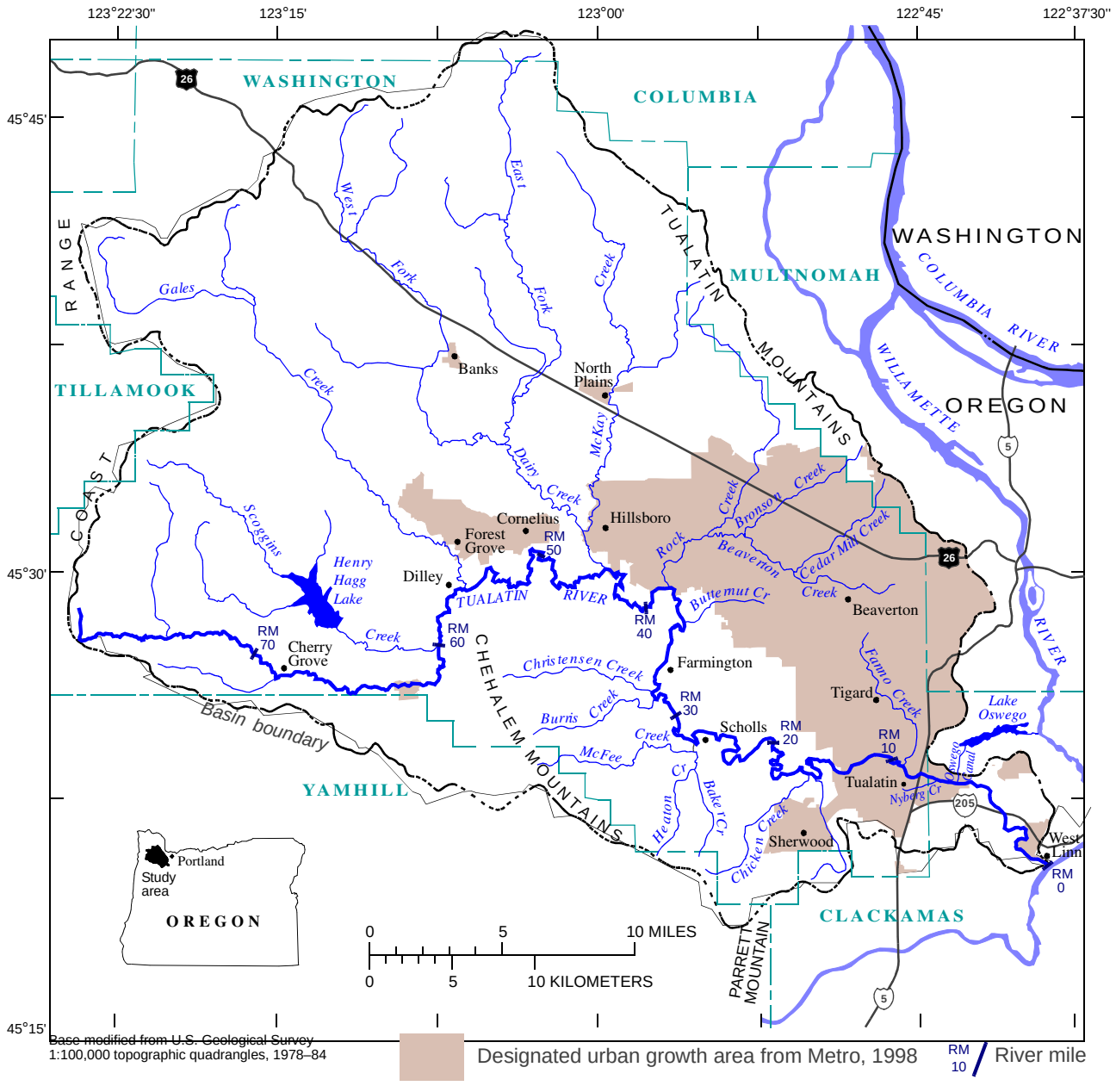
BACKGROUND

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.

Tualatin River Basin



Water sources to the Tualatin River

Precipitation: Seasonal rainfall accounts for most of the natural flow in the Tualatin Basin; streamflow 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 1970s the 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.

Scoggins Reservoir is operated and maintained by the Tualatin Valley Irrigation District under contract with the Bureau of Reclamation. Flow into Scoggins Creek (RM 4.8) is monitored by a Bureau of Reclamation stream gage; Oregon Water Resources Department maintains the rating curve for this site.

Clean Water Services: Clean Water Services provides sanitary and stormwater services to the urban areas of Washington County. A watershed-based NPDES permit allows Clean Water Services to discharge treated wastewater into the Tualatin River from four wastewater treatment facilities (WWTFs). The Rock Creek WWTF discharges an average of 50 cfs (33 MGD) at RM 38.1; the Durham WWTF discharges an average of 31 cfs (20 MGD) at RM 9.3. The Forest Grove and Hillsboro WWTFs (RM 55.2 and 43.8, respectively) are much smaller and do not discharge during the summer. (River mile locations given here are based on USGS topographic maps and may be slightly different from those used in Clean Water Services watershed-based NPDES permit which were obtained from a different source.) WWTF flow rates are continuously monitored at each WWTF. 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, to offset a portion of the thermal load from the Rock Creek and Durham WWTFs, and to provide operational flexibility for their WWTFs.

Water sources to the tributaries

Clean Water Services: Clean Water Services has been using Tualatin Valley Irrigation District transmission lines to deliver water to several tributaries for flow restoration in the summer. About 1 to 2.5 cfs of water was added to McKay Creek since 2005. Similar programs were implemented for Gales Creek (2009), East Fork Dairy Creek (2010) and two sites on West Fork Dairy Creek (2011). The goal is to improve water quality, specifically increasing the dissolved oxygen concentration and decreasing the temperature.The flow augmentation water is from Clean Water Services' allocation in Scoggins Reservoir.

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 Dilley 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 owned by the US Bureau of Reclamation (BOR) and 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 US Fish and Wildlife Service (USFWS) has assumed functions of the Wapato Improvement District (now defunct). TVID can divert water from the Tualatin River at the Wapato Canal Diversion, near RM 62 as needed for irrigation. The USGS began monitoring discharge in Wapato Creek in October 2011 and gage height in Wapato Canal in September 2011.

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 WWTF (RM 38.1) 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. LOC has not installed flashboards since 2003. The dam plus several natural basalt sills cause the water to pool in the reservoir reach. Flow in Lake Oswego Canal has been monitored during the summer by a gaging station operated by the Oregon Water Resources Department, but that site was discontinued partway through 2011.

Water diversions from the tributaries

Irrigation withdrawals: Water is obtained directly from some tributaries for irrigation by irrigators with natural flow water rights.

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 facility discharges. Stream gages are present along the mainstem 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. Flow conditions and a summary of daily releases are reported via daily email by the superintendent of Scoggins Dam. 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, and diversions 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 (TMDL) program. 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:

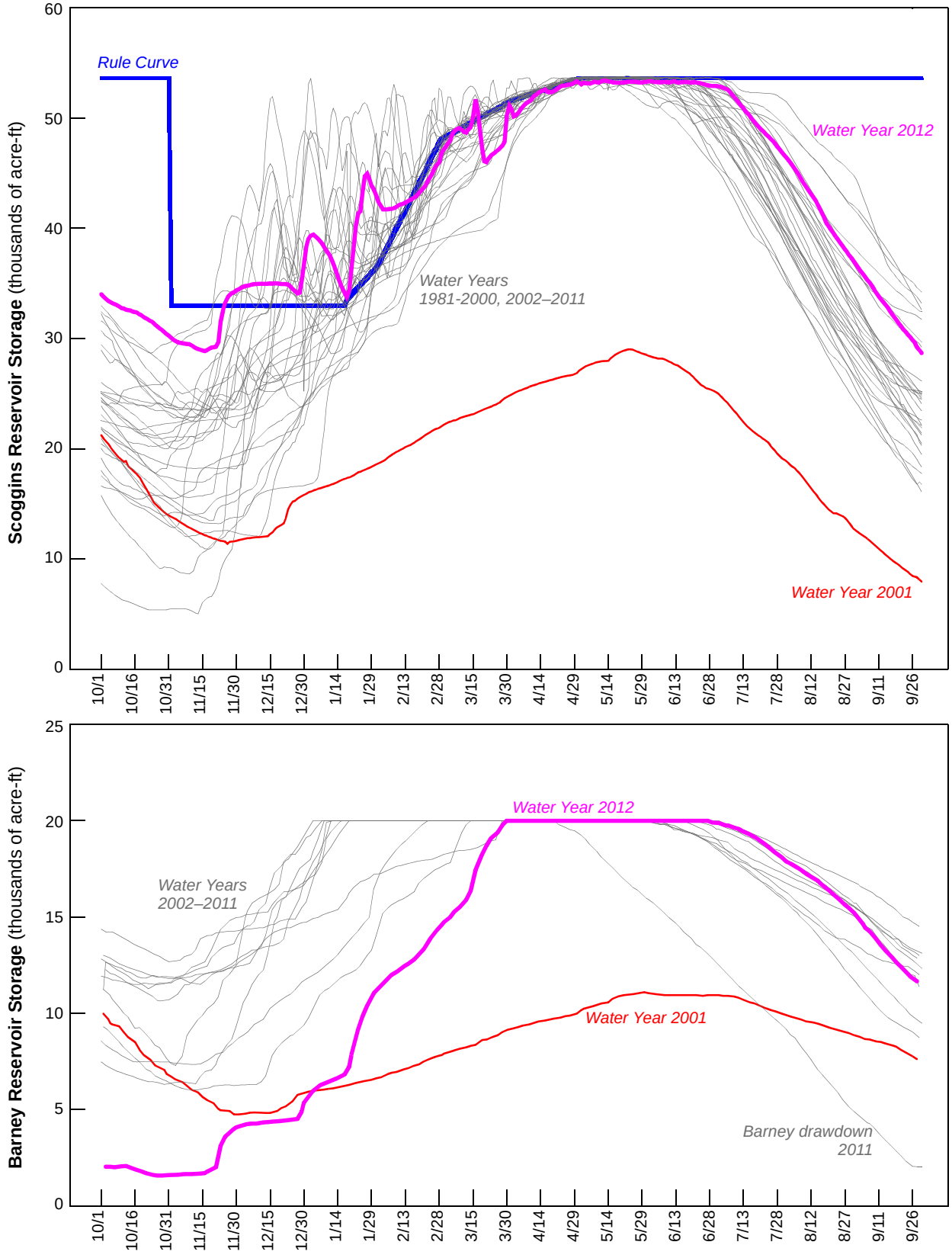
- Bureau of Reclamation data:
  http://www.usbr.gov/pn/hydromet/tuatea.html
- Jackson Bottom Wetlands Center data:
  http://www.jacksonbottom.org/monitoring-restoration/water-quality-tualatin-river-data/
- Oregon Water Resources Department data:
  http://apps.wrd.state.or.us/apps/sw/hydro_near_real_time/
- USGS data:
  http://or.water.usgs.gov/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 2012. The reservoir levels for 2012 and the reservoir filling histories are shown below. Barney Reservoir was drawn down for maintenance in the fall of 2011.



CLEAN WATER SERVICES

BY RAJ KAPUR, 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 a watershed-based NPDES Permit to Clean Water Services on February 26, 2004. In response to a petition for reconsideration filed in 2004, the stormwater requirements of the permit were modified and the permit was reissued on July 27, 2005. The watershed-based permit provides Clean Water Services with a mechanism to offset a portion of the thermal load from its WWTFs with releases of stored water from the reservoirs. Stored water releases also provide operational flexibility to the WWTFs.

The reservoir releases during July and August are used to mitigate part of the thermal load from the wastewater treatment facilities. Clean Water Services offsets the remainder of its thermal load by planting riparian areas 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 effect of sediment oxygen demand on the dissolved oxygen levels in the river. The dissolved oxygen levels in the river downstream of the wastewater treatment facilities determine the ammonia limits for the wastewater treatment facilities. When dissolved oxygen levels are well above the water quality standards, the wastewater treatment facilities have more operational flexibility.

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 no longer offsets the oxygen consumption by sediment oxygen demand. This can lead to low dissolved oxygen levels. Increasing streamflow reduces oxygen consumption by sediment oxygen demand because it shortens the contact time between the river water and the river sediments.

2012 Water Releases

Since 2004, Clean Water Services released water from Scoggins Reservoir for three primary reasons: thermal load trading in July and August, maintaining minimum river flows for the WWTFs, and mitigation of sediment oxygen demand after algal populations decline in late summer and early fall. Clean Water Services generally starts releasing stored water on July 1 for thermal trading. In 2012, flow augmentation releases began on July 7 and ended on October 29 when Tualatin River flow at Farmington exceeded 500 cfs and winter flow conditions started. In 2012 reservoir releases returned to the routine used by Clean Water Services in previous years after an altered regime in 2011 because of the drawdown of Barney Reservoir.

Clean Water Services began release of Scoggins Reservoir water on July 7 and ceased on October 22. Average releases were 41.8 cfs for the July/August period and 51.4 cfs for the September/October period. Clean Water Services released a total 10,950 acre-feet from Scoggins Reservoir for the summer. This was 87% of its allocation.

Clean Water Services released water from Barney Reservoir at a constant rate of 14 cfs beginning on August 31, 2012 and continuing through October 29, 2012. Clean Water Services used a total of 1,667 acre-feet from Barney Reservoir which was the entire allocation.

Clean Water Services released flow augmentation water for a total of 115 days in 2012. The combined average daily release (for days with releases) was 55.2 cfs. The amount of water available to and released by Clean Water Services during 2012 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 — 2012

Reservoir		Maximum Available (acre-ft)	Available (acre-ft)	Total CWS Release (acre-ft)
Scoggins Reservoir	Storage	12,618	12,618	10,950
	Natural flow credit	4,282	0	
Barney Reservoir	Storage	2,000	1,667	1,667
	Summer storage	—	0	
Total		**18,900**	**14,285**	**12,617**
Percent of available				**88.3%**

CLEAN WATER SERVICES WATER RELEASE SUMMARY 2012

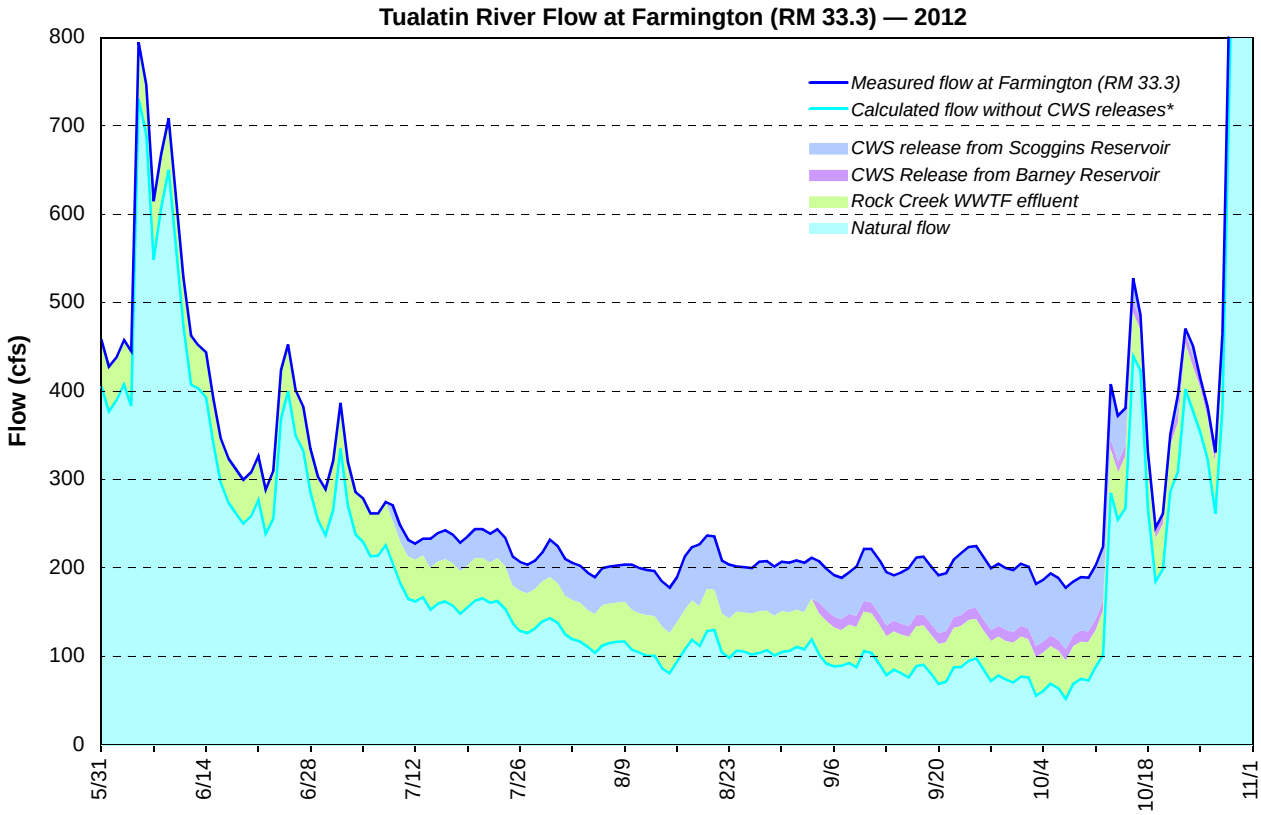
	Units	May	June	July	Aug	Sept	Oct	Nov 1-18	Total
Scoggins Release	acre-ft	0	0	1,667	3,472	3,918	1,893	0	10,950
	days	0	0	25	31	30	20	0	106
Barney Release	acre-ft	0	0	0	28	833	806	0	1,667
	days	0	0	0	1	30	29	0	60
Total Release	acre-ft	0	0	1,667	3,500	4,752	2,698	0	12,616
Daily Average Release (for days with releases)	cfs	0	0	34	57	80	47	0	55
Measured Flows for Tualatin River at Farmington (RM 33.3) – based on daily average									
Measured minimum	cfs	458	289	204	178	189	178	1,370	—
Measured mean	cfs	945	444	250	205	205	395	1,538	—
Measured maximum	cfs	1,890	795	387	237	225	1,430	1,660	—

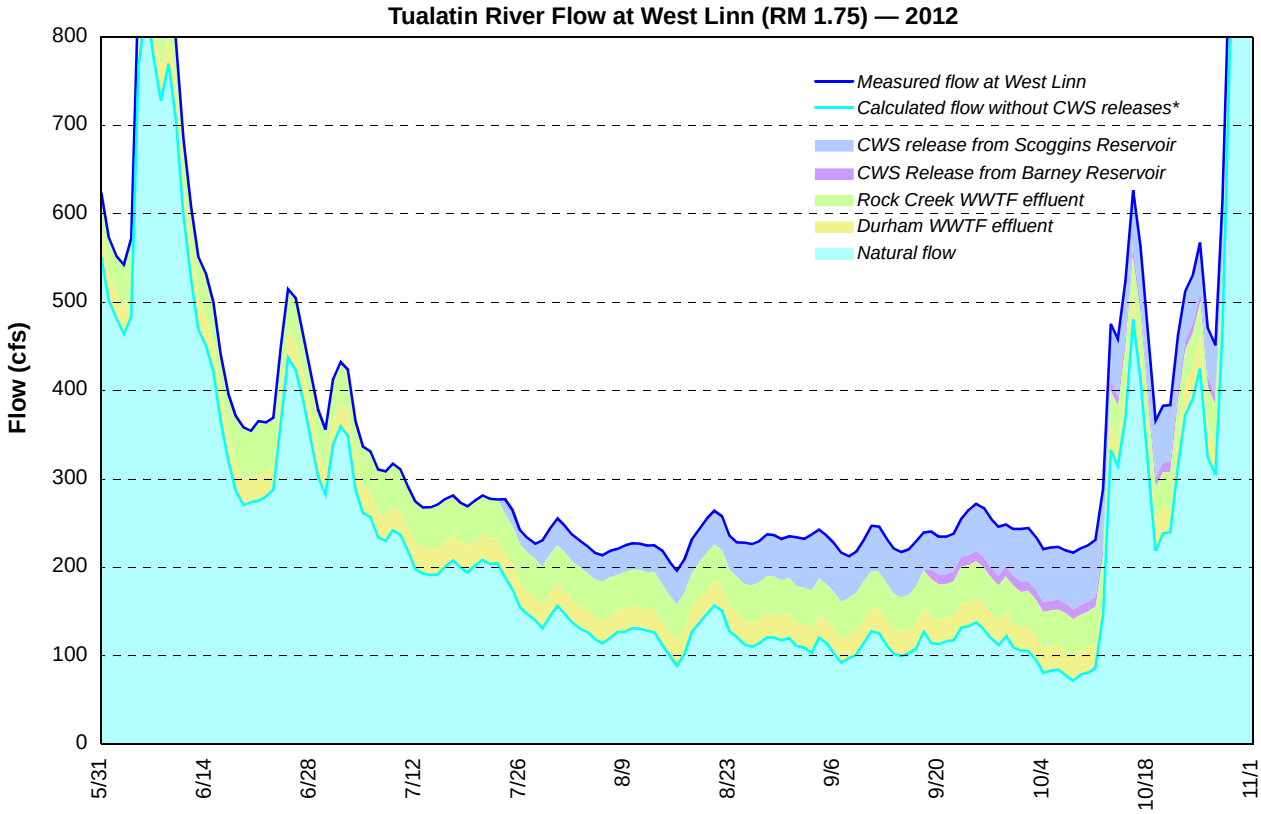
Natural flow credit

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 2012.

BUREAU OF RECLAMATION NATURAL FLOW CREDIT 2012

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	1,133	0	1,133	85	13	*[798]*	0
June	546	0	546	140	21	*[1250]*	0
October	458	47	411	95	16	*[984]*	0
November	2,476	0	2,476	110	21	*[1250]*	0





*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 WWTF 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 WWTF flow from 3 days before
– 0.909 x Rock Ck WWTF 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 began 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 1990s 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. In 2008, as a result of the Rock Creek WWTF mixing zone study, the goal was increased to 150 cfs through August. 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 Daily Flow at Farmington (RM 33.3) (cfs)
1987	6/9	11/30	175	*16,722	48.2	63
1988	7/2	11/4	126	*15,071	60.3	106
1989	6/27	11/15	141	*16,586	59.3	112
1990	7/12	11/1	113	11,889	53.0	124
1991	7/12	11/4	116	13,024	56.6	125
1992	6/5	11/19	168	12,730	38.2	73
1993	7/3	12/1	150	11,486	38.6	98
1994	6/21	10/27	129	10,917	42.7	105
1995	6/24	11/8	138	9,824	35.9	118
1996	7/27	11/10	114	10,952	48.4	146
1997	7/4	10/2	91	6,716	37.2	154
1998	8/12	11/7	87	9,407	54.5	146
1999	7/27	11/12	109	12,001	55.5	156
2000	7/21	11/27	130	**15,275	59.2	152
2001	9/25	11/14	50	**2,403	24.0	88
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	148
2008	7/1	11/4	127	11,896	47.2	162
2009	7/1	10/27	119	10,614	45.0	147
2010	7/24	10/25	94	8,392	45.0	187
2011	7/23	11/18	119	10,464	44.3	173
2012	7/7	10/22	106	10,950	52.1	178

*During these years, Bureau of Reclamation allowed Clean Water Services to release its entire allocation (stored and natural flow.

**Clean Water Services purchased additional water for flow augmentation in 2000 because low flow conditions persisted until the end of November that year. Because the Scoggins Reservoir did not fill in 2001, all allocations were severely decreased.

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.

CLEAN WATER SERVICES — BARNEY RESERVOIR RELEASES

Year	Start Date	End Date	Total Release (acre-ft)	Daily Release Rate (cfs)	Comment
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	—
2009	9/1	10/30	1,667	14	—
2010	9/1	10/30	1,653	14	7 cfs on 9/1/2010 only, all other days 14 cfs
2011	7/1	8/30	1,089	9	Barney Reservoir was drawn down for maintenance which resulted in a reduced allocation
2012	8/31	10/29	1,667	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 (as the managing and operating agency), Forest Grove, Beaverton, 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.

Water production rates in 2012 were slightly increased from the last few years which had very wet early summers, but were not as high as historic levels which averaged in the low 30 MGDs. The average water production in 2012 was 28.5 million gallons per day and the maximum produced in one day was 58.5 MGD on August 15. This maximum was 8.3 MGD lower than the highest ever recorded of 66.8 MGD in 2008. During the highest production months of July, August, and September about 36% of the 10,434 MG total water was produced and delivered.

JWC's water treatment plant is supplied with water from the nearby Tualatin River. An intake facility at Spring Hill that was constructed by the Bureau of Reclamation and is shared with the Tualatin Valley Irrigation District (TVID) pumps river water to the JWC water treatment plant. Flows in the Tualatin River are supplemented during the summer with water from impoundments at Scoggins Dam (Hagg Lake) and Barney Reservoir. Scoggins Dam is owned by the Bureau of Reclamation and is operated by TVID.

The Barney Reservoir Joint Ownership Commission (BRJOC) is the owner of Barney Reservoir, which is formed behind the Eldon S. Mills Dam on the Trask River. BRJOC includes Hillsboro (as the managing and operating agency), Forest Grove, Beaverton, the Tualatin Valley Water District, and Clean Water Services. Barney Reservoir is operated to maintain a dead pool of 460 acre-ft. The remaining water is divided among the partners according to ownership, with the exception of water allocated to the Oregon Department of Fish and Wildlife. ODFW is not an owner, but as a condition of building the project, receives 15% of the available stored water to meet fishery needs in the Trask River.

RESERVOIR OWNERSHIP AND WATER ALLOCATION FOR BARNEY RESERVOIR

	Reservoir Ownership	Water Allocation	
		Acre-Feet	Percent
Dead pool	0.0%	460	2.3%
Oregon Department of Fish and Wildlife (ODFW)	0.0%	3000	15.0%
Volume remaining to be divided among partners: 16,540 ac-ft			
Tualatin Valley Water District (TVWD)	35.0%	5789	28.9%
City of Hillsboro	31.0%	5127	25.6%
City of Beaverton	21.5%	3556	17.8%
Clean Water Services	10.0%	1654	8.3%
City of Forest Grove	2.5%	414	2.1%
TOTAL	100.0%	20,000	100.0%

The JWC water treatment plant uses conventional dual media filtration and 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 located about one-third mile to the east of the treatment plant (total of 40 million gallons of storage). The JWC finished water pipelines include master meters and pressure reducing stations at the connection points to the member agencies.

2012 Operations

Reservoir Storage after 2011 Drawdown: The valve replacement project at Barney Reservoir in 2011 left the storage levels at a historic low. When 2012 began the reservoir held 6,000 ac-ft (30% full), but by the end of March the reservoir had reached full pool and began spilling excess water into the Trask River. Releases began at the end of June and continued through the end of October. Before 2012 was out, Barney Reservoir reached full pool again- at the earliest date ever seen. Remarkably, within one year's time the reservoir storage was at both a historic low and historic high.

Source Water Capture Efficiency: JWC continued its emphasis on maximizing the capture of released 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. During the peak season, the JWC pump station recovered 92% of the water available for municipal use at the Spring Hill intake from natural flow rights and releases from impounded supplies.

Projects of note for 2012:

- To meet future demands, the JWC WTP could either build new filter beds or increase the loading on the existing filters. Research began in fall of 2011 to determine if a higher production rate could be reached using the existing filters. The goal is to increase the current maximum capacity of the water treatment plant from 75 mgd to 81 mgd. The analysis will continue through 2013 with final results expected in fall of 2013.

- An electrical assessment of the water treatment plant was completed in 2011 which initiated development of a replacement schedule for several major equipment components. In 2012, several finished water pumps and industrial lighting fixtures were replaced.

- The Oregon Water Resources Department (OWRD) approved transferring the point of diversion of water right S-50879 from Scoggins Creek just below Hagg Lake to the Tualatin River at the Spring Hill intake. The new permit number is S-54737.

The JWC and BRJOC appreciate the efforts of the Watermaster and our partners on the Flow Management Committee, and we extend our thanks for all of their involvement and cooperation. The communication and coordination that comes from this committee among the various Tualatin River users is invaluable.

SUMMARY OF 2012 RELEASE SEASON

Description	Beginning Balance (acre-ft)	Amount Released (acre-ft)	Ending Balance (acre-ft)	Average Release (acre-ft/day)
Breakdown by Reservoir				
Scoggins	13,500.00	7,015.64	6,484.36	54.38
Barney (M&I)	14,886.00	6,557.45	8,328.55	50.83
Total	**28,386.00**	**13,573.09**	**14,812.91**	**105.22**
Breakdown by Agency – Including Leased Allocations				
Hillsboro	10,127.40	5,789.90	4,337.50	44.88
Forest Grove	4,913.50	1,002.10	3,911.40	7.77
Beaverton	7,556.10	3,588.53	3,967.57	27.82
TVWD	5,789.00	3,192.55	2,596.45	24.75
Total	**28,386.00**	**13,573.09**	**14,812.91**	**105.22**

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	1,877.41	3,912.49	5,789.90	44.88
Forest Grove	333.31	668.79	1,002.10	7.77
Beaverton	1,154.17	2,434.36	3,588.53	27.82
TVWD	3,097.38	—	3,192.55	24.75
Total	**6,557.45**	**7,015.64**	**13,573.09**	**105.22**
North Plains usage is reflected in the figures for JWC partners:			119.68	0.93

COMPARISON OF STORED WATER RELEASES— 2009–2012

Year	Begin Date	End Date	Days Regulated Use	Stored Water Release (acre-ft)			Average Release (acre-ft/day)
				Barney	Scoggins	Total	
2012	6/23	10/30	129	6,557.45	7,015.64	13,573.09	105.22
2011	6/28	11/7	132	8,848.39	3,945.18	12,793.58	96.92
2010	6/30	10/22	114	5,647.02	5,170.98	10,818.01	94.89
2009	6/14	10/26	134	4,722.71	9,203.44	13,926.15	103.93

ESTIMATED WATER CAPTURE RATES (THROUGH 11/7/2012)

Peak production for season:	183.39	acre-ft/day	
Average production for season:	116.37	acre-ft/day	
Stored water released:	13,573.09	acre-ft	
WRD loss factor:	-515.00	acre-ft	
Natural flow:	2,880.04	acre-ft	
Total water available to be pumped:	15,938.13	acre-ft	
Raw water pumped at SHPP:	14,663.07	acre-ft	= 92.0% of available
Water produced through Cherry Grove Intake:	339.32	acre-ft	
Total water pumped for regulated season:	15,002.39	acre-ft	= 94.1% of available
Finished water produced at SHPP:	14,893.54	acre-ft	= 95.5% of available
Total production:	15,234.06	acre-ft	= 95.6% of available

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 163-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^2 (403 acres) and 12.7 x 10^6 m^3 (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^2 urban basin around the Lake (10:1 watershed to lake-area ratio) and the larger 700-mi^2 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 2011, no flaps were used.

Irrigation: A contract between LOC and the Bureau of Reclamation (Oct 20, 1972) provides for up to 500 acre-feet 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.

2012 Oswego Lake Watershed Management

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. 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.

Tualatin River Flows: Minimal Tualatin River flows were used to keep the lake full. Limiting river flow into the lake is desirable because river water contains high concentrations of phosphorus and sediment. In 2012, the headgate was opened on July 6th and closed on September 22nd. LOC started treating inflow from the Tualatin River with alum this year with an emitter placed just downstream of the headgate.

Flood Control: The work modifying the Oswego Lake spillway (2010) decreased the 100-year flood elevation. Final documents regarding flood elevation were received from FEMA in April 2012 and LOC has been working with lake residents removed from the floodplain on how to reduce their insurance burden.

Oswego Lake Watershed Council: The Oswego Lake Watershed Council created a website and continued activities related to operating the nascent organization. Watershed events are limited to advocacy and invasive removal activities.

Water Quality

The LOC continued their alum program in 2012 but was able to achieve water quality goals by the use of alum injection exclusively. In past years it has been necessary to apply alum at the surface to control cyanobacteria blooms. In 2012 applications were limited to sub-surface injections only. One additional alum injector was added to the Main Lake hypolimnion in 2012 in an effort to reduce phosphorus in this volume of water. It will take a few years of data to determine the efficacy of hypolimnetic injection.

Algae in Oswego Lake continues to shift from cyanobacteria dominance to a mixed assemblage of diatoms and green algae. This continued in 2012 as the volume of algae in the main lake basin was dominated by diatoms and the other two bays were dominated by chlorophytes. Cyanophytes continue to be present in the lake, but the percent of the total algal volume they represent continues to decline. In 2012, aphanizomenon and anabaena were the dominant cyanobacteria.

In 2012, the Oswego Lake water quality monitoring program resumed after two years of reduced monitoring due to the spillway reconstruction project. Water clarity, nutrient content, biological productivity, and chemical profiles were measured at six sites. Monitoring was conducted weekly from June through September and bi-weekly from October through May.

2012 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	7	22	1	351	2.7	2.2
	Summer	8	27	1	360	2.2	3.6
Main Lake	Annual	16	32	3	464	3.0	3.1
	Summer	12	29	1	385	**2.4**	2.9
West Bay	Annual	21	79	18	1642	0.9	10
	Summer	**25**	52	4	870	0.7	**16**
Oswego Canal	Annual	11	108	40	3426	1.1	5.1
	Summer	5	**61**	**12**	**3613**	1.2	2.4
Blue Heron Canal	Annual	7	47	8	20	1.2	6.3
	Summer	7	21	1	328	1.3	2.7
Outlet	Annual	16	31	3	428	2.8	2.8
	Summer	13	30	1	366	2.3	2.8

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; ug/L = micrograms per liter, m = meters, NTU = nephelometric turbidity units, C = Celsius

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) (www.wrd.state.or.us) in cooperation with Washington County (www.co.washington.or.us/index.htm), and is responsible for water supply management within the Tualatin, Lake Oswego, and Lower Willamette Drainage Basins in northwestern Oregon. The Watermaster's Office is part of the Field Services Division of OWRD.

Regulatory and Monitoring Overview 2012

2012 WATER RIGHTS REGULATION SUMMARY

Date	On/Off	Regulatory Activity	River Mile	Priority Date
6/22	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		2/5/1974
7/3	Off	TVID (P-35792, 2/20/2963) – Scoggins Creek (partial regulation—20 cfs)		2/20/1963
7/5	Off	TVID (P-35792, 2/20/2963) – Scoggins Creek		2/20/1963
7/5	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
8/3	Off	City of Hillsboro (P-2443, 5/15/1915) – Sain Creek		
8/9	Off	Tualatin River & tributaries above Spring Hill Pump Plant Tualatin River — 40, 3/18/1936 Gales Creek — 71, 9/6/1932 Carpenter Creek — 12. 3/25/1935 Scoggins Creek — 13, 4/1/1932	> 56.09	Between 2/19/1963 and 8/16/1930
8/17	Off	City of Hillsboro (P-1136, 1/22/1912) – Sain Creek		
10/24	On	City of Hillsboro (P-2443, 5/15/1915) – Sain Creek City of Hillsboro (P-1136, 1/22/1912) – Sain Creek		
10/24	On	Stimson Lumber Co., (P-10633, 4/1/1932) – Scoggins Creek		
10/29	On	TVID (P-3579, 2/20/1963) – Scoggins Creek	n/a	2/19/1963
10/29	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	2/5/1974

WATERMASTER DISTRICT 18 GAGING STATIONS FOR 2012

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 River)	61.9	45°26'29"N	123°07'17"W	Staff

*Telemetry

SCOGGINS DAM/HENRY HAGG LAKE

BY WALLY OTTO, BERNIE BONN, TOM VANDERPLAAT AND JOHN GOANS

Scoggins Dam/Henry Hagg Lake is located on Scoggins Creek in the upper part of the Tualatin Basin. Scoggins Dam is an earthfill dam constructed during 1972–75 to store water during the winter for summer and fall use. The Dam is owned by the Bureau of Reclamation (BOR) and managed by the Tualatin Valley Irrigation District (TVID). Stored water from Hagg Lake is used for irrigation, municipal and industrial use, and flow augmentation in the Tualatin Basin to support water quality and protect fish and wildlife.

Three tributaries flow into Hagg Lake—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 measured by a BOR 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.

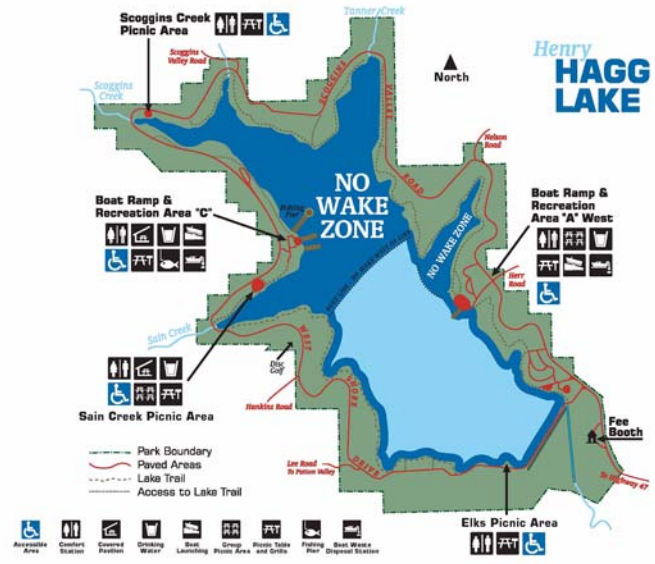
ALLOCATION OF WATER FROM SCOGGINS RESERVOIR

Contracted To	Water Use	Available Volume	
		ac-ft	as percent
Tualatin Valley Irrigation District	Irrigation (up to 17,000 acres)	27,022	50%
Joint Water Commission	Municipal and industrial	13,500	25%
City of Beaverton		*4,000*	
City of Forest Grove		*4,500*	
City of Hillsboro		*5,000*	
Clean Water Services	Instream water quality	12,618	24%
Lake Oswego Corporation	Irrigation	500	1%
Total		**53,640**	**100%**

Scoggins Dam stores 53,640 acre-feet of water in Henry Hagg Lake as active storage—the amount of water that can be moved in or out of the reservoir between the intake structure and the top of the spillway gates. Another 7,000 acre-feet of stored water that is not engineered to be removed exists below the intake structure. It is for the protection of fish if the lake were to be drafted down completely to the intake structure.

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. The dam does not generate electricity.

During the summer months, recreation is a major activity at Hagg Lake and the surrounding area. Washington County maintains and operates the 2,851 acre Scoggins Valley Park/Henry Hagg Lake recreational facility. In addition to the 1,100 acre lake, the park includes picnic areas, hiking trails, two boat launching facilities, and observation decks for bird and wildlife watching. The lake is stocked for fishing. Most of the park's facilities were designed to be accessible for disabled visitors. The park is open from the first Saturday in March through the last Sunday before Thanksgiving and is for day-use only.



http://www.co.washington.or.us/Support_Services/Facilities/Parks/Hagglake/index.cfm

2012 Water Use

Water year 2012 marks 38 years since Scoggins Dam began storing and releasing water for downstream beneficial use. A total of 34,191 acre-feet were delivered in 2012 bringing the total delivery from the Project to more than 1,184,635 acre-feet.

2012 flow regulation began on June 23rd for the Joint Water Commission. TVID's flow regulation began on July 4th. With the exception of TVID extended season irrigators, all users were permitted to return to natural flow use in the Tualatin River on October 30, 2012. As usual, TVID continued to deliver a small amount of storage water primarily to nurseries and greenhouses beginning in March and continuing until the end of November as permitted by the Oregon Water Resources Department.

2012 WATER DELIVERIES FROM SCOGGINS RESERVOIR

Delivered to	Volume (ac-ft)
Tualatin Valley Irrigation District	14,950
Clean Water Services	10,946
Municipal Use (Cities of Beaverton, Forest Grove and Hillsboro)	7,018
Lake Oswego Corporation	500
Other (includes two golf courses, from TVID allocation)	859
Total	**34,273**

Events in 2012

Recreation: In 2012, there were 755,000 user-days recorded at Scoggins Valley Park/Henry Hagg Lake. The park and lake opened on March 3rd and closed November 18th. In addition to the usual recreational uses, numerous races were held throughout the year including triathlons.

Coho Salmon: Two Coho were spotted in Scoggins Creek below the dam on November 1st. Due to weather conditions there was no further surveying for Coho in Scoggins Creek.

Lake Fish Habitat: The Oregon Panfish Club obtained permission to secure 53 structures (8' diameter) in the upper reaches of Henry Hagg Lake. This was in addition to 130 that had been previously placed and anchored. The structures were put in place in February and they have caused no problems in terms of operation and maintenance of Scoggins Dam. They have remained in place weighted down with concrete anchors.

Elk Mitigation: In February 2012 the BOR provided fir trees which were planted by Washington County Parks and Tualatin Valley Irrigation District personnel to form a visual barrier along the side of the Control House entry road. The goal is to have a "natural" fence for the pasture so that the elk feel less at risk. The field was put off limits to all trespassers including dogs. This did not sit well with several dog trainers that used the field extensively but the threat of being cited kept them out.

Scoggins Dam Security

Department of Homeland Security Alert Levels: The Project follows the Department of Homeland Security (DHS) alert levels as required by BOR. No incidences of heightened security level occurred at Scoggins Dam in 2012 due to any specific terrorist alerts.

Scoggins Dam Safety

At Scoggins Dam, earthquake activity, weather including temperature and precipitation, river stage levels, and water surface elevation are reported and recorded electronically. In addition, key dam behavioral instruments report electronically over BOR's Hydromet system. The data is collected, stored and transmitted via satellite to BOR's Pacific Northwest Regional office in Boise. It is available on the Internet through both secure and non-secure channels. Many of these electronic reporting stations have alarms to alert operators if sudden or unusual conditions develop including earthquakes and flooding. While operators are not on site 24/7, the Project is monitored 24/7, both by BOR and TVID personnel.

Operator Training: The required on-site training of all qualified dam operators was conducted by BOR personnel on November 19 & 20, 2012. The primary operator, John Goans and the back-up operator, Chad Peterson were trained and tested for their knowledge and proficiency in operating skills of Scoggins Dam. Trainers included Mark Healy of the Bend Field Office and Sonya Norton of the Boise Office.

On December 5th through the 7th, John Goans, Dam Operator, and Chad Peterson, Backup Operator, attended the required Dam Tenders Training course that was hosted by the BOR.

Spills and Water Quality: No spills or accidents that jeopardized the water quality in Henry Hagg Lake occurred in 2012 and the BOR on-site Response Trailer was not needed for emergency response. No containment booms were deployed to contain any contaminant spills during 2012.

Drownings: Thankfully, no drownings were reported in Henry Hagg Lake in 2012.

Earthquakes in 2012: There were no earthquakes in the region of Scoggins Dam during 2012. Had there been significant seismic activity below or near the dam, a complete inspection of the facility and adjacent areas would have been required.

Future of the Project

Tualatin Basin Water Supply Partnership: In 2001, the water resource agencies in the Tualatin Basin formed a partnership to explore and compare alternatives for providing the additional water needed to meet future needs. The Partnership includes Clean Water Services, the Cities of Hillsboro and Beaverton, and the Tualatin Valley Water District, as well as the U.S. Bureau of Reclamation, the owner of Scoggins Dam. Tualatin Valley Irrigation District (TVID), which manages the dam, is not a member of the Partnership because it is limited to serving 17,000 acres of irrigated land and has enough water to serve its patrons in all but possibly a severe drought. TVID is an active participant in the proceedings, however, because protecting its interest in the current stored water supply is critical.

After studying many different options, in 2006 the Partners selected two alternatives for further study: 1) raising Scoggins Dam by 40 ft with a new raw water pipeline and pumpback, and 2) raising Scoggins Dam by 25 ft with a new raw water pipeline and pumpback plus expansion of the Willamette River Water Treatment Plant. More than 7 years of analysis have provided a wealth of technical information about raising Scoggins Dam.

In 2007, the Partners began studying the possibility of a title transfer of Scoggins Dam and related facilities from federal ownership to local ownership.

Current Status: Progress on a dam raise and any decision concerning title transfer currently are delayed pending the outcome of an additional Scoggins Dam Seismic Corrective Action Study. Clean Water Services is working with Reclamation to explore a dam raise to maintain and improve water quality in the Tualatin River. The municipal and industrial water providers have decided to focus on the Willamette River for future water supply.

TUALATIN VALLEY IRRIGATION DISTRICT

BY WALLY OTTO

UPDATED BY JOHN GOANS, 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 for use on land abutting the river. They are known as “river users” and pay for their own pumping costs because they are not associated with the pressure pipeline or the Spring Hill Pumping Plant. 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, and all water withdrawals must be supplied from storage. Storage water is discharged from Scoggins Reservoir to either augment the river flow or supply the entire need of 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 water discharged from Clean Water Services’ Rock Creek Wastewater Treatment Facility. Crops irrigated with District water range from row crops including blueberries, blackcaps, corn, pumpkins and other vegetables to nursery stock.

TVID is allowed to use storage water early and late in the year because of an extended season for irrigation made possible by an agreement with the Oregon Water Resources Department. The early season begins March 1 and the extended season ends November 30. All water used outside the normal irrigation season (May through September) must come from TVID's annual contracted storage allotment of 27,022 acre-feet. TVID's total contracted amount with Reclamation is 37,000 acre-feet with the additional coming from natural and return flows in the Tualatin River and its tributaries.

The extension of the irrigation season for the Tualatin Valley Irrigation District has made growing specialty crops within the District much more appealing. During the extended spring season, the water is used primarily for berries and nurseries; during the extended fall season, water is primarily used for the nurseries. A more diverse nursery stock is now possible, including flowers which are raised well into November when protected by greenhouses. Water availability and moderate temperatures make the Tualatin Valley Irrigation District home to many small specialty nurseries along with several large operations.

2012 TVID Water Use

For the 2012 irrigation season (March through the end of November), TVID took delivery of 14,950 acre-feet of water from storage in Henry Hagg Lake—up 2,872 ac-ft from 2011. The least amount was 8,333 ac-ft in 1993 and the largest was 22,188 ac-ft in 2007. TVID 2012 peak use from storage was 125 cfs on August 17th.

WEATHER STATISTICS AT SCOGGINS DAM 2012

Month	Description	Precipitation		Average Temperature		Other
		2012	[average 1970-2012]	Low	High	
March	wet	11.32”	[5.62”]	35 ºF	50 ºF	
April	dry, warm	2.99”	[3.49”]	41 ºF	59 ºF	
May	wet	2.94”	[2.21”]	43 ºF	66 ºF	
June	wet, cool	3.98”	[1.53”]	50 ºF	67 ºF	only 2 day 80 ºF or higher
July	dry, warm	0.25”	[0.46”]	50 ºF	78 ºF	14 days 80 ºF or higher;
August	dry	0.02	[0.69”]	52 ºF	83 ºF	8 days 90 ºF or higher
September	dry, warm	0.04	[1.45”]	47 ºF	78 ºF	2 days 90 ºF or higher
October	wet, cool	6.95	[3.48”]	45 ºF	64 ºF	

2012 TVID Operation and Maintenance

The year was uneventful from an operations standpoint. A “moratorium” remains in place regarding new turn-out deliveries. No new deliveries were added to the delivery system during 2012.

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 is withdrawn from the Tualatin River at the Spring Hill Pump Plant and lifted by pumps to a water regulating tank off Winter’s Road. From there it flows under gravity pressure to all points of delivery through 120 miles of pipeline. Preventative maintenance continues to keep service delivery as dependable as possible. Several minor disruptions of service occurred during the year, but were quickly isolated and repaired. Service was restored in minutes in some cases or in up to a day if conditions did not allow quick access. There were no long term disruptions of service to District patrons.

Tributary Flow Restoration Projects: TVID and Clean Water Services continue their cooperative effort using the TVID water distribution network to supply water to West Fork Dairy Creek, Gales Creek, East Fork Dairy Creek and two locations on McKay Creek. Each site consists of a metered pipeline with a diffuser at the outlet. All sites are located near delivery lines for the Irrigation District. Flow augmentation occurs during the summer and fall. The water not only adds to streamflow, but it cools the stream as well. The partnership between the Tualatin Valley Irrigation District and Clean Water Services is a novel way to improve the water quality of these streams at minimal cost.

WATER QUALITY

BY BERNIE BONN

Concern about water quality in the Tualatin River is longstanding. Until the formation of Clean Water Services (formerly the Unified Sewerage Agency of Washington County), numerous small towns and cities discharged minimally treated sewage into the river and its tributaries. Water use by agricultural activities in the basin depleted river flow in the summer and contributed nutrients and sediment. By the 1960s, the local newspaper documented the poor water quality in the Tualatin River. In 1984, the Oregon Department of Environmental Quality (ODEQ) included sections of the Tualatin River on the 303d list as being water quality limited. Water quality issues in the Tualatin Basin have included elevated pH and nuisance algae, low dissolved oxygen, high temperatures, and excess bacteria. Many groups have worked to improve water quality in the Tualatin Basin, including Clean Water Services, the Tualatin River Watershed Council, the Tualatin Riverkeepers and others. Part of the reason for the formation of the Flow Committee is to manage river flow to improve and preserve water quality.

Algal growth and pH

In the reservoir section (about RM 3.4-30), the Tualatin River is wide and slow moving. Because the river is so broad, streamside vegetation cannot adequately shade the full width and consequently much of the water surface is in sun. Nutrients, both naturally occurring and anthropogenic, are ample. These conditions—slow movement, sunlight, and ample nutrients— are ideal for algal growth during summer. Most of the algae in the Tualatin River are phytoplankton that float in the upper few feet of the water. During the day, photosynthesis by algae converts carbon dioxide dissolved in the water into biomass. As the concentration of dissolved carbon dioxide decreases, the pH of the water increases. High pH values can negatively affect aquatic resources.

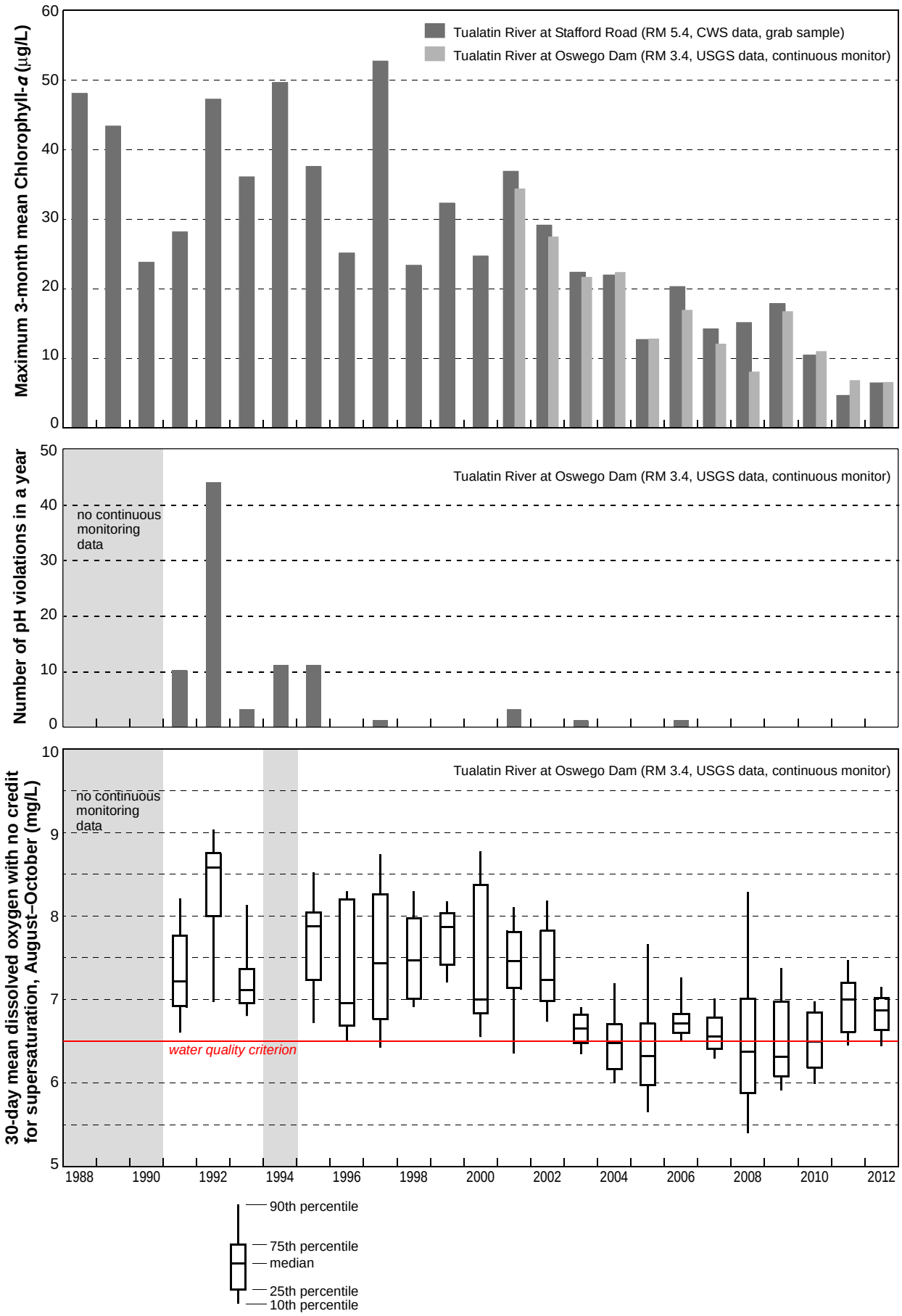
In the 1980s the lower section of the Tualatin River was listed by the ODEQ for elevated pH (>8.5) and degraded aesthetics due to nuisance algal growth. To address these water quality problems, the ODEQ developed a TMDL for phosphorus to limit nutrient availability. Since then, advanced wastewater treatment by Clean Water Services has dramatically decreased phosphorus concentrations in the river. In addition, summertime flows in the Tualatin River have increased due to Clean Water Services' releases from Hagg Lake as well as increased discharge from the wastewater treatment facilities.

Chlorophyll-*a* concentrations are an indicator of the amount of algae in the river. Clean Water Services measures chlorophyll-*a* in water samples at several sites and since 2001, chlorophyll-*a* is measured hourly at the Oswego Dam (RM 3.4) by the USGS as part of a cooperative agreement with Clean Water Services. Chlorophyll-*a* levels have decreased substantially since the 1990s (see the figure on the following page). Chlorophyll-*a* levels in 2012 were similar to those in 2011 which were the lowest measured over the period of record for either Clean Water Services or USGS data.

Because the algal population has declined, high pH values have become rare. The pH is monitored hourly at RM 3.4 (Oswego Dam, year-round) and RM 24.5 (summer only). In 2012, no pH values at either site exceeded 8.5. 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 (<6.5) are not a problem in the Tualatin River system.

Dissolved oxygen

The amount of oxygen dissolved in water is the net result of processes that contribute oxygen and processes that consume oxygen. In the lower Tualatin River the primary sources of oxygen are photosynthesis by algae in the daytime and the addition of oxygen rich water. The processes that consume oxygen are biochemical oxygen demand and sediment oxygen demand (from substances that decompose in the water and at the sediment water interface, respectively) and respiration by algae at night. Because the lower section of the river moves slowly and is not turbulent, oxygen exchange with the atmosphere is slow. Consequently, if dissolved oxygen becomes depleted, it cannot be quickly replenished from the air. Similarly, if dissolved oxygen is in excess, the river water stays supersaturated for a prolonged period of time.


Maximum 3-month mean Chlorophyll-a (µg/L)
Tualatin River at Stafford Road (RM 5.4, CWS data, grab sample)
Tualatin River at Oswego Dam (RM 3.4, USGS data, continuous monitor)
Number of pH violations in a year
no continuous monitoring data
30-day mean dissolved oxygen with no credit for supersaturation, August–October (mg/L)
water quality criterion
90th percentile
75th percentile
median
25th percentile
10th percentile

In the 1980s the lower section of the Tualatin River was listed by the ODEQ for low dissolved oxygen that could impair fish health. The water quality criteria for this section of the river, which is considered 'Cool Water Habitat,' are:

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

ODEQ also developed a TMDL for ammonia which consumes oxygen as it decomposes to nitrate. Since then, Clean Water Services has dramatically decreased the amount of ammonia discharged to the river.

Streamflow during summer generally has increased since the TMDLs were instituted in 1988. Increased river flow affects two different processes with opposite effects on oxygen. Faster river flow decreases the amount of time water is in contact with sediment, thereby decreasing the extent to which sediment oxygen demand can be exerted and the resultant amount of oxygen depleted. Faster river flow also decreases the time available for algal populations to grow, which in turn decreases photosynthetic oxygen production. The net effect of decreased oxygen production plus decreased oxygen consumption is not well predicted. In general, low dissolved oxygen is still an issue in the lower Tualatin River periodically during the late summer through fall (see the figure on the previous page).

Dissolved oxygen conditions in the Tualatin River in 2012 were similar to those in 2011 and better than those in several other recent years. All exceedences of the dissolved oxygen criteria occurred in September and only the 30-day criteria was exceeded. No large or prolonged algal blooms occurred in 2012; dissolved oxygen exceeded 100% saturation on only one day in July (14th) and six days in August (3rd-8th). 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 2012

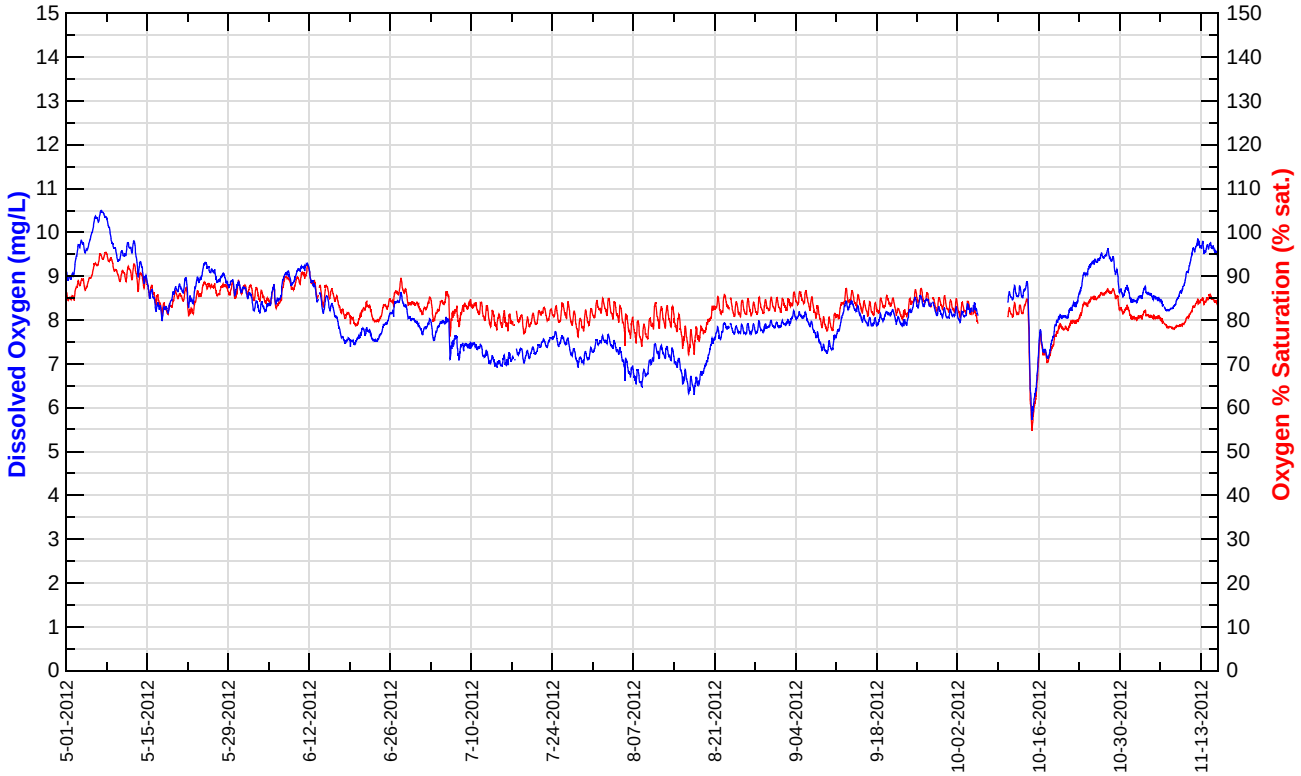
Criterion	May	June	July	Aug	Sept	Oct	May–October Percentage
Tualatin River at RM 24.5							
30 day	0	0	0	0	0	0	0%
7 day	0	0	0	0	0	0	0%
Daily	0	0	0	0	0	0	0%
Tualatin River at Oswego Dam (RM 3.4)							
30 day	0	0	0	0	14	0	8%
7 day	0	0	0	0	0	0	0%
Daily	0	0	0	0	0	0	0%

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

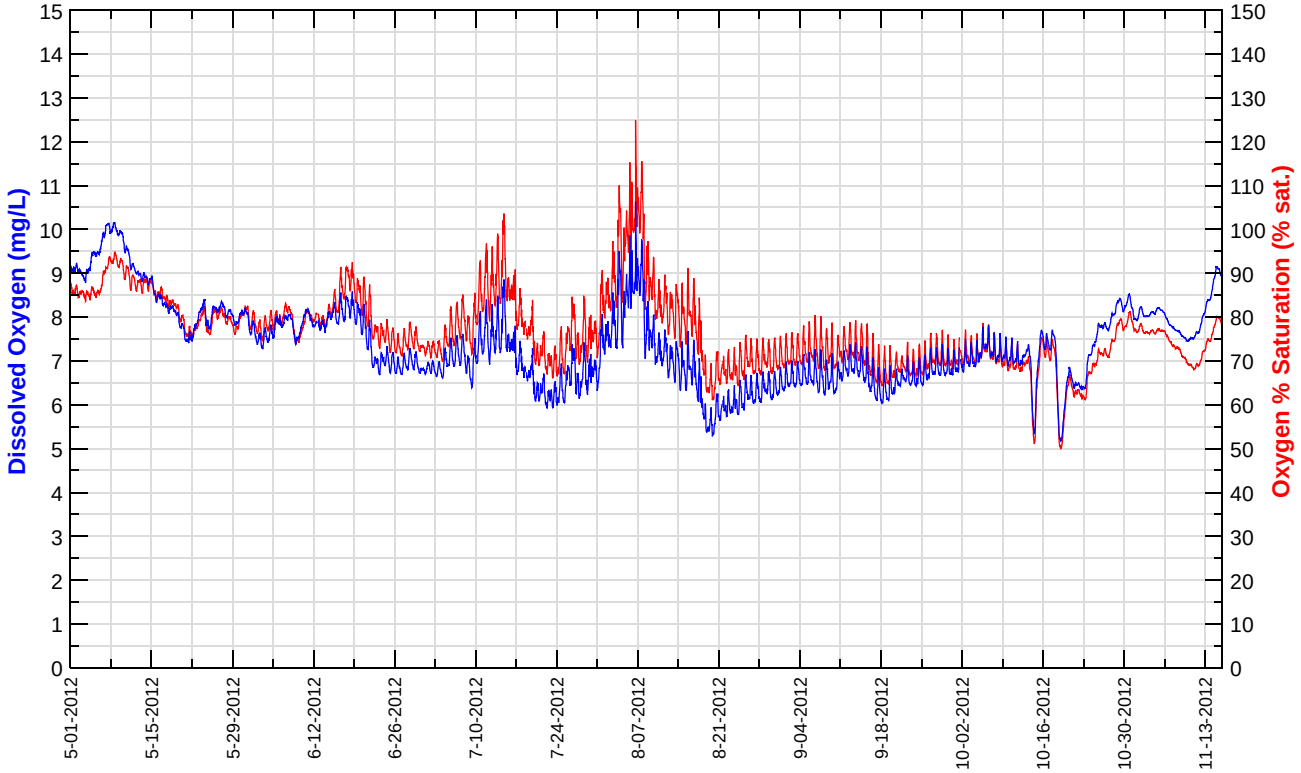
Tualatin River at River Mile 24.5 (14206694)

Data from U.S. Geological Survey



Tualatin River at Oswego Diversion Dam (14207200)

Data from U.S. Geological Survey



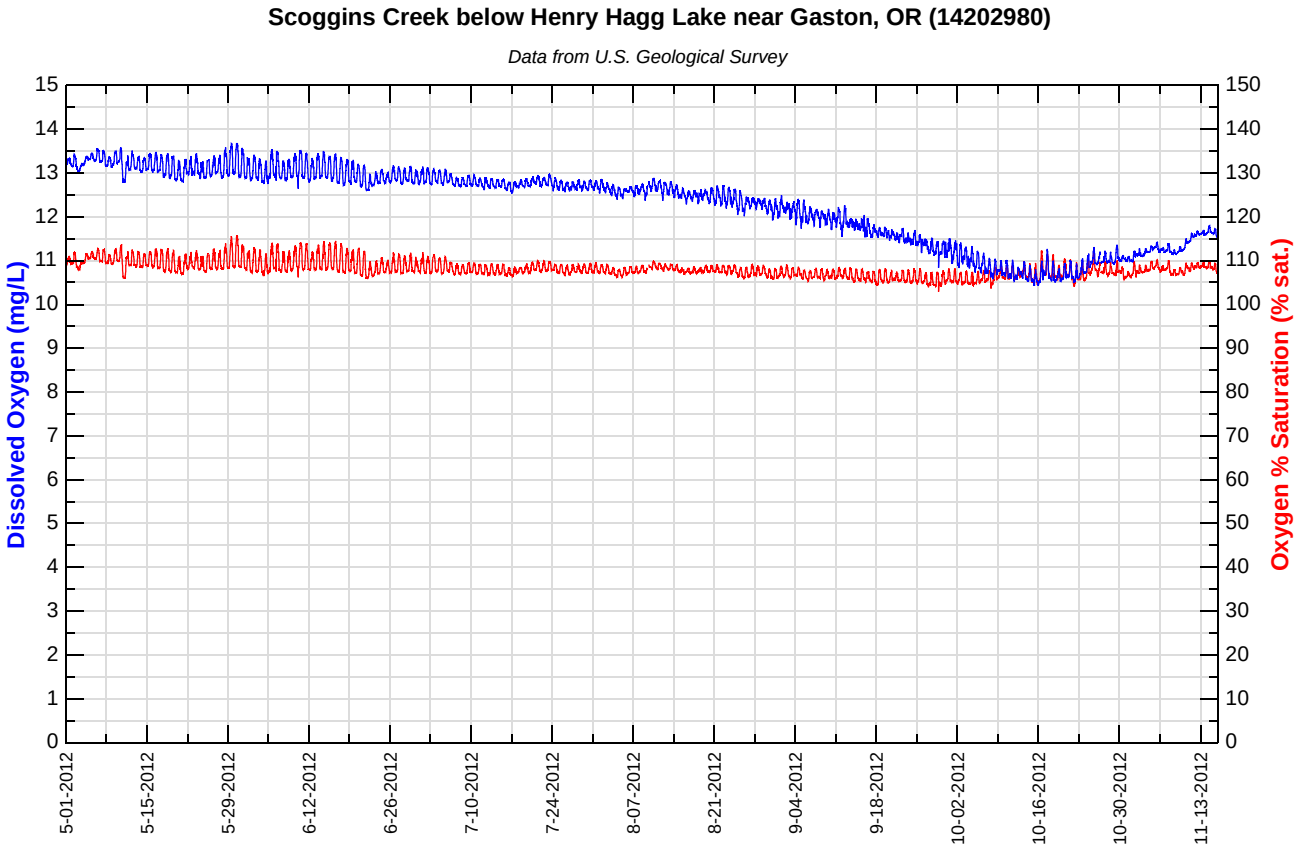
Dissolved Oxygen Status in Tributaries

Some of the tributaries in the Tualatin Basin have also had low dissolved oxygen levels. In general, the slow moving, valley bottom streams are more likely to have low dissolved oxygen than faster moving headwaters streams. It is thought that sediment oxygen demand is largely responsible for the low oxygen levels in the tributaries. The following graphs show the dissolved oxygen levels at several tributaries during the summer period as measured by the USGS using continuous monitors. These data are available at http://or.water.usgs.gov/cgi-bin/grapher/graph_setup.pl?basin_id=tualatin.

Note that continuous monitoring was discontinued at two sites in 2012:

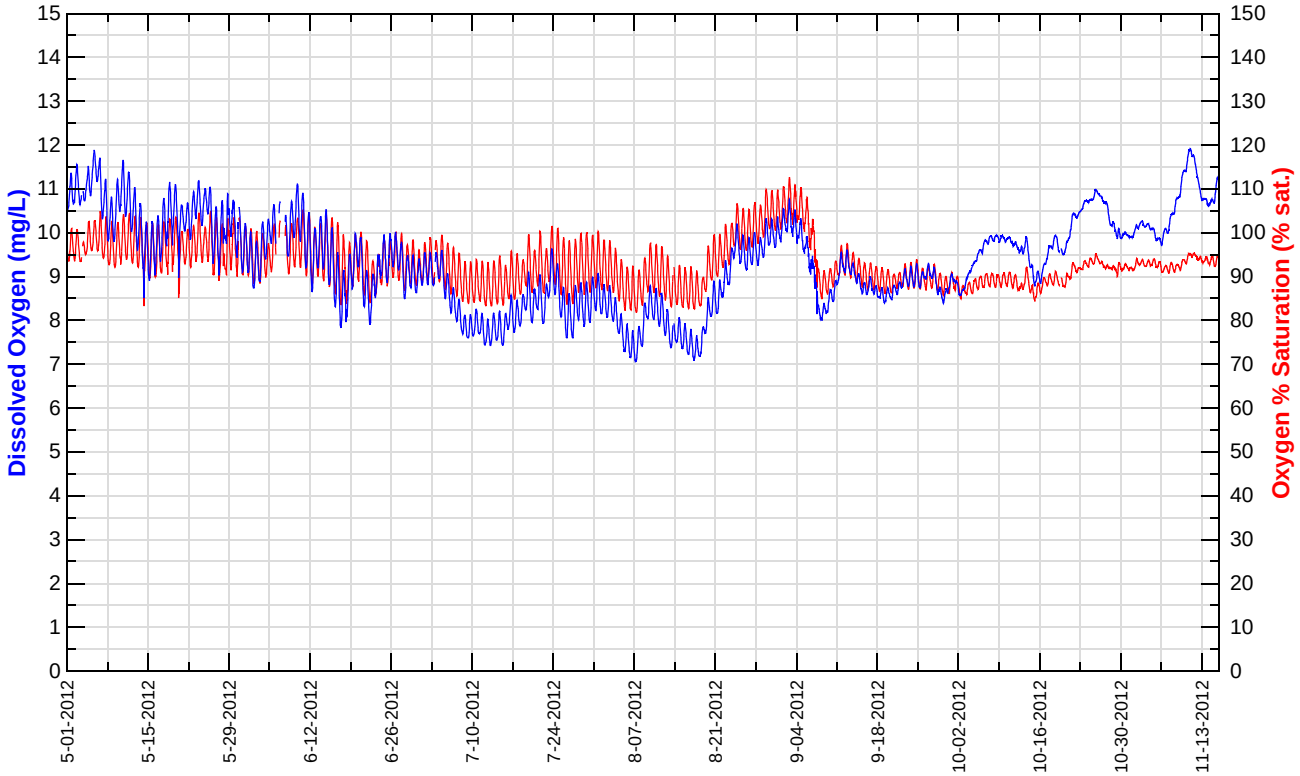
Dairy Creek at Hwy 8 (site ID=453113123003501), and

Chicken Creek at Roy Rogers Road (site ID=452230122512201)



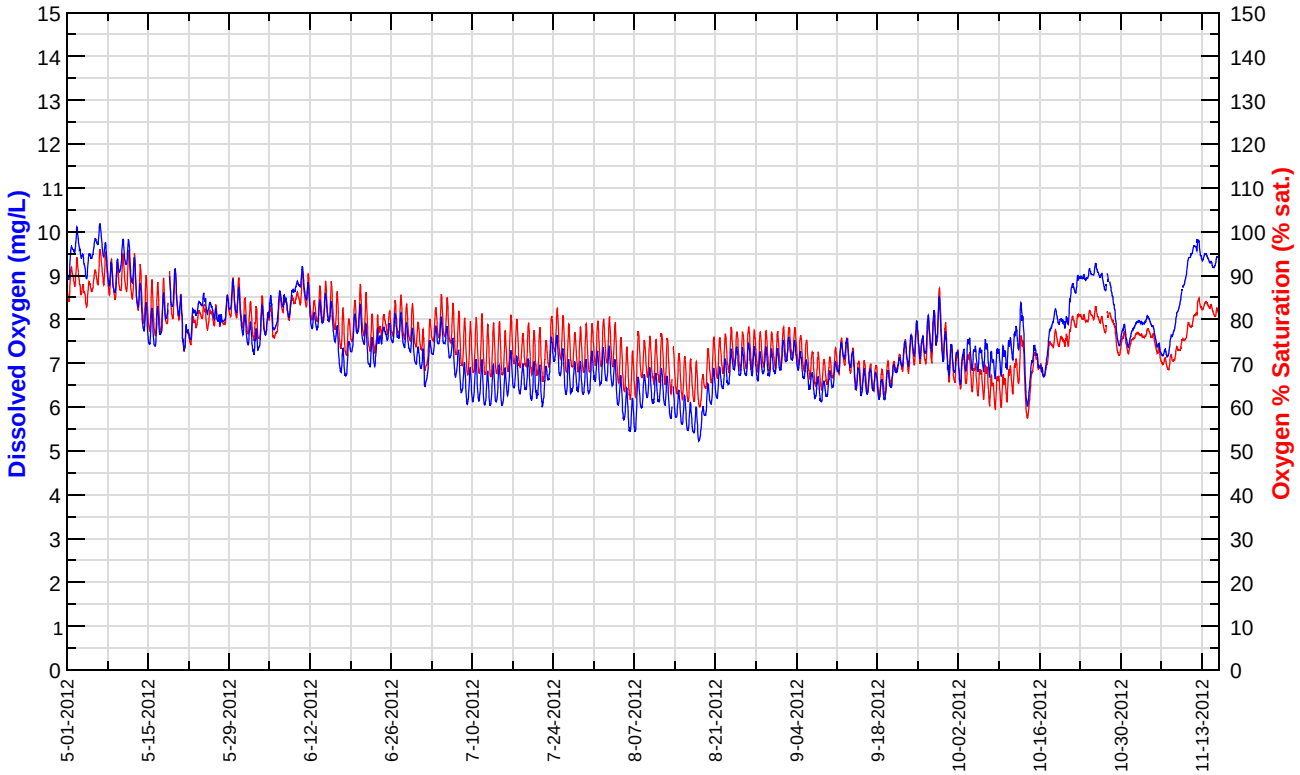
Gales Creek at Old Hwy 47, Forest Grove, OR (453040123065201)

Data from U.S. Geological Survey



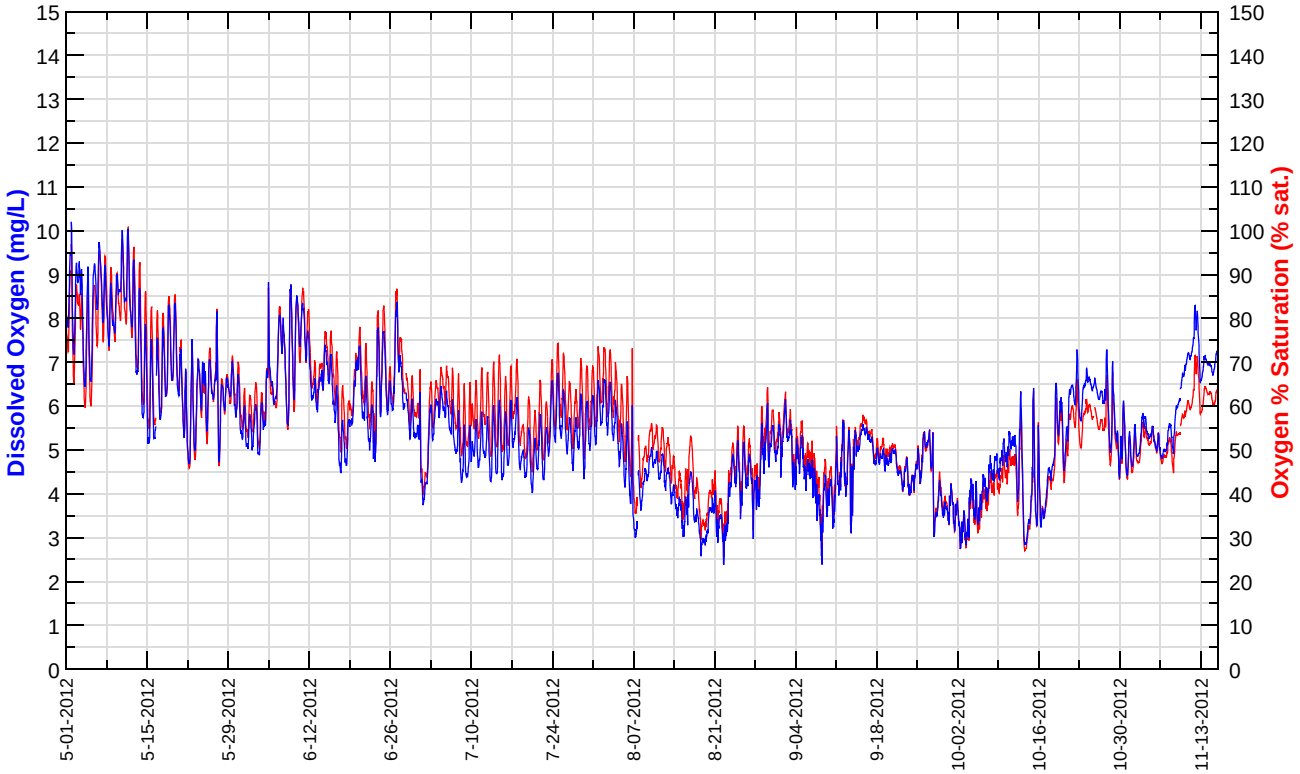
Rock Creek at Brookwood Ave, Hillsboro, OR (453030122560101)

Data from U.S. Geological Survey



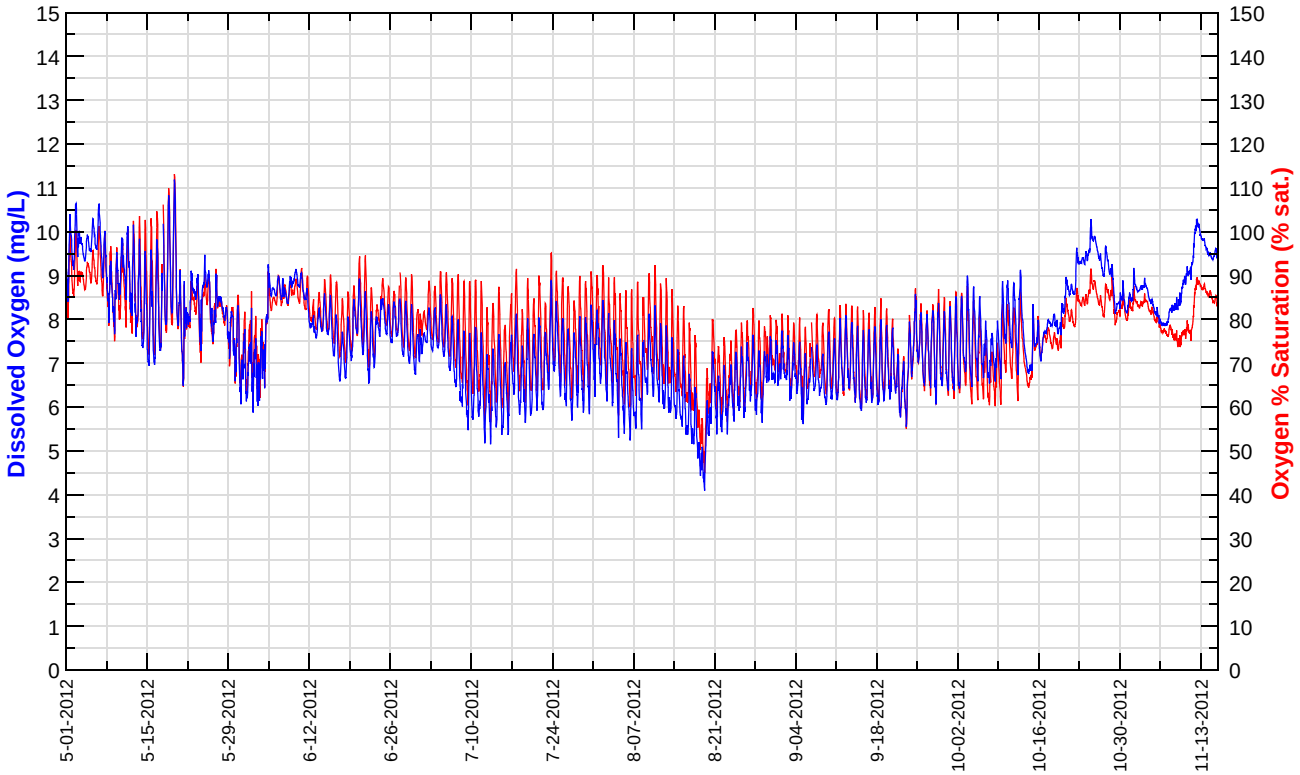
Beaverton Creek at 170th Ave, Beaverton, OR (453004122510301)

Data from U.S. Geological Survey



Fanno Creek at Durham Road (14206950)

Data from U.S. Geological Survey



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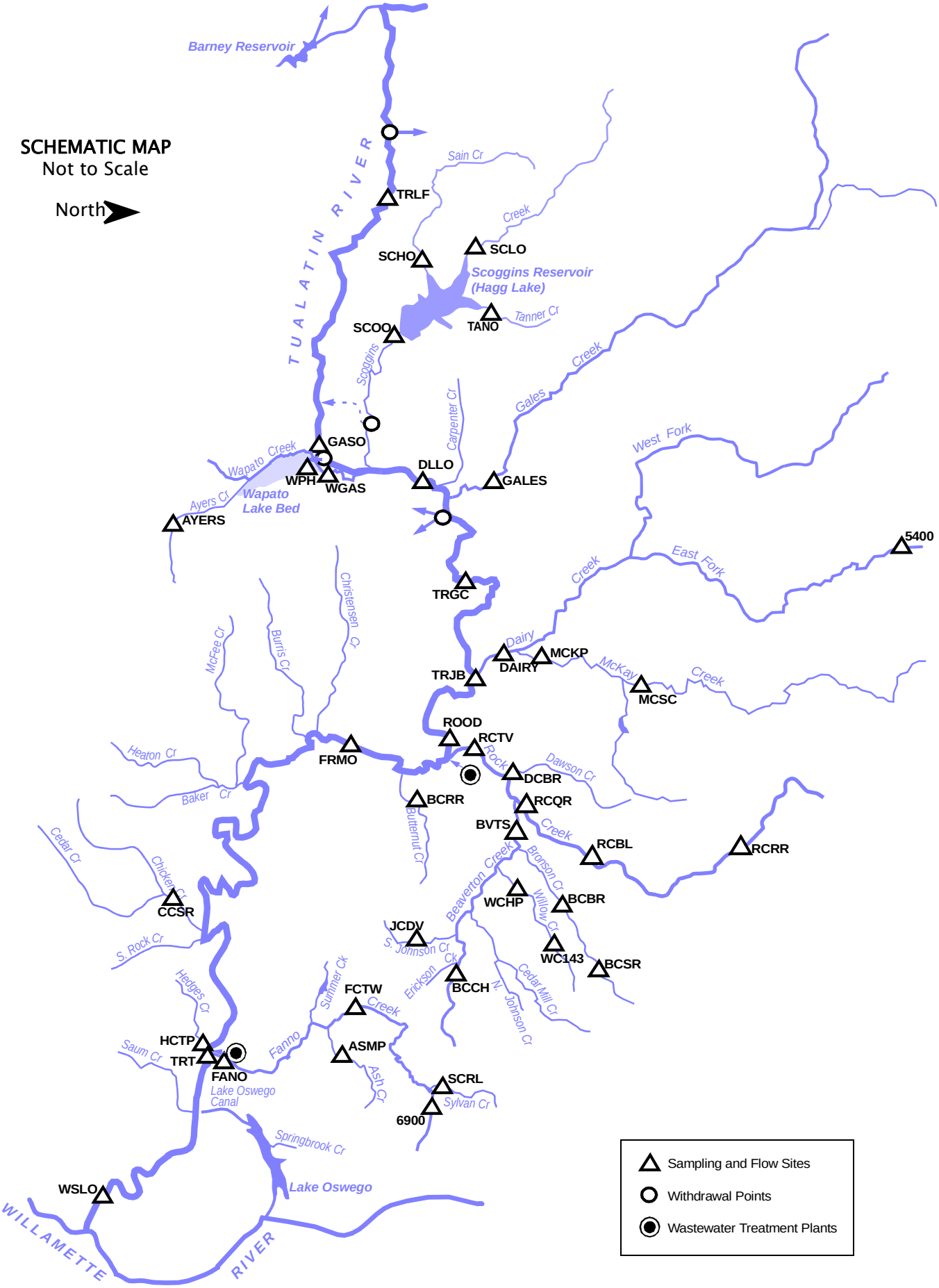
Appendix A

Stream Gage Records

STREAM GAGE SITES — LOCATIONS



STREAM GAGE SITES — ALPHABETICAL LISTING BY SITE CODE

SITE CODE	SITE NAME	RIVER MILE	STATION ID	PAGE
5400	East Fork Dairy Creek near Meacham Corner, OR	12.4	14205400	A-16
6900	Fanno Creek at 56th Avenue	11.9	14206900	A-37
ASMP	Ash Creek at Metzger Park at Metzger, Oregon	1.25	14206933	A-40
AYERS	Ayers Creek at NE North Valley Road near Gaston, Oregon	—	14202550	A-6
BCBR	Bronson Creek at Bronson Road near Orenco, Oregon	2.1	14206423	A-30
BCCH	Beaverton Creek at Cedar Hills Blvd at Beaverton, Oregon	7.45	14206360	A-25
BCRR	Butternut Creek at Rosa Road	1.0	14206483	A-33
BCSR	Bronson Creek at Saltzman Road	5.1	14206419	A-29
BVTS	Beaverton Creek at NE Guston Court near Orenco, Oregon	1.2	14206435	A-31
CCSR	Chicken Creek at Roy Rogers Road near Sherwood, Oregon	2.3	14206750	A-36
DAIRY	Dairy Creek at Hwy 8 near Hillsboro, Oregon	2.06	14206200	A-19
DCBR	Dawson Creek at Brookwood Road near Hillsboro, Oregon	0.7	14206443	A-32
DLLO	Tualatin River at Dilley, Oregon	58.8	14203500	A-13
FANO	Fanno Creek at Durham Road near Tigard, Oregon	1.2	14206950	A-41
FCTW	Fanno Creek at Tuckerwood	7.3	14206927	A-39
FRMO	Tualatin River at Farmington, Oregon	33.3	14206500	A-35
GALES	Gales Creek at Old Hwy 47 near Forest Grove, Oregon	2.36	14204530	A-14
GASO	Tualatin River at Gaston, Oregon	62.3	14202510	A-5
HCTP	Hedges Creek at Tualatin Park at Tualatin, Oregon	0.3	14206958	A-42
JCDV	Johnson Creek at Davis Road near Beaverton, Oregon	1.3	14206372	A-26
MCKP	McKay Creek at Padgett Road near Hillsboro, Oregon	1.31	14206190	A-18
MCSC	McKay Creek at Scotch Church Rd above Waible Ck near North Plains, Oregon	6.3	14206070	A-17
RCBL	Rock Creek below Bethany Lake	8.9	14206340	A-23
RCQR	Rock Creek at Quatama Road near Orenco, Oregon	4.9	14206347	A-24
RCRR	Rock Creek near Bowers Junction, Oregon	15.3	14206310	A-22
RCTV	Rock Creek at Hwy 8 near Hillsboro, Oregon	1.2	14206450	A-34
ROOD	Tualatin River at Rood Bridge Road near Hillsboro, Oregon	38.4	14206295	A-21
SCHO	Sain Creek above Henry Hagg Lake near Gaston, Oregon	1.6	14202920	A-10
SCLO	Scoggins Creek above Henry Hagg Lake near Gaston, Oregon	9.3	14202850	A-9
SCOO	Scoggins Creek below Henry Hagg Lake near Gaston, Oregon	4.80	14202980	A-12
SCRL	Sylvan Creek at Raleighwood Lane near West Slope, Oregon	1.0	14206905	A-38
TANO	Tanner Creek above Henry Hagg Lake near Gaston, Oregon	1.6	14202860	A-11
TRGC	Tualatin River at Golf Course Road near Cornelius, Oregon	51.5	14204800	A-15
TRJB	Tualatin River at Hwy 219 Bridge	44.4	14206241	A-20
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-43
WC143	Willow Creek at 143rd Avenue near Beaverton, Oregon	3.5	14206410	A-27
WCHP	Willow Creek at Heritage Parkway near Beaverton, Oregon	0.75	14206413	A-28
WGAS	Wapato Creek at Gaston Road at Gaston, Oregon	—	14202650	A-8
WPH	Wapato Canal at Pumphouse at Gaston, Oregon	—	14202630	A-7
WSLO	Tualatin River at West Linn	1.75	14207500	A-44

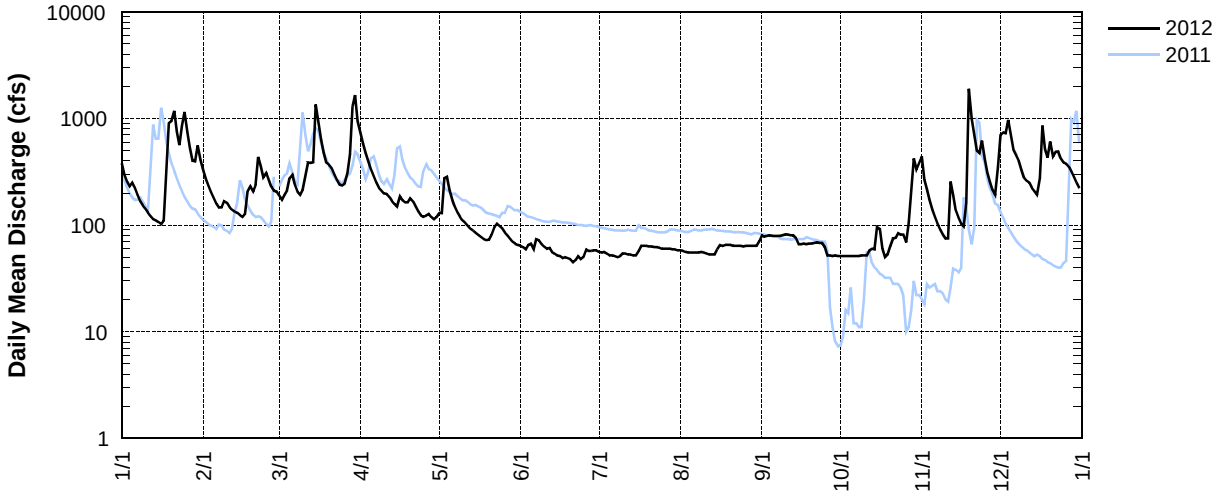
TRLF – 14202450 – TUALATIN RIVER BELOW LEE FALLS NEAR CHERRY GROVE, OREGON [RM 70.7]

Latitude: 45 30 21 Longitude: 123 13 06 Source Agency: District 18 Watermaster

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	380	331	188	733	130	64	56	58	80	51	440	702
2	295	274	173	578	129	62	55	57	78	51	267	736
3	255	236	191	473	276	59	56	56	79	51	217	724
4	230	205	211	398	283	65	54	55	80	51	172	968
5	249	178	274	334	213	67	52	55	79	51	139	680
6	221	159	296	287	171	59	52	55	79	51	119	499
7	192	146	237	250	147	74	51	55	79	51	103	448
8	168	146	205	224	131	72	50	55	79	51	91	397
9	153	168	193	211	119	67	51	56	80	52	82	331
10	143	162	213	198	110	63	54	55	82	52	75	280
11	130	148	293	196	104	60	54	54	81	52	75	260
12	121	139	385	184	98	61	53	53	80	58	255	249
13	114	134	381	168	92	56	53	53	80	60	192	223
14	111	131	387	158	88	54	52	53	76	59	137	208
15	107	124	1350	149	84	52	52	59	66	96	116	193
16	102	120	939	185	80	51	57	65	66	92	103	276
17	110	127	626	170	77	49	64	64	67	60	97	857
18	279	208	472	163	74	50	64	65	66	50	162	515
19	903	231	384	163	72	49	64	65	67	53	1900	429
20	941	207	370	179	73	48	63	65	67	63	991	606
21	1180	239	344	167	81	45	63	64	68	75	696	442
22	749	434	298	149	96	47	62	64	69	76	501	487
23	561	360	264	135	103	51	62	64	68	84	472	490
24	857	281	239	124	98	48	61	64	68	81	621	420
25	1150	308	235	120	93	50	60	63	62	81	415	386
26	741	266	244	123	86	59	60	64	52	69	309	377
27	524	229	306	127	80	57	60	64	52	104	252	355
28	402	210	460	119	75	57	60	64	51	199	212	320
29	396	207	1290	113	70	58	59	64	52	421	192	283
30	559	—	1650	119	67	58	59	64	51	336	352	250
31	406	—	936	—	65	—	58	71	—	387	—	221
TOTAL	12729	6108	14034	6697	3465	1712	1771	1863	2104	3068	9755	13612
MEAN	410.6	210.6	452.7	223.2	111.8	57.1	57.1	60.1	70.1	99.0	325.2	439.1
MAX	1180	434	1650	733	283	74	64	71	82	421	1900	968
MIN	102	120	173	113	65	45	50	53	51	50	75	193
AC-FT	25250	12120	27840	13280	6870	3400	3510	3700	4170	6090	19350	27000

† Provisional data–subject to revision

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



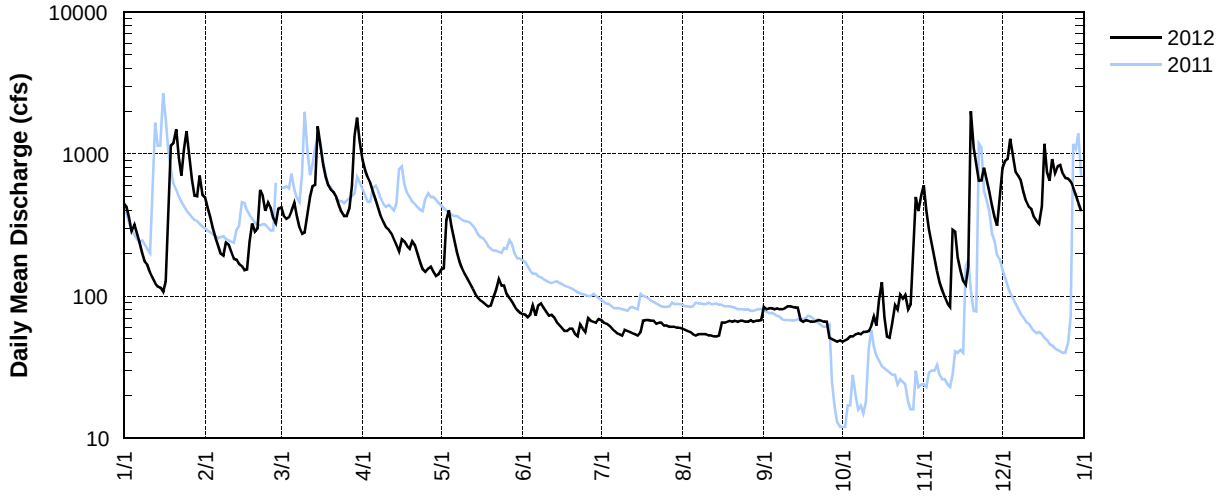
GASO – 14202510 – TUALATIN RIVER AT GASTON, OREGON [RM 62.3]

Latitude: 45 26 21 Longitude: 123 07 85 Source Agency: District 18 Watermaster

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	e450	493	423	e910	155	75	68	59	84	48	e600	e800
2	426	419	367	e772	157	74	65	58	81	49	399	e897
3	359	359	350	e684	342	71	64	57	82	50	295	e923
4	288	301	359	e626	402	74	62	56	82	52	237	e1280
5	319	256	400	548	308	86	60	54	81	52	185	e963
6	276	224	454	476	245	73	57	53	82	54	151	e743
7	239	198	364	417	203	86	55	54	81	55	126	e700
8	202	192	304	364	175	89	54	54	81	54	111	e650
9	176	238	275	331	156	83	53	54	82	56	99	543
10	167	229	281	305	143	78	58	54	85	56	89	468
11	146	203	383	292	132	73	57	53	85	57	84	424
12	134	183	e500	277	122	74	56	53	84	62	292	409
13	123	181	e595	251	113	71	55	52	83	72	283	360
14	117	168	e608	228	104	66	54	52	83	62	186	339
15	115	162	e1570	206	98	63	53	53	68	94	150	323
16	107	152	e1160	251	93	60	56	65	66	126	128	e430
17	127	154	e842	241	90	57	67	65	68	71	120	e1180
18	e351	242	e688	226	87	57	68	66	67	52	161	e742
19	e1140	324	e600	216	85	59	68	67	66	51	e2000	e649
20	e1190	285	560	243	86	59	67	66	66	64	e1100	e917
21	e1490	300	540	227	98	54	67	67	67	86	e850	e736
22	e943	e559	496	198	112	52	64	66	68	80	e650	e822
23	e706	509	438	173	132	63	65	67	67	102	e650	e838
24	e1080	399	391	155	119	59	65	67	66	96	e800	e728
25	e1450	455	365	148	119	56	62	66	66	102	e650	e678
26	e933	416	366	156	104	70	62	66	51	81	539	e671
27	e660	353	415	161	97	67	61	68	50	88	433	e640
28	e509	325	e600	148	91	66	61	66	49	235	359	581
29	e503	413	e1340	139	85	65	61	67	48	e500	313	514
30	e704	—	e1800	142	80	69	60	67	49	398	e500	451
31	e514	—	e1230	—	77	—	60	68	—	512	—	397
TOTAL	15944	8692	19064	9511	4410	2049	1885	1880	2138	3517	12540	20796
MEAN	514.3	299.7	615.0	317.0	142.3	68.3	60.8	60.6	71.3	113.5	418.0	670.8
MAX	1490	559	1800	910	402	89	68	68	85	512	2000	1280
MIN	107	152	275	139	77	52	53	52	48	48	84	323
AC-FT	31630	17240	37820	18870	8750	4060	3740	3730	4240	6980	24880	41250

† Provisional data–subject to revision; e=estimated value

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



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

STATION NUMBER: 14202550 AYERS CREEK AT NE NORTH VALLEY ROAD NEAR GASTON, OREG.

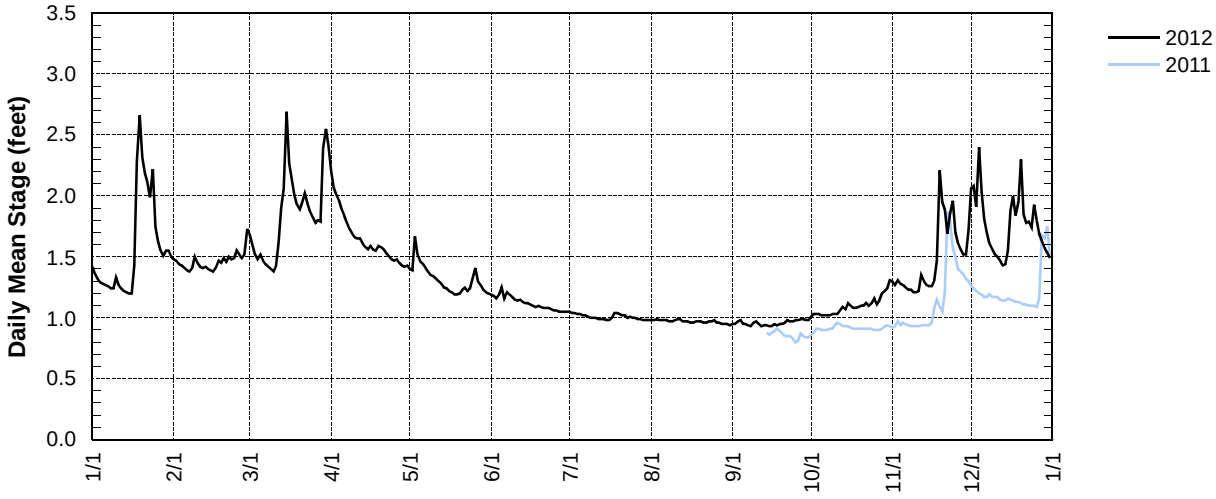
LATITUDE: 452245 LONGITUDE: 1230546

Stage, in feet, Calendar Year January to December 2012 Daily Mean Values

Day	JAN†	FEB†	MAR†	APR†	MAY†	JUN†	JUL†	AUG†	SEP†	OCT†	NOV†	DEC†
1	1.42	1.48	1.68	2.21	1.40	1.19	1.05	0.98	0.95	1.01	1.30	2.06
2	1.36	1.47	1.60	2.07	1.39	1.18	1.04	0.98	0.95	1.03	1.27	2.08
3	1.32	1.44	1.52	2.01	1.67	1.16	1.04	0.99	0.97	1.03	1.31	1.91
4	1.29	1.43	1.48	1.96	1.52	1.19	1.03	0.98	0.98	1.03	1.28	2.40
5	1.28	1.41	1.52	1.89	1.46	1.25	1.03	0.98	0.95	1.02	1.27	2.03
6	1.27	1.39	1.47	1.84	1.44	1.16	1.02	0.98	0.95	1.02	1.25	1.81
7	1.26	1.38	1.44	1.78	1.41	1.21	1.02	0.98	0.94	1.02	1.23	1.70
8	1.24	1.41	1.42	1.73	1.38	1.19	1.01	0.97	0.93	1.02	1.23	1.61
9	1.24	1.50	1.40	1.69	1.35	1.17	1.00	0.97	0.96	1.03	1.21	1.56
10	1.33	1.45	1.38	1.66	1.34	1.15	1.00	0.98	0.97	1.03	1.21	1.52
11	1.27	1.42	1.43	1.65	1.32	1.14	1.00	0.99	0.95	1.03	1.22	1.50
12	1.24	1.41	1.62	1.65	1.30	1.15	0.99	0.99	0.93	1.06	1.35	1.47
13	1.22	1.42	1.90	1.61	1.28	1.13	0.99	0.97	0.94	1.09	1.30	1.43
14	1.21	1.40	2.06	1.58	1.25	1.12	0.99	0.97	0.94	1.07	1.27	1.44
15	1.20	1.39	2.69	1.56	1.24	1.12	0.98	0.97	0.93	1.12	1.26	1.55
16	1.20	1.38	2.27	1.59	1.22	1.11	0.98	0.96	0.93	1.10	1.26	1.88
17	1.43	1.41	2.14	1.56	1.21	1.10	1.00	0.96	0.95	1.08	1.31	2.00
18	2.28	1.47	2.01	1.55	1.19	1.09	1.04	0.97	0.94	1.08	1.47	1.84
19	2.66	1.45	1.93	1.59	1.19	1.10	1.04	0.97	0.95	1.09	2.21	1.95
20	2.32	1.49	1.89	1.58	1.20	1.09	1.03	0.97	0.95	1.10	1.95	2.30
21	2.19	1.46	1.95	1.56	1.23	1.08	1.02	0.96	0.96	1.10	1.89	1.85
22	2.11	1.50	2.02	1.53	1.25	1.08	1.02	0.96	0.98	1.12	1.69	1.78
23	1.99	1.48	1.94	1.51	1.22	1.08	1.00	0.97	0.97	1.10	1.85	1.79
24	2.22	1.49	1.87	1.48	1.24	1.07	1.01	0.97	0.97	1.12	1.96	1.74
25	1.75	1.55	1.82	1.47	1.33	1.06	1.00	0.98	0.98	1.16	1.70	1.93
26	1.63	1.52	1.78	1.48	1.41	1.06	1.00	0.96	0.98	1.11	1.61	1.80
27	1.55	1.49	1.80	1.45	1.30	1.05	0.99	0.96	0.99	1.14	1.56	1.69
28	1.51	1.52	1.79	1.43	1.27	1.05	0.99	0.95	0.99	1.20	1.52	1.63
29	1.55	1.73	2.39	1.42	1.23	1.05	0.98	0.95	0.98	1.22	1.52	1.57
30	1.55	—	2.55	1.43	1.21	1.05	0.98	0.95	0.98	1.24	1.72	1.53
31	1.50	—	2.41	—	1.20	—	0.98	0.94	—	1.31	—	1.49
MEAN	1.57	1.46	1.84	1.65	1.31	1.12	1.01	0.97	0.96	1.09	1.47	1.77
MAX	2.66	1.73	2.69	2.21	1.67	1.25	1.05	0.99	0.99	1.31	2.21	2.40
MIN	1.20	1.38	1.38	1.42	1.19	1.05	0.98	0.94	0.93	1.01	1.21	1.43

† Provisional data–subject to revision

14202550 — Ayers Creek at NE North Valley Road near Gaston, Oregon



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

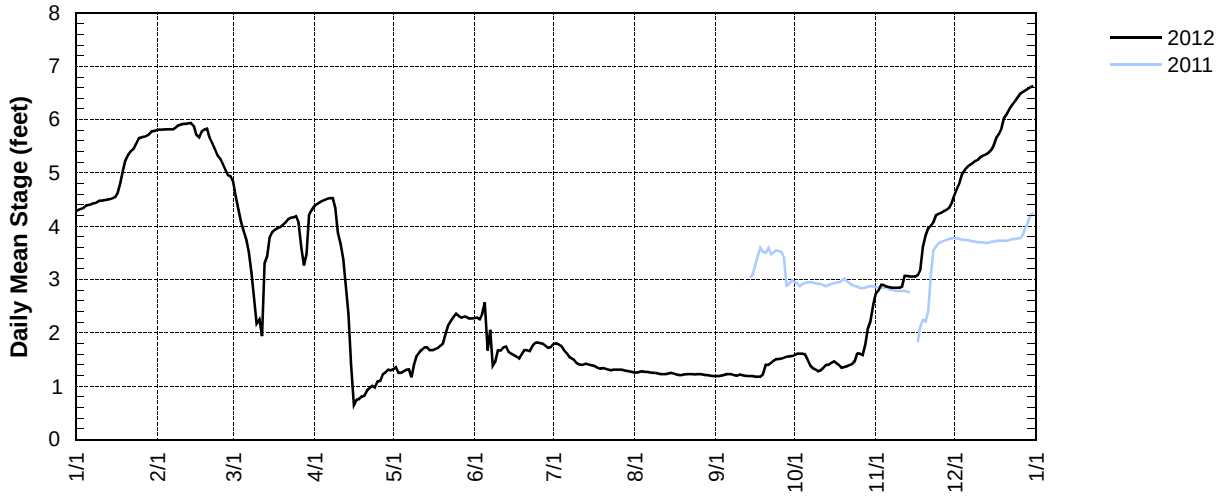
STATION NUMBER: 14202630 WAPATO CANAL AT PUMPHOUSE AT GASTON, OREG.

LATITUDE: 452625 LONGITUDE: 1230731

Stage, in feet, Calendar Year January to December 2012 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP*	OCT	NOV	DEC
1	4.28	5.81	4.83	4.39	1.32	2.28	1.79	1.26	1.19	1.59	2.74	4.60
2	4.31	5.81	4.55	4.42	1.36	2.29	1.81	1.26	1.19	1.61	2.80	4.72
3	4.33	5.81	4.32	4.45	1.25	2.26	1.79	1.27	1.20	1.61	2.90	4.83
4	4.35	5.82	4.09	4.48	1.25	2.36	1.76	1.28	1.21	1.61	2.90	4.99
5	4.39	5.82	3.92	4.50	1.28	2.58	1.69	1.27	1.23	1.60	2.87	5.07
6	4.40	5.82	3.75	4.52	1.31	1.67	1.63	1.27	1.23	1.50	2.86	5.12
7	4.42	5.82	3.51	4.53	1.32	2.06	1.56	1.26	1.23	1.39	2.85	5.16
8	4.43	5.85	3.13	4.53	1.17	1.39	1.53	1.25	1.21	1.34	2.85	5.19
9	4.45	5.89	2.65	4.35	1.41	1.47	1.50	1.25	1.20	1.32	2.85	5.23
10	4.48	5.91	2.18	3.88	1.57	1.67	1.44	1.24	1.22	1.28	2.85	5.25
11	4.48	5.92	2.26	3.66	1.64	1.67	1.41	1.23	1.21	1.30	2.87	5.30
12	4.49	5.92	1.94	3.38	1.69	1.73	1.40	1.23	1.20	1.35	3.07	5.33
13	4.50	5.93	3.31	2.89	1.73	1.75	1.42	1.23	1.19	1.40	3.07	5.35
14	4.51	5.94	3.44	2.37	1.73	1.65	1.42	1.24	1.19	1.40	3.06	5.38
15	4.53	5.88	3.80	1.44	1.68	1.62	1.40	1.25	1.19	1.44	3.06	5.43
16	4.55	5.71	3.90	0.65	1.68	1.59	1.39	1.24	1.18	1.47	3.06	5.53
17	4.63	5.67	3.94	0.74	1.70	1.56	1.38	1.22	1.18	1.43	3.09	5.67
18	4.81	5.78	3.97	0.76	1.72	1.52	1.35	1.21	1.18	1.40	3.19	5.74
19	5.04	5.81	3.99	0.81	1.76	1.60	1.33	1.21	1.22	1.35	3.61	5.85
20	5.24	5.83	4.03	0.81	1.80	1.68	1.34	1.22	1.40	1.36	3.84	6.04
21	5.35	5.67	4.07	0.93	1.97	1.68	1.33	1.23	1.40	1.38	3.97	6.12
22	5.41	5.56	4.14	0.97	2.15	1.66	1.31	1.23	1.44	1.40	4.01	6.21
23	5.45	5.45	4.16	1.01	2.23	1.75	1.30	1.23	1.48	1.42	4.08	6.28
24	5.55	5.34	4.17	0.97	2.30	1.80	1.31	1.22	1.51	1.47	4.21	6.34
25	5.65	5.27	4.19	1.09	2.36	1.82	1.31	1.23	1.51	1.62	4.24	6.41
26	5.67	5.17	4.07	1.10	2.32	1.81	1.31	1.23	1.52	1.61	4.26	6.49
27	5.68	5.06	3.59	1.23	2.29	1.80	1.31	1.22	1.54	1.58	4.29	6.52
28	5.70	4.96	3.27	1.26	2.31	1.76	1.30	1.21	1.56	1.78	4.31	6.55
29	5.73	4.94	3.47	1.31	2.30	1.72	1.29	1.21	1.56	2.08	4.35	6.58
30	5.78	—	4.22	1.30	2.28	1.73	1.28	1.20	1.57	2.22	4.45	6.61
31	5.79	—	4.31	—	2.27	—	1.27	1.19	—	2.53	—	6.63
MEAN	4.92	5.66	3.72	2.42	1.78	1.80	1.44	1.24	1.31	1.54	3.42	5.69
MAX	5.79	5.94	4.83	4.53	2.36	2.58	1.81	1.28	1.57	2.53	4.45	6.63
MIN	4.28	4.94	1.94	0.65	1.17	1.39	1.27	1.19	1.18	1.28	2.74	4.60

14202630 — Wapato Canal Pumphouse at Gaston, Oregon



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

STATION NUMBER: 14202650 WAPATO CREEK AT GASTON ROAD AT GASTON, OREG.

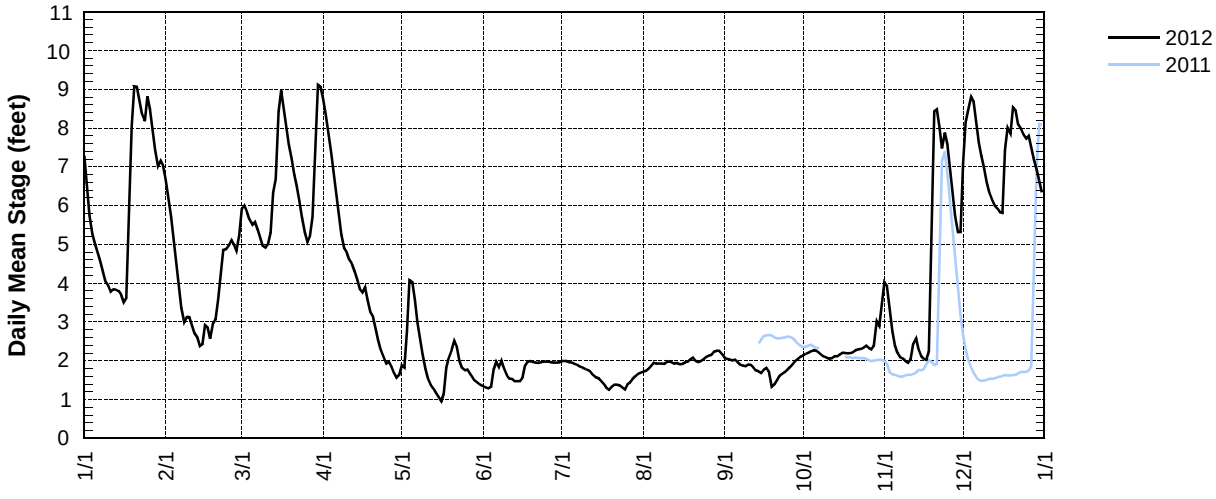
LATITUDE: 452626 LONGITUDE: 1230730

Stage, in feet, Calendar Year January to December 2012 Daily Mean Values

Day	JAN†	FEB†	MAR†	APR†	MAY†	JUN†	JUL†	AUG†	SEP†	OCT†	NOV†	DEC†
1	7.29	6.68	5.92	8.76	1.88	1.35	1.99	1.72	2.08	2.14	4.02	7.09
2	6.45	6.20	6.00	8.37	1.82	1.32	1.99	1.74	2.05	2.18	3.92	8.15
3	5.75	5.72	5.84	7.89	2.75	1.29	1.99	1.79	2.03	2.21	3.29	8.47
4	5.27	5.11	5.64	7.39	4.08	1.33	1.96	1.87	2.01	2.25	2.77	8.80
5	5.02	4.50	5.51	6.86	4.03	1.78	1.95	1.95	2.03	2.27	2.40	8.68
6	4.80	3.94	5.58	6.31	3.57	1.97	1.92	1.93	1.97	2.26	2.20	8.12
7	4.58	3.36	5.40	5.78	2.98	1.84	1.89	1.93	1.90	2.21	2.09	7.64
8	4.32	3.00	5.19	5.26	2.55	2.01	1.85	1.93	1.88	2.15	2.06	7.29
9	4.04	3.13	4.97	4.90	2.17	1.79	1.83	1.92	1.86	2.11	1.99	6.95
10	3.94	3.12	4.92	4.79	1.79	1.63	1.79	1.97	1.90	2.08	1.95	6.60
11	3.78	2.92	5.01	4.60	1.53	1.54	1.76	1.99	1.89	2.05	2.04	6.33
12	3.84	2.71	5.30	4.50	1.38	1.53	1.71	1.96	1.84	2.07	2.44	6.16
13	3.83	2.60	6.34	4.32	1.29	1.47	1.63	1.93	1.75	2.12	2.58	6.01
14	3.80	2.38	6.69	4.09	1.18	1.47	1.57	1.94	1.73	2.12	2.29	5.93
15	3.70	2.43	8.43	3.85	1.06	1.47	1.55	1.91	1.69	2.17	2.12	5.83
16	3.51	2.92	8.97	3.77	0.95	1.56	1.48	1.92	1.77	2.21	2.05	5.81
17	3.62	2.86	8.54	3.90	1.15	1.88	1.41	1.96	1.82	2.20	2.03	7.45
18	5.46	2.57	8.04	3.57	1.82	1.98	1.30	1.98	1.73	2.19	2.24	8.01
19	8.06	2.97	7.57	3.25	2.09	1.99	1.25	2.04	1.33	2.20	5.92	7.85
20	9.07	3.07	7.20	3.13	2.29	1.97	1.33	2.08	1.39	2.22	8.44	8.54
21	9.06	3.58	6.80	2.82	2.51	1.95	1.38	2.00	1.50	2.27	8.49	8.46
22	8.70	4.16	6.49	2.53	2.36	1.94	1.38	1.97	1.61	2.29	8.04	8.09
23	8.36	4.86	6.12	2.28	2.00	1.96	1.37	1.99	1.66	2.31	7.48	7.99
24	8.18	4.88	5.70	2.09	1.82	1.98	1.32	2.04	1.71	2.34	7.88	7.83
25	8.82	4.97	5.31	1.93	1.75	1.98	1.26	2.10	1.77	2.39	7.58	7.73
26	8.49	5.11	5.07	1.98	1.77	1.98	1.40	2.13	1.84	2.33	6.98	7.80
27	7.97	5.00	5.23	1.85	1.66	1.96	1.44	2.15	1.91	2.30	6.31	7.51
28	7.45	4.83	5.71	1.69	1.56	1.95	1.53	2.23	1.99	2.39	5.74	7.20
29	7.03	5.24	7.07	1.56	1.48	1.95	1.60	2.26	2.05	3.02	5.32	6.93
30	7.16	—	9.11	1.64	1.42	1.96	1.66	2.26	2.11	2.89	5.32	6.64
31	7.03	—	9.06	—	1.38	—	1.70	2.18	—	3.43	—	6.34
MEAN	6.08	3.96	6.41	4.19	2.00	1.76	1.62	1.99	1.83	2.30	4.27	7.36
MAX	9.07	6.68	9.11	8.76	4.08	2.01	1.99	2.26	2.11	3.43	8.49	8.80
MIN	3.51	2.38	4.92	1.56	0.95	1.29	1.25	1.72	1.33	2.05	1.95	5.81

† Provisional data–subject to revision

14202650 — Wapato Creek at Gaston Road at Gaston, Oregon



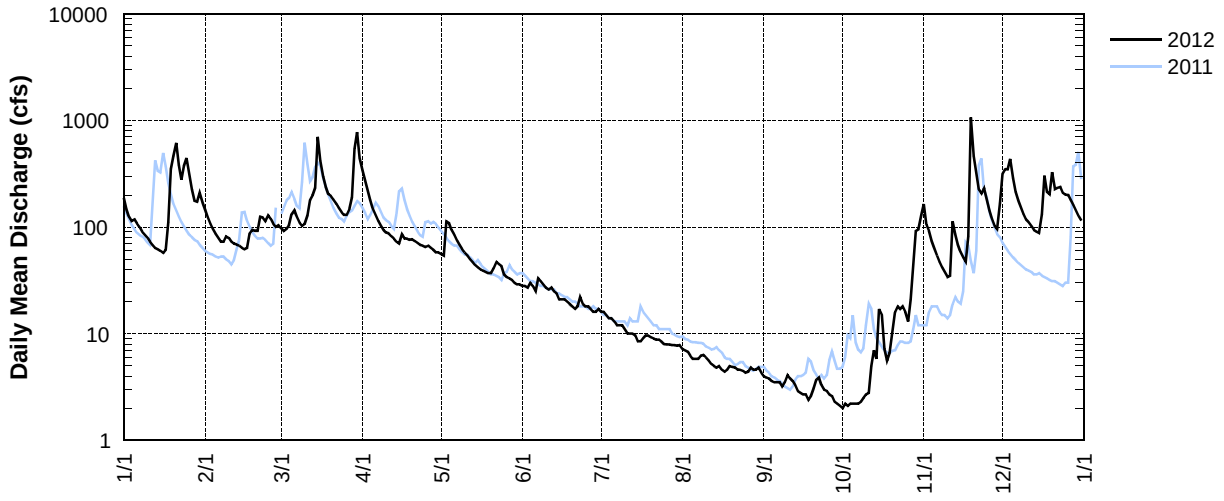
SCLO – 14202850 – SCOGGINS CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 9.3]

Latitude: 45 30 06 Longitude: 123 15 06 Source Agency: District 18 Watermaster

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	188	146	97	340	56	28	16	7.2	4.0	2.0	164	317
2	147	124	92	274	54	28	16	7.0	3.9	2.2	106	348
3	125	108	96	221	113	27	15	6.8	3.8	2.1	92	346
4	114	96	104	179	109	30	14	6.2	3.6	2.2	75	434
5	118	86	132	148	94	28	14	5.8	3.5	2.2	63	287
6	108	79	144	129	84	25	13	5.8	3.5	2.2	54	214
7	100	73	124	114	75	33	12	5.8	3.5	2.2	47	179
8	91	73	110	103	68	31	12	6.2	3.2	2.3	42	153
9	85	82	103	94	62	29	12	6.3	3.5	2.5	38	133
10	80	79	107	89	58	27	11	6.0	4.1	2.7	34	118
11	73	73	129	87	54	26	10	5.6	3.8	2.8	35	111
12	68	70	180	82	50	27	10	5.2	3.6	5.0	113	103
13	64	69	199	78	47	25	10	5.0	3.3	7.0	86	94
14	62	67	234	73	44	24	9.7	4.8	2.9	5.8	69	91
15	60	64	700	70	42	21	8.5	5.0	2.8	17	58	88
16	57	62	420	85	40	21	8.5	4.6	2.7	15	52	132
17	61	64	297	78	39	21	9.1	4.4	2.7	7.2	47	304
18	111	87	238	78	38	20	9.6	4.6	2.4	5.6	82	212
19	348	94	204	76	37	19	9.6	5.0	2.6	6.6	1070	202
20	463	92	196	77	37	18	9.3	4.9	3.1	10	463	328
21	613	92	181	74	41	17	9.0	4.8	3.7	16	320	227
22	383	125	165	71	47	18	8.8	4.6	3.9	18	224	234
23	278	123	150	68	45	22	8.8	4.6	3.3	17	207	239
24	377	114	138	67	43	19	8.4	4.5	3.0	18	233	210
25	446	129	130	65	36	18	8.0	4.3	2.9	16	178	201
26	307	120	130	67	34	18	7.9	4.4	2.7	13	143	200
27	224	107	148	64	33	17	7.9	4.8	2.6	21	119	178
28	176	101	190	61	32	16	7.8	4.6	2.3	42	103	161
29	172	104	545	58	30	16	7.8	4.6	2.2	92	96	143
30	210	—	777	58	29	17	7.7	4.8	2.1	95	168	127
31	170	—	443	—	29	—	7.8	4.3	—	129	—	115
TOTAL	5879	2703	6903	3128	1600	686	319.2	162.5	95.2	581.6	4581	6229
MEAN	189.6	93.2	222.7	104.3	51.6	22.9	10.3	5.2	3.2	18.8	152.7	200.9
MAX	613	146	777	340	113	33	16	7.2	4.1	129	1070	434
MIN	57	62	92	58	29	16	7.7	4.3	2.1	2.0	34	88
AC-FT	11660	5360	13690	6210	3170	1360	630	320	190	1150	9090	12360

† Provisional data–subject to revision

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



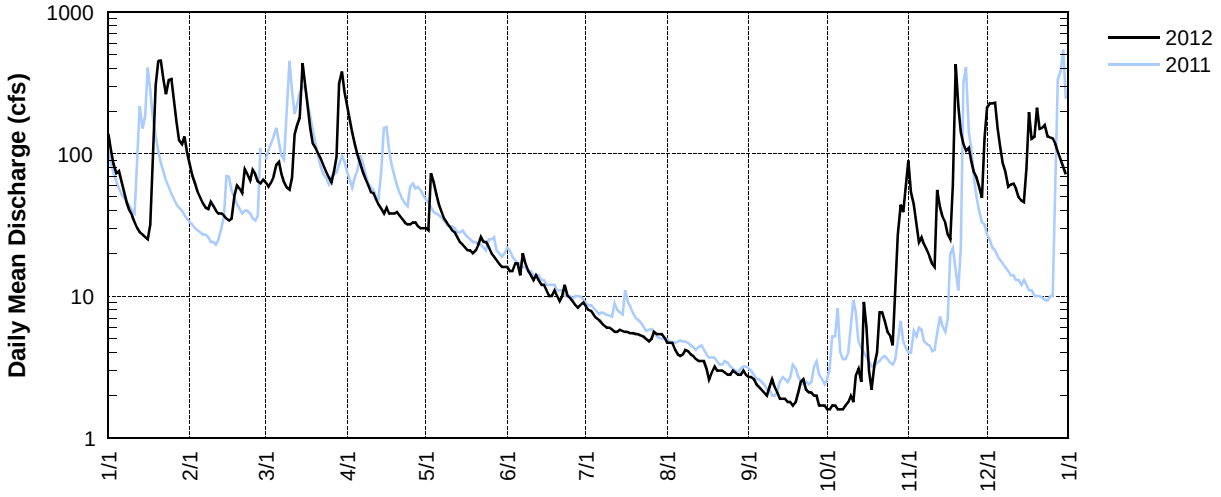
SCHO – 14202920 – SAIN CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 1.6]

Latitude: 45 28 50 Longitude: 123 14 40 Source Agency: District 18 Watermaster

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	139	85	63	219	30	16	8.5	e4.7	2.7	1.6	90	213
2	107	71	59	175	29	15	8.0	e4.7	2.7	1.6	54	227
3	85	62	63	141	73	15	7.9	e4.7	2.6	1.7	44	226
4	73	54	69	115	64	17	7.4	e4.2	2.4	1.7	33	229
5	76	49	84	98	52	17	7.0	e3.9	2.3	1.6	24	151
6	64	45	88	86	44	14	6.8	e3.8	2.2	1.6	26	112
7	54	42	72	75	39	20	6.5	e3.9	2.1	1.6	23	86
8	46	41	63	67	35	17	6.2	e4.2	2.0	1.7	21	75
9	40	46	58	60	33	15	6.0	e4.1	2.3	1.8	19	59
10	37	43	56	54	31	14	6.0	e3.9	2.6	2.0	17	61
11	33	40	68	53	29	13	5.8	e3.8	2.3	1.8	16	62
12	30	38	137	48	28	14	5.6	e3.6	2.1	2.8	56	57
13	28	38	160	44	26	13	5.6	e3.5	1.9	3.1	42	50
14	27	37	180	41	24	12	e5.8	e3.5	1.9	2.5	36	47
15	26	35	435	38	23	12	e5.7	e3.5	1.9	9.1	33	46
16	25	34	301	42	22	11	e5.6	e3.1	1.8	6.1	27	79
17	e32	35	208	38	21	10	e5.6	e2.6	1.8	3.0	25	197
18	e83	51	151	38	21	10	e5.5	e2.9	1.7	2.2	60	128
19	e307	60	118	38	20	11	e5.5	e3.2	1.8	3.3	429	132
20	450	57	109	39	21	10	e5.4	e3.0	2.1	4.0	220	212
21	454	53	100	37	23	9	e5.4	e3.0	2.5	7.7	142	150
22	336	78	92	35	26	10	e5.3	e3.0	2.6	7.7	117	153
23	263	72	83	33	24	12	e5.2	e2.9	2.2	6.7	105	160
24	332	65	75	32	24	10	5.0	e2.8	2.1	5.6	111	133
25	337	77	68	32	22	9.7	4.8	e2.8	2.1	5.3	88	131
26	239	72	63	33	20	9.2	e5.0	e3.0	2.0	4.5	74	129
27	168	64	75	33	19	8.7	e5.6	e2.9	2.0	12	68	118
28	125	62	96	31	18	8.3	e5.4	e2.8	1.7	27	59	103
29	117	66	313	30	17	8.7	e5.4	2.8	1.7	44	49	91
30	133	—	381	30	16	9.0	e5.4	3.0	1.7	39	129	81
31	102	—	273	—	16	—	e5.1	2.8	—	60	—	72
TOTAL	4368	1572	4161	1835	890	370.8	184	106.6	63.8	274.3	2237	3770
MEAN	140.9	54.2	134.2	61.2	28.7	12.4	5.9	3.4	2.1	8.8	74.6	121.6
MAX	454	85	435	219	73	20	8.5	4.7	2.7	60	429	229
MIN	25	34	56	30	16	8.3	4.8	2.6	1.7	1.6	16	46
AC-FT	8660	3120	8250	3640	1770	740	370	210	130	540	4440	7480

† Provisional data–subject to revision

SCHO — 14202920 — Sain Creek above Henry Hagg Lake near Gaston, Oregon [RM 1.6]



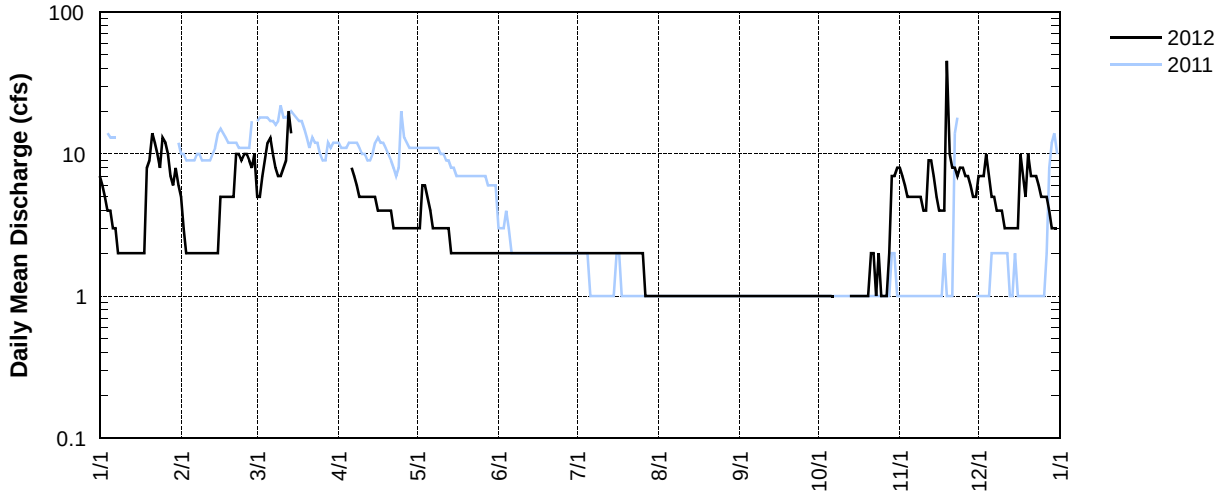
TANO – 14202860 – TANNER CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 1.6]

Latitude: 45 30 21 Longitude: 123 13 10 Source Agency: Tualatin Valley Irrigation District

Day	2012 Daily Mean Discharge in Cubic Feet per Second[a]											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7	5	5	0	3	2	2	1	1	1	8	7
2	6	3	5	0	3	2	2	1	1	1	7	7
3	5	2	7	0	6	2	2	1	1	1	6	7
4	4	2	9	0	6	2	2	1	1	1	5	10
5	4	2	12	0	5	2	2	1	1	1	5	7
6	3	2	13	8	4	2	2	1	1	1	5	5
7	3	2	10	7	3	2	2	1	1	1	5	5
8	2	2	8	6	3	2	2	1	1	0	5	4
9	2	2	7	5	3	2	2	1	1	0	5	4
10	2	2	7	5	3	2	2	1	1	0	4	4
11	2	2	8	5	3	2	2	1	1	0	4	3
12	2	2	9	5	3	2	2	1	1	0	9	3
13	2	2	20	5	3	2	2	1	1	1	9	3
14	2	2	14	5	2	2	2	1	1	1	7	3
15	2	2		5	2	2	2	1	1	1	5	3
16	2	5		4	2	2	2	1	1	1	4	3
17	2	5		4	2	2	2	1	1	1	4	10
18	2	5		4	2	2	2	1	1	1	4	7
19	8	5		4	2	2	2	1	1	1	45	5
20	9	5		4	2	2	2	1	1	1	10	10
21	14	5		4	2	2	2	1	1	2	8	7
22	12	10		3	2	2	2	1	1	2	8	7
23	10	10	6	3	2	2	2	1	1	1	7	7
24	8	9		3	2	2	2	1	1	2	8	6
25	13	10		3	2	2	2	1	1	1	8	5
26	12	10	4	3	2	2	2	1	1	1	7	5
27	10	9		3	2	2	1	1	1	1	7	5
28	7	8		3	2	2	1	1	1	2	6	4
29	6	10	20	3	2	2	1	1	1	7	5	3
30	8	—		3	2	2	1	1	1	7	5	3
31	6	—		—	2	—	1	1	—	8	—	3
TOTAL	177	140		107	84	60	57	31	30	49	225	165
AC-FT	350	280		210	170	120	110	60	60	100	450	330

*Incomplete record (monthly totals were computed when at least 80% of the record was complete for the month); [a]Values are read from a staff plate. Values may be daily readings taken at about 0800 or averages over several days

TANO — 14202860 — Tanner Creek above Henry Hagg Lake near Gaston, Oregon [RM 1.6]

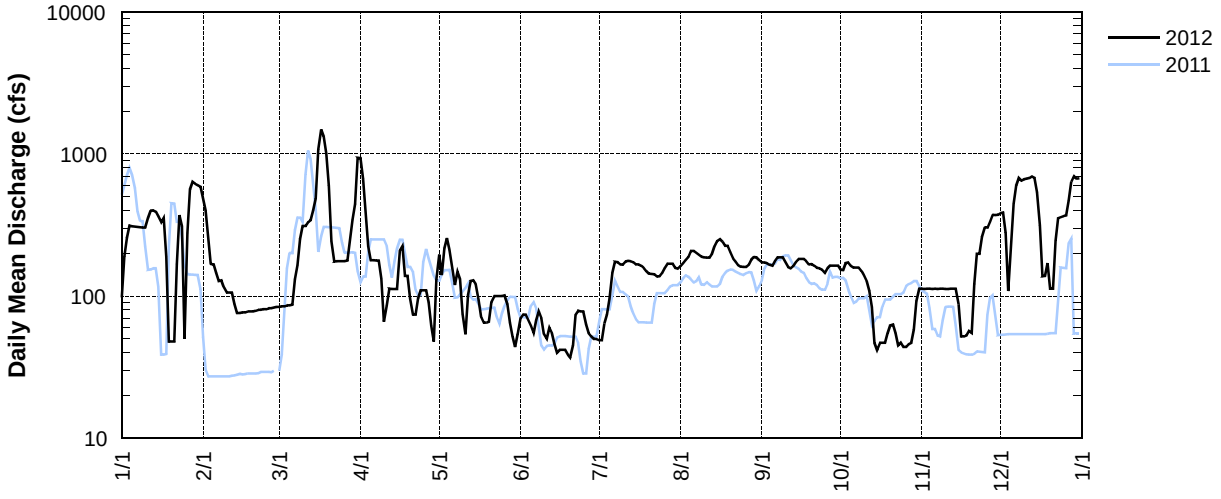


SCOO – 14202980 – SCOGGINS CREEK BELOW HENRY HAGG LAKE NEAR GASTON, OREGON [RM 4.8]

Latitude: 45 28 10 Longitude: 123 11 56 Source Agency: Bureau of Reclamation & District 18 Watermaster

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	98	483	84	932	196	70	49	163	172	153	113	382
2	190	400	85	669	141	74	49	171	172	152	112	386
3	257	256	85	367	217	74	64	180	171	171	113	279
4	313	168	86	225	256	68	74	188	166	172	113	109
5	309	167	86	179	211	62	96	208	164	164	112	222
6	308	145	87	179	157	55	146	208	177	159	113	448
7	307	128	132	178	120	68	174	201	187	159	112	602
8	305	129	165	178	148	78	173	195	187	159	113	676
9	304	115	252	133	132	70	167	189	187	151	113	648
10	303	106	311	66	75	54	166	187	172	140	112	664
11	357	106	312	86	54	50	175	186	160	127	112	669
12	399	106	331	113	102	60	177	186	157	109	113	677
13	402	88	341	112	128	55	176	198	163	84	113	696
14	393	76	401	112	129	46	173	224	173	47	113	679
15	364	76	487	112	121	40	167	244	183	42	88	540
16	331	77	1080	210	94	42	167	252	183	47	52	316
17	356	77	1490	226	71	42	164	241	183	47	52	138
18	189	78	1330	139	65	42	158	226	176	47	53	139
19	48	78	1010	139	65	39	150	226	167	55	57	171
20	48	78	598	96	66	37	144	205	168	62	55	113
21	48	79	244	74	91	45	143	184	164	63	122	113
22	168	80	175	74	100	74	142	175	158	55	198	245
23	371	80	176	97	100	79	137	165	157	45	198	355
24	310	81	176	110	100	78	138	161	154	47	261	359
25	50	81	176	110	100	78	145	160	146	44	305	366
26	278	82	176	110	101	63	157	160	157	44	303	370
27	566	82	178	90	88	55	169	166	164	46	334	472
28	635	83	249	62	65	52	169	181	164	47	374	640
29	616	84	345	48	52	50	169	188	164	58	372	698
30	603	—	445	131	44	50	158	187	164	92	374	669
31	588	—	940	—	54	—	156	179	—	113	—	674
TOTAL	9814	3669	12033	5357	3443	1750	4492	5984	5060	2901	4775	13515
MEAN	316.6	126.5	388.2	178.6	111.1	58.3	144.9	193.0	168.7	93.6	159.2	436.0
MAX	635	483	1490	932	256	79	177	252	187	172	374	698
MIN	48	76	84	48	44	37	49	160	146	42	52	109
AC-FT	19470	7280	23870	10630	6830	3470	8910	11870	10040	5750	9470	26810

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



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

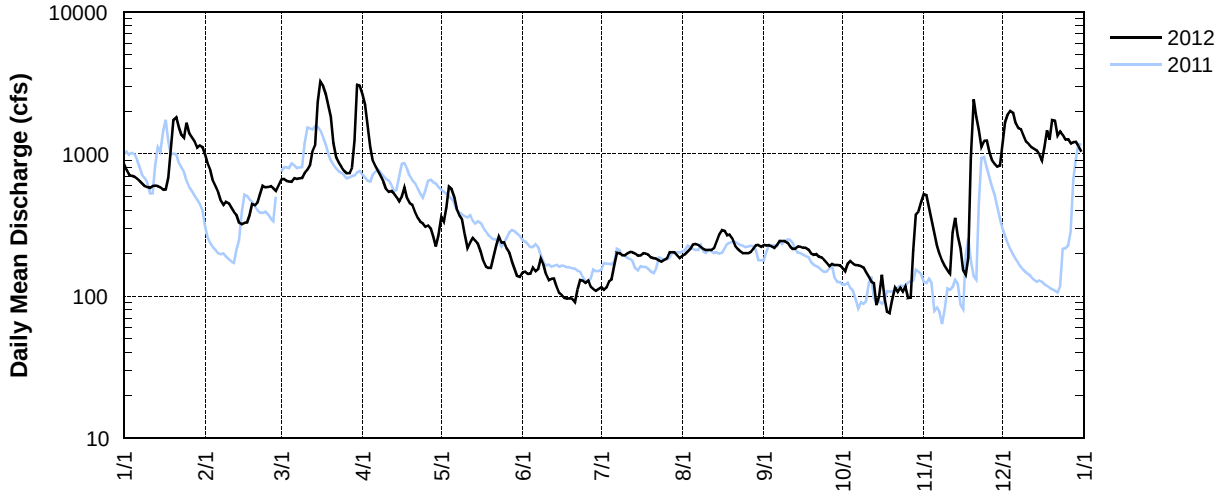
STATION NUMBER: 14203500 TUALATIN RIVER NEAR DILLEY, OREG.

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

Discharge, Cubic Feet per Second, Calendar Year January to December 2012 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	858	996	664	2620	359	147	116	193	229	158	523	1160
2	775	855	665	2220	335	148	111	197	227	150	516	1670
3	719	771	647	1580	419	143	115	206	228	169	420	1900
4	704	651	639	1130	588	144	127	214	225	176	345	2010
5	690	589	636	898	569	160	131	230	219	170	275	1950
6	669	536	676	814	497	150	166	233	229	165	227	1640
7	645	468	668	752	406	154	202	229	244	165	197	1520
8	619	438	673	696	367	184	201	221	244	163	177	1500
9	596	462	676	641	346	168	194	215	244	159	163	1350
10	585	450	737	572	276	144	193	211	238	148	151	1220
11	575	419	778	542	219	130	201	211	223	137	144	1170
12	596	391	837	552	238	132	205	211	214	126	277	1120
13	597	373	1050	529	257	133	203	217	215	124	357	1090
14	595	329	1160	498	247	117	199	243	223	87	267	1060
15	582	321	2310	465	235	105	192	270	223	99	217	999
16	558	328	3230	502	207	102	193	291	219	141	152	897
17	561	330	2990	582	178	97	201	289	219	98	141	1110
18	680	371	2640	490	162	96	199	268	213	78	185	1470
19	1080	446	2210	453	158	96	196	270	201	76	916	1260
20	1740	437	1830	442	158	96	187	256	196	94	2410	1720
21	1810	456	1190	390	188	91	184	227	198	115	1830	1720
22	1550	525	942	356	227	111	184	215	189	107	1470	1350
23	1370	598	863	335	262	130	179	206	187	114	1120	1450
24	1300	582	809	326	237	128	175	200	181	108	1240	1360
25	1650	585	762	309	240	124	180	200	172	118	1240	1260
26	1390	596	730	315	217	129	185	200	163	97	1030	1270
27	1300	574	730	301	202	116	203	205	169	97	904	1190
28	1220	550	802	263	176	112	203	216	166	210	855	1210
29	1110	599	1230	224	156	109	204	228	166	372	815	1220
30	1150	—	3040	265	138	112	194	229	164	392	828	1130
31	1120	—	3020	—	136	—	186	222	—	462	—	1030
TOTAL	29394	15026	39834	20062	8400	3808	5609	7023	6228	4875	19392	42006
MEAN	948	518	1285	669	271	127	181	227	208	157	646	1355
MAX	1810	996	3230	2620	588	184	205	291	244	462	2410	2010
MIN	558	321	636	224	136	91	111	193	163	76	141	897
AC-FT	58300	29800	79010	39790	16660	7550	11130	13930	12350	9670	38460	83320

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



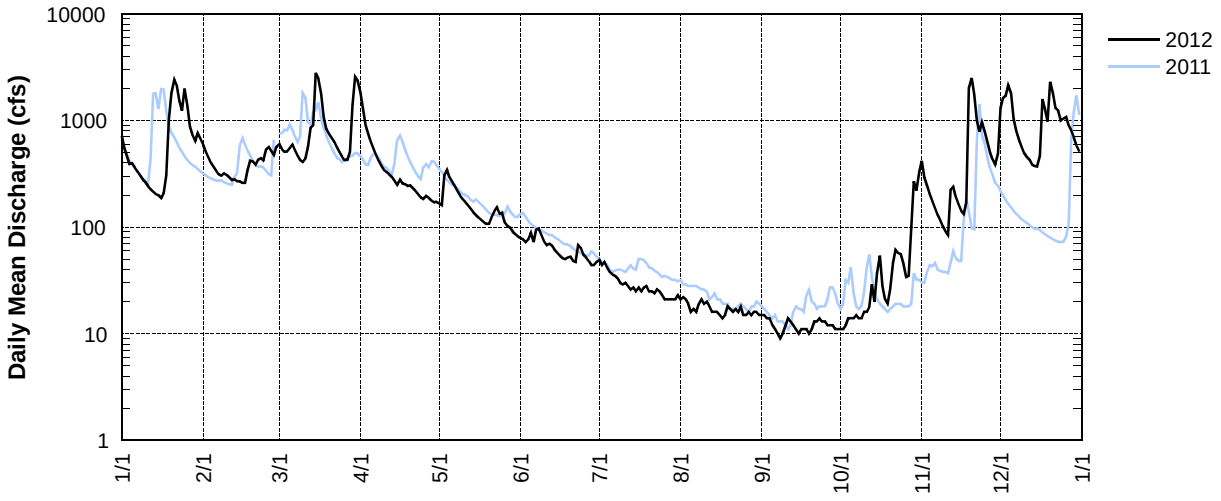
GALES – 14204530 – GALES CREEK AT OLD HWY 47 NEAR FOREST GROVE, OREGON [RM 2.36]

Latitude: 45 30 39 Longitude: 123 06 56 Source Agency: District 18 Watermaster

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	716	594	597	1810	167	79	49	21	15	11	418	1310
2	547	512	538	1260	160	77	44	22	15	11	291	1630
3	461	451	508	897	308	72	47	21	14	12	247	1700
4	389	402	510	746	344	77	42	19	14	14	207	2140
5	396	364	548	627	292	89	38	16	12	14	174	1800
6	358	336	595	536	263	72	36	17	11	14	150	1030
7	332	313	523	468	239	95	35	16	10	15	130	798
8	303	305	465	415	216	96	33	19	9	14	116	666
9	280	320	424	373	197	84	30	21	10	14	102	571
10	265	309	407	343	183	74	29	19	12	16	91	495
11	242	291	442	326	171	68	30	20	14	16	84	453
12	226	276	570	310	160	70	28	18	13	18	225	429
13	213	279	854	293	149	67	26	16	12	29	239	387
14	204	268	902	271	137	61	27	16	11	20	192	375
15	199	269	e2800	248	130	58	25	16	10	37	162	368
16	188	259	e2480	278	122	54	27	15	11	54	142	464
17	210	259	1770	256	116	51	25	14	11	28	133	1590
18	306	341	1070	252	111	50	27	15	11	21	169	1270
19	1020	417	828	242	107	52	28	18	10	19	e2000	975
20	1800	413	745	245	107	53	25	17	11	26	e2500	e2300
21	e2400	387	688	231	124	48	25	16	13	46	1750	1780
22	e2110	429	628	218	141	47	24	17	13	61	1000	1300
23	1520	440	558	204	153	68	26	16	14	57	781	1240
24	1240	421	503	190	134	64	25	18	13	56	957	1000
25	1990	534	456	184	136	55	23	15	13	46	776	1040
26	1370	563	424	196	112	52	21	15	12	34	624	1080
27	875	514	427	187	103	48	21	16	12	35	505	891
28	726	474	508	177	99	44	21	15	12	103	430	e800
29	641	566	e1400	170	91	44	21	16	11	269	384	e690
30	757	—	e2560	173	86	47	21	16	11	220	487	e580
31	669	—	e2350	—	82	—	23	15	—	327	—	e510
TOTAL	22953	11306	28078	12126	4940	1916	902	531	360	1657	15466	31662
MEAN	740.4	389.9	905.7	404.2	159.4	63.9	29.1	17.1	12.0	53.5	515.5	1021.4
MAX	2400	594	2800	1810	344	96	49	22	15	327	2500	2300
MIN	188	259	407	170	82	44	21	14	9	11	84	368
AC-FT	45530	22430	55700	24050	9800	3800	1790	1050	710	3290	30680	62810

† Provisional data–subject to revision; e=estimated value

GALES — 14204530 — Gales Creek at Old Hwy 47 near Forest Grove, Oregon [RM 2.36]



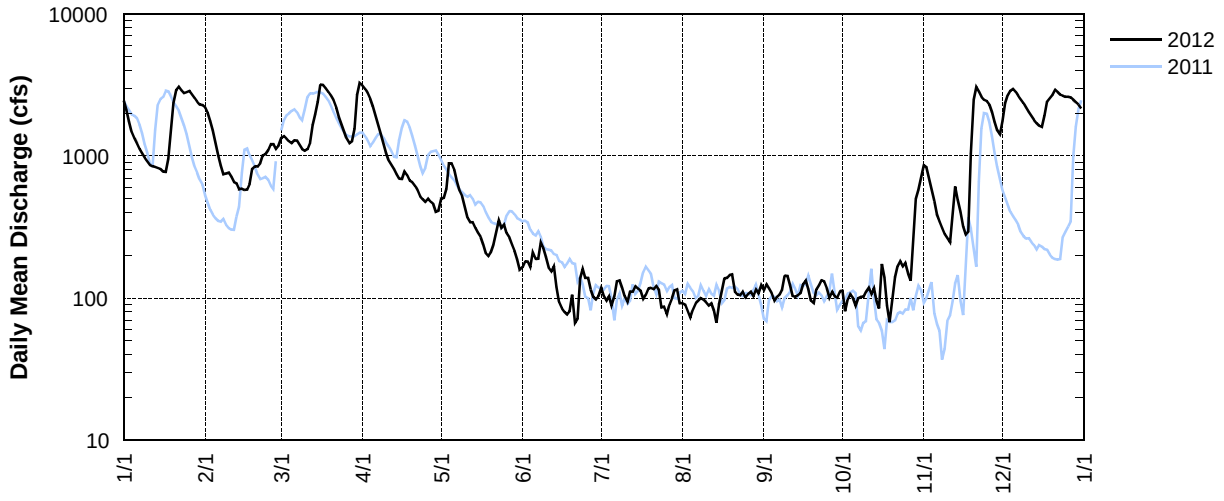
TRGC – 14204800 – TUALATIN RIVER AT GOLF COURSE ROAD NEAR CORNELIUS, OREGON [RM 51.5]

Latitude: 45 30 08 Longitude: 123 03 22 Source Agency: District 18 Watermaster

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	2450	2190	1340	3120	502	165	118	92	114	113	858	1770
2	2110	2010	1380	2960	507	182	103	90	125	81	831	2350
3	1750	1760	1330	2770	585	181	96	81	117	98	701	2670
4	1480	1510	1270	2530	887	165	103	73	109	107	593	2880
5	1330	1220	1230	2240	886	210	89	83	96	101	480	2970
6	1220	1010	1290	1900	795	188	103	92	102	89	389	2830
7	1120	855	1280	1640	661	189	132	96	106	100	345	2650
8	1040	745	1200	1430	572	246	134	100	115	102	311	2500
9	975	752	1120	1230	523	224	119	98	144	102	282	2360
10	921	763	1090	1060	446	195	103	94	143	111	262	2200
11	865	714	1120	924	368	164	94	89	123	119	247	2030
12	848	655	1240	864	342	155	111	92	104	107	375	1910
13	837	642	1640	808	341	168	111	82	102	118	610	1790
14	826	584	1960	743	313	120	121	67	105	96	491	1700
15	810	590	2400	690	289	94	117	90	109	85	401	1630
16	775	577	3170	689	269	85	113	113	126	174	320	1600
17	770	579	3150	778	239	80	99	138	133	140	281	1920
18	953	635	3000	737	208	77	106	139	116	89	294	2410
19	1480	812	2830	672	198	81	117	145	96	68	1040	2540
20	2350	847	2660	657	211	106	118	147	92	96	2480	2670
21	2920	841	2470	618	238	67	116	111	115	140	3040	2920
22	3070	886	2180	574	293	72	122	106	123	168	2830	2810
23	2910	1010	1880	521	353	137	115	105	134	182	2610	2700
24	2770	1030	1670	497	313	160	86	111	132	167	2480	2660
25	2810	1100	1490	475	330	139	87	101	117	177	2430	2610
26	2870	1210	1330	502	287	139	77	107	101	149	2300	2600
27	2710	1210	1230	475	266	115	90	111	111	133	2040	2580
28	2560	1120	1270	458	238	102	100	103	103	246	1740	2490
29	2410	1180	1550	406	214	98	114	115	101	500	1520	2390
30	2300	—	2690	411	187	103	116	108	112	577	1420	2300
31	2280	—	3250	—	159	—	92	123	—	717	—	2160
TOTAL	54520	29037	56710	33379	12020	4207	3322	3202	3426	5252	34001	73600
MEAN	1758.7	1001.3	1829.4	1112.6	387.7	140.2	107.2	103.3	114.2	169.4	1133.4	2374.2
MAX	3070	2190	3250	3120	887	246	134	147	144	717	3040	2970
MIN	770	577	1090	406	159	67	77	67	92	68	247	1600
AC-FT	108150	57600	112500	66210	23840	8350	6590	6350	6800	10420	67450	146000

† Provisional data–subject to revision; e=estimated value

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



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

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

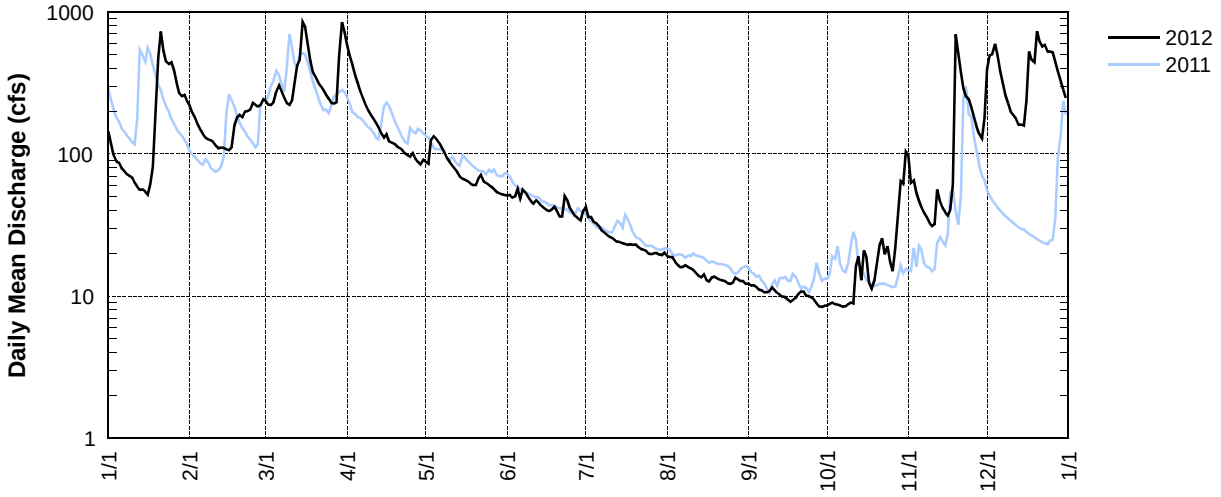
LATITUDE: 454051 LONGITUDE: 1230412 DRAINAGE AREA: 32.92 DATUM: 290

Discharge, Cubic Feet per Second, Calendar Year January to December 2012 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	144	218	235	586	88	51	43	19	12	8.6	98	395
2	118	195	222	494	85	52	36	19	12	8.9	63	494
3	99	178	221	428	125	49	36	19	12	9.0	65	503
4	89	161	231	360	133	50	33	17	12	8.8	54	594
5	87	148	276	318	127	57	33	17	11	8.7	47	492
6	79	139	303	276	120	48	31	16	11	8.6	42	384
7	77	131	275	248	112	56	29	16	11	8.5	38	314
8	72	127	250	223	104	54	28	16	11	8.4	36	261
9	70	125	229	202	95	50	27	16	11	8.8	33	226
10	69	121	221	188	88	47	26	16	11	9.0	31	198
11	63	114	238	177	83	45	26	15	11	8.9	32	188
12	59	110	310	165	79	47	25	15	11	16	56	177
13	56	111	423	154	75	46	24	14	10	19	46	160
14	56	110	460	140	70	43	24	14	9.9	13	42	161
15	55	108	e1100	131	67	42	24	14	9.8	21	39	158
16	52	106	780	138	66	41	23	13	9.4	19	37	234
17	61	111	595	123	64	40	23	13	9.2	12	41	525
18	81	158	454	120	62	40	23	13	9.4	11	60	459
19	228	180	375	118	60	43	23	14	9.7	13	686	438
20	475	188	344	113	60	39	23	13	10	17	519	729
21	730	181	317	110	68	36	22	13	11	23	380	618
22	534	197	299	106	71	36	21	13	11	26	289	569
23	447	200	280	102	65	50	21	13	10	20	253	584
24	428	205	260	98	63	47	21	12	10	22	243	526
25	443	229	243	95	60	41	20	12	9.8	17	212	523
26	391	222	228	101	59	39	20	12	9.5	15	183	519
27	320	216	226	93	56	37	20	14	8.9	22	156	448
28	269	220	231	88	54	35	20	13	8.5	35	138	383
29	254	242	478	84	53	34	20	13	8.4	64	128	327
30	261	—	e950	91	52	40	19	13	8.5	61	177	283
31	234	—	721	—	51	—	20	12	—	103	—	247
TOTAL	6401	4751	11775	5670	2415	1335	784	449	309.0	645.2	4224	12117
MEAN	206	164	380	189	77.9	44.5	25.3	14.5	10.3	20.8	141	391
MAX	730	242	1100	586	133	57	43	19	12	103	686	729
MIN	52	106	221	84	51	34	19	12	8.4	8.4	31	158
AC-FT	12700	9420	23360	11250	4790	2650	1560	891	613	1280	8380	24030

e=estimated value

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



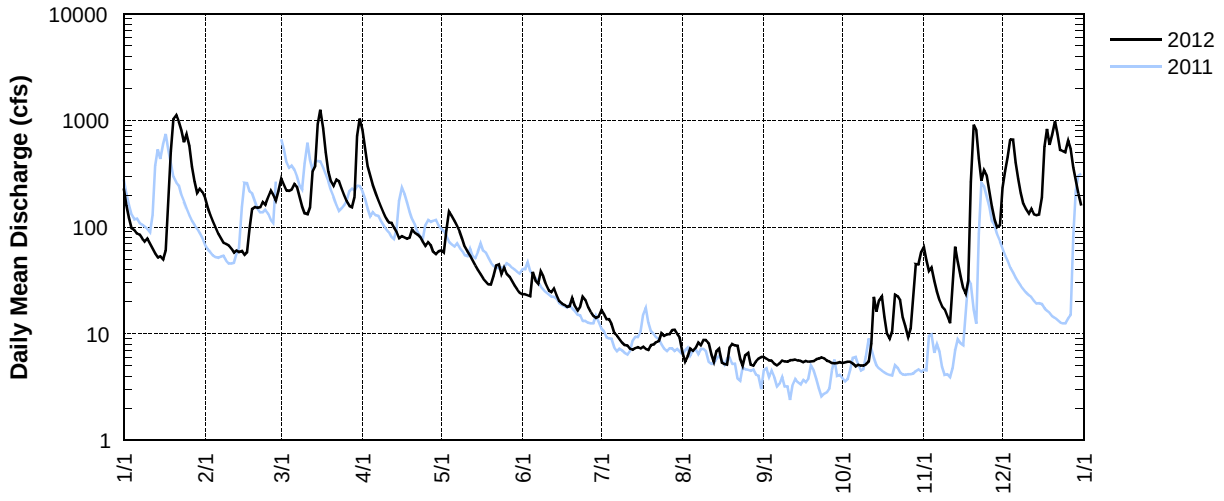
MCSC – 14206070 – MCKAY CREEK AT SCOTCH CHURCH RD ABOVE WAIBLE CREEK NEAR NORTH PLAINS, OREGON [RM 6.3]

Latitude: 45 57 21 Longitude: 122 99 18 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	230	187	284	810	60	23	17	6.6	6.1	e5.3	65	234
2	160	153	248	542	58	24	15	5.5	5.8	e5.4	49	335
3	122	130	219	372	93	23	14	6.1	5.6	e5.4	39	455
4	98	113	218	303	139	22	14	7.2	5.6	e5.4	42	663
5	94	98	224	248	127	38	12	6.9	5.2	e5.3	31	658
6	87	87	254	210	114	31	10	7.4	e5.1	e5.0	25	403
7	85	79	238	179	103	29	9.6	8.3	e5.3	e5.1	21	283
8	78	71	193	156	92	38	8.9	7.8	e5.6	e5.0	18	208
9	73	70	157	136	78	34	8.3	8.7	e5.5	e5.0	17	164
10	78	68	135	121	65	29	7.8	8.8	e5.5	e5.1	14	147
11	69	63	132	110	59	25	7.8	8.1	e5.7	e5.5	13	134
12	62	58	153	109	54	25	7.2	6.4	e5.7	e8.1	30	148
13	56	60	336	99	48	27	7.1	5.5	e5.7	e22	65	132
14	52	58	374	90	44	23	7.3	6.8	e5.6	e16	47	129
15	53	59	925	78	39	20	7.5	7.2	e5.6	e21	34	131
16	50	55	1260	82	36	19	7.3	5.4	e5.4	e23	27	190
17	60	58	848	80	33	19	7.5	5.2	e5.6	e14	24	567
18	196	97	503	78	31	18	7.2	5.1	e5.5	e9.9	31	836
19	513	148	332	80	29	18	7.0	7.4	e5.5	e8.9	264	590
20	1030	155	269	95	29	21	7.8	8.0	e5.5	e11	910	732
21	1120	151	244	88	34	18	7.9	7.8	e5.8	e23	809	978
22	973	153	279	85	44	17	8.4	7.7	e5.8	e22	439	740
23	807	172	271	80	45	18	8.6	5.8	e6.0	e21	273	529
24	622	162	230	72	37	22	10	5.0	e5.9	e14	339	519
25	742	193	200	66	42	21	9.6	6.3	e5.6	12e	299	504
26	573	219	175	72	36	18	9.8	6.6	e5.5	e9.3	216	644
27	368	199	158	68	34	16	9.8	5.1	e5.3	e11	155	541
28	269	176	153	58	31	15	11	5.0	e5.3	22	118	364
29	209	216	191	55	28	14	11	5.5	e5.3	45	100	276
30	229	—	718	59	26	14	9.9	5.9	e5.4	44	104	206
31	212	—	1040	—	24	—	9.2	6.0	—	59	—	159
TOTAL	9370	3508	10961	4681	1712	679	295.5	205.1	167	473.7	4618	12599
MEAN	302.4	120.9	353.7	156.1	55.2	22.7	9.5	6.6	5.6	15.3	154.0	406.4
MAX	1120	219	1260	810	139	38	17	8.8	6.1	59	910	978
MIN	50	55	132	55	24	14	7.0	5.0	5.1	5.0	13	129
AC-FT	18590	6958	21740	9285	3396	1347	586	407	331	940	9160	24990

e=estimated value

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



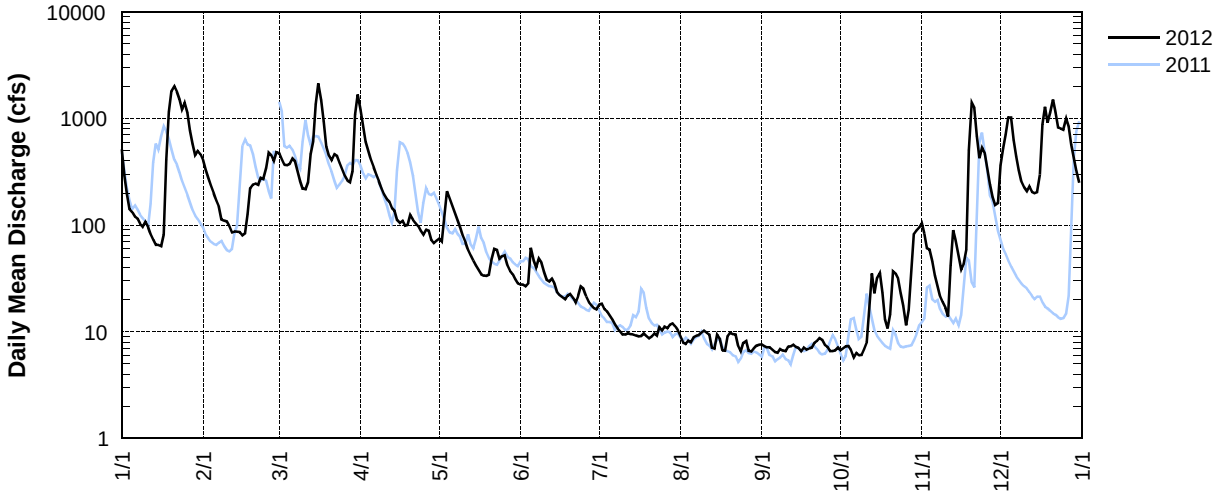
MCKP – 14206190 – MCKAY CREEK AT PADGETT ROAD NEAR HILLSBORO, OREGON [RM 1.31]

Latitude: 45 31 57 Longitude: 123 00 16 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e514	e406	e471	e1210	75	28	18	9.0	e7.6	6.7	104	e365
2	e292	e331	e413	e849	70	28	18	7.9	e7.3	7.0	83	e522
3	e195	e277	e366	e604	121	27	16	7.7	e7.1	7.3	61	e706
4	e141	e236	e363	e500	208	28	15	8.3	e7.1	7.3	59	e1020
5	e133	e199	e373	e413	180	61	14	8.0	e6.7	6.8	45	e1020
6	e120	e170	e422	e350	152	47	13	8.9	6.4	5.7	34	e627
7	e115	e149	e397	e298	131	40	12	9.2	6.4	6.3	27	e441
8	e103	e113	e322	e259	112	48	11	9.3	6.9	6.0	21	e325
9	97	110	e260	e222	96	45	10	9.8	6.7	6.1	19	e255
10	107	108	e220	e194	80	37	9.4	10	6.6	6.9	17	e228
11	96	97	e216	e175	69	31	9.4	9.7	7.2	8.0	14	e208
12	82	85	e253	e166	58	30	9.8	9.4	7.3	16	42	e230
13	73	87	e459	e144	52	31	9.5	7.1	7.6	35	89	e205
14	65	86	e607	e136	46	28	9.4	7.0	7.2	23	72	e199
15	65	86	e1360	e112	42	24	9.2	9.3	7.1	32	51	e203
16	63	80	e2140	105	38	22	9.1	8.5	6.6	36	38	e297
17	81	83	e1490	109	35	21	9.1	e6.7	7.1	23	43	e878
18	409	126	e939	99	33	20	9.6	e6.6	6.8	13	59	e1290
19	1150	221	e545	100	33	22	9.1	e9.1	7.0	11	503	e914
20	1810	241	e447	124	34	23	8.7	e9.8	7.1	14	e1400	e1130
21	e2010	246	e406	112	47	21	9.1	e9.5	7.9	37	e1250	e1500
22	e1780	238	e462	104	60	19	9.6	e9.4	8.2	35	e682	e1140
23	e1520	277	e449	98	59	22	9.2	e7.4	8.7	31	e425	e820
24	e1220	270	e384	88	48	26	11	e6.5	8.4	23	e528	e805
25	e1410	341	e334	81	51	26	10	e7.9	7.5	17	e466	e781
26	e1130	475	e291	91	52	21	11	e8.2	7.2	11	e337	e996
27	e769	450	e261	89	42	19	11	e6.6	6.6	16	e240	e838
28	e577	399	e253	73	37	18	12	e6.5	6.6	37	e183	e567
29	e454	478	e319	68	35	17	12	e7.0	6.7	83	e154	e430
30	e496	—	e1090	71	31	16	11	e7.4	7.1	89	e161	e321
31	e459	—	e1670	—	28	—	10	e7.6	—	95	—	e248
TOTAL	17536	6465	17982	7044	2155	846	345.2	255.3	214.7	751.1	7207	19509
MEAN	565.4	223.0	580.0	234.7	69.5	28.1	11.2	8.2	7.2	24.2	240.0	629.3
MAX	2010	478	2140	1210	208	61	18	10	8.7	95	1400	1500
MIN	63	80	216	68	28	16	8.7	6.5	6.4	5.7	14	199
AC-FT	34780	12820	35670	13970	4274	1678	685	506	426	1490	14290	38700

e=estimated value

MCKP — 14206190 — McKay Creek at Padgett Road near Hillsboro, Oregon [RM 1.31]



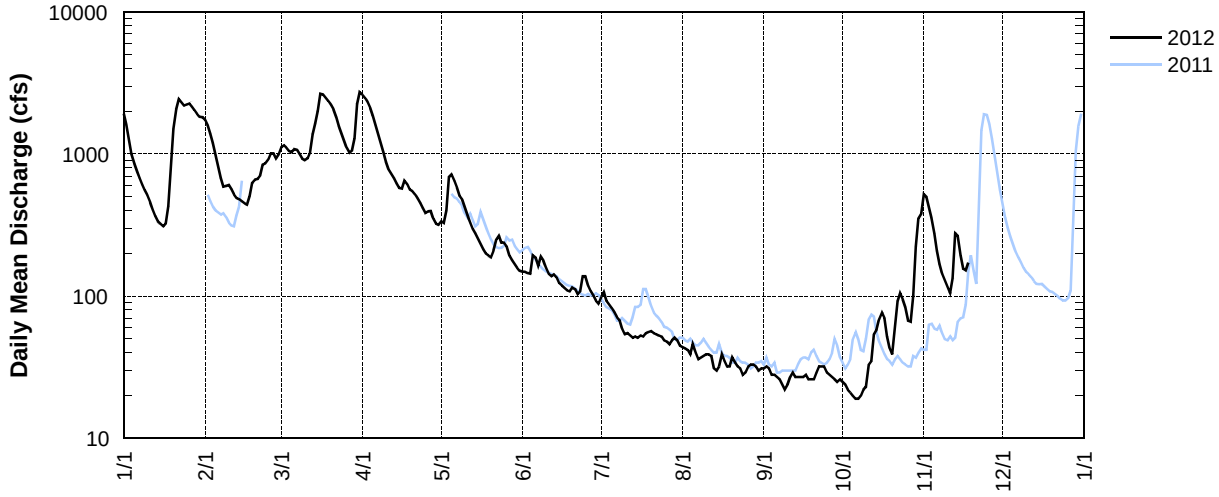
DAIRY – 14206200 – DAIRY CREEK AT HWY 8 NEAR HILLSBORO, OREGON [RM 2.06]

Latitude: 45 30 38 Longitude: 123 06 56 Source Agency: District 18 Watermaster

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV*†	DEC*†
1	e1920	e1740	e1120	e2600	337	148	99	44	31	25	e520	
2	e1600	e1590	e1150	e2470	327	148	107	43	32	24	e500	
3	e1250	e1390	e1110	e2310	e400	145	93	42	31	22	423	
4	e994	e1200	e1050	e2110	e689	144	88	39	28	21	354	
5	e856	e964	e1030	e1860	e716	193	83	46	28	20	277	
6	e763	e803	e1080	e1580	e647	186	77	40	27	19	208	
7	e677	e678	e1070	e1370	e579	164	71	36	26	19	168	
8	e612	e590	e1000	e1190	e510	189	68	37	24	20	144	
9	e557	e596	e929	e1030	481	178	59	38	22	22	130	
10	e515	e605	e904	e883	427	159	54	39	24	23	116	
11	e460	e566	e933	e769	373	143	55	39	27	33	105	
12	e405	e519	e1030	e720	329	138	53	38	29	35	134	
13	e365	491	e1370	e675	297	142	51	31	27	54	276	
14	e337	480	e1630	e621	276	136	52	30	27	58	265	
15	e322	464	e2000	e577	254	124	51	32	27	69	193	
16	e310	449	e2640	e572	232	119	53	39	27	77	156	
17	e325	441	e2620	e649	213	114	52	35	28	70	152	
18	e430	e504	e2490	e618	199	110	55	32	26	52	172	
19	e841	e625	e2360	e564	193	108	56	32	26	43		
20	e1500	e659	e2220	e551	188	115	57	37	26	39		
21	e2070	e665	e2060	e520	209	112	55	34	29	62		
22	e2430	e704	e1810	486	250	103	54	32	32	92		
23	e2310	e842	e1570	452	267	108	53	31	32	105		
24	e2190	e860	e1390	416	238	138	52	28	32	95		
25	e2230	e916	e1240	384	238	138	49	29	29	84		
26	e2270	e1010	e1110	395	224	118	48	32	28	67		
27	e2150	e1010	e1020	398	192	108	46	33	27	66		
28	e2030	e929	e1060	350	179	101	49	33	26	101		
29	e1910	e987	e1290	324	168	93	51	32	25	223		
30	e1820	—	e2240	318	158	89	49	30	26	353		
31	e1810	—	e2710	—	151	—	45	31	—	381	—	
TOTAL	38259	23277	47236	27762	9941	4011	1885	1094	829	2374		
MEAN	1234.2	802.7	1523.7	925.4	320.7	133.7	60.8	35.3	27.6	76.6		
MAX	2430	1740	2710	2600	716	193	107	46	32	381		
MIN	310	441	904	318	151	89	45	28	22	19		
AC-FT	75890	46170	93700	55070	19720	7960	3740	2170	1640	4710		

*Incomplete record (monthly totals were computed when at least 80% of the record was complete for the month);†provisional data–subject to revision e=estimated value

DAIRY — 14206200 — Dairy Creek at Hwy 8 near Hillsboro, Oregon [RM 2.06]



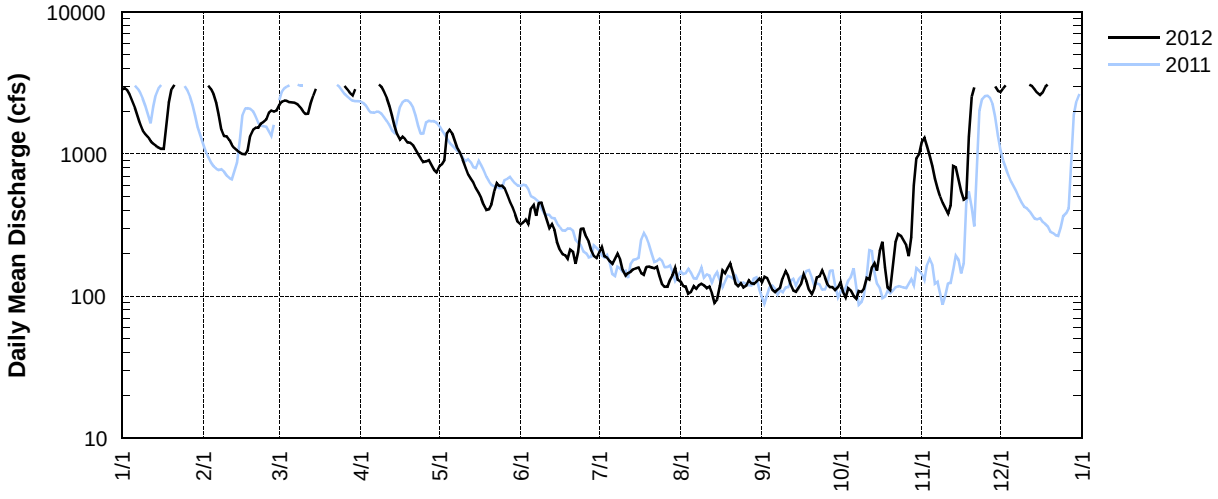
TRJB – 14206241 – TUALATIN RIVER AT HWY 219 BRIDGE [RM 44.4]

Latitude: 45 30 01 Longitude: 122 59 24 Source Agency: Jackson Bottom Wetland Education Center

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN*	FEB*	MAR*	APR*	MAY	JUN	JUL	AUG	SEP	OCT	NOV*	DEC*
1	2837		2219		818	320	205	127	125	126	1214	2723
2	2904		2341		844	330	222	118	137	107	1302	2885
3	2815	3033	2370		905	345	191	117	135	97	1135	3042
4	2616	2878	2355		1399	321	187	104	123	114	985	
5	2363	2619	2315		1480	413	177	107	111	110	822	
6	2108	2284	2300		1392	438	169	117	106	100	670	
7	1845	1871	2289		1234	367	184	113	111	96	573	
8	1626	1483	2241	3075	1091	453	199	119	115	109	502	
9	1462	1337	2141	2968	1015	454	182	122	135	107	453	
10	1385	1327	2007	2744	917	398	152	119	150	112	412	
11	1311	1255	1908	2469	801	344	140	114	139	135	379	
12	1230	1155	1921	2180	716	302	145	117	121	131	434	3080
13	1178	1097	2262	1870	669	321	148	105	110	159	822	3005
14	1142	1055	2575	1579	631	292	155	90	108	171	806	2859
15	1115	1024	2880	1376	575	240	157	94	115	151	656	2707
16	1088	1001		1262	531	211	159	118	122	208	544	2595
17	1083	992		1318	488	198	145	152	142	241	479	2698
18	1535	1056		1275	436	195	141	145	128	160	491	2945
19	2297	1343		1202	403	183	161	158	111	115	1320	3077
20	2847	1484		1198	408	213	161	169	103	111	2531	
21	3055	1525		1149	442	205	159	146	114	165	2939	
22		1530		1069	547	168	157	122	136	241		
23		1637		992	622	205	161	117	138	273		
24		1678		930	595	297	139	123	152	266		
25		1752		875	598	298	122	115	137	248		
26		1949	3010	887	573	261	116	119	121	228		
27		2021	2846	903	513	242	116	130	116	191		
28		1992	2674	838	459	209	130	123	116	259		
29		2018	2579	776	421	192	141	122	110	604	2986	
30		—	2854	743	377	186	158	126	116	933	2777	
31		—		—	333	—	131	133	—	1006	—	
TOTAL		44395			22232	8596	4911	3802	3701	7075		
MEAN		1644.3			717.2	286.5	158.4	122.6	123.4	228.2		
MAX		3033			1480	454	222	169	152	1006		
MIN		992			333	168	116	90	103	96		
AC-FT		88070			44100	17050	9740	7540	7340	14030		

*Incomplete record (monthly totals were computed when at least 80% of the record was complete for the month).

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



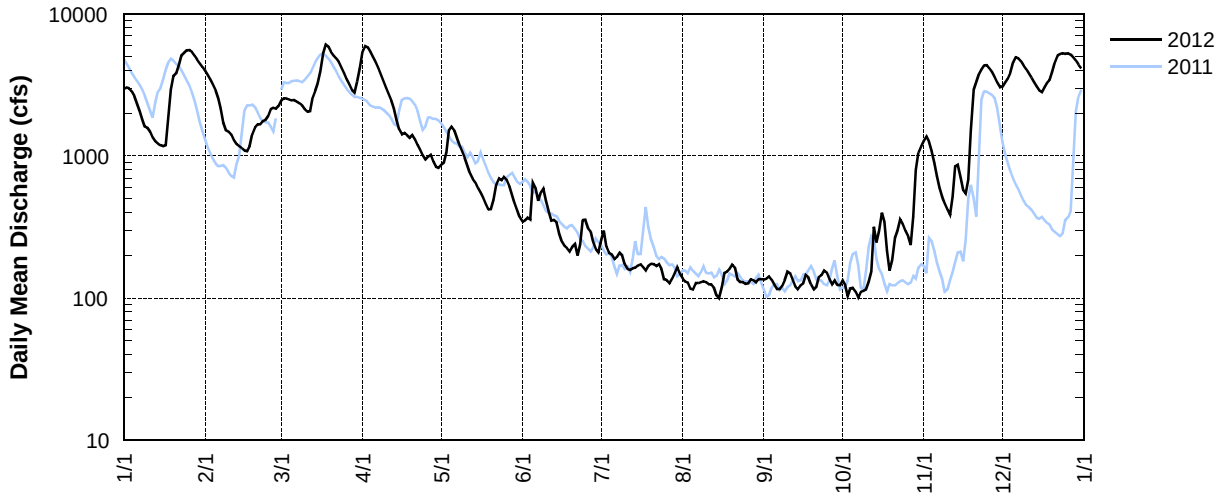
ROOD – 14206295 – TUALATIN RIVER AT ROOD BRIDGE ROAD NEAR HILLSBORO, OREGON [RM 38.4]

Latitude: 45 29 24 Longitude: 122 57 06 Source Agency: District 18 Watermaster

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	2960	3960	2460	5430	870	346	257	138	135	133	1280	3080
2	3030	3710	2540	5950	895	353	299	131	137	124	1370	3290
3	3000	3450	2540	5800	1060	367	230	129	142	104	1260	3500
4	2860	3180	2500	5400	1520	356	209	117	135	117	1090	3850
5	2630	2890	2460	4980	1610	645	203	115	124	118	891	4550
6	2350	2550	2470	4550	1510	590	188	128	116	111	721	4940
7	2080	2140	2410	4150	1340	483	195	128	116	101	598	4880
8	1820	1710	2350	3750	1190	553	209	130	122	111	521	4650
9	1620	1520	2260	3380	1080	590	200	132	134	113	463	4360
10	1580	1480	2130	3030	974	485	173	130	154	115	419	4100
11	1480	1410	2040	2700	848	405	160	125	150	131	385	3810
12	1350	1290	2060	2450	752	351	158	125	135	154	518	3560
13	1270	1210	2580	2150	692	355	162	119	121	318	844	3300
14	1220	1170	2870	1790	654	341	164	105	116	247	867	3090
15	1190	1130	3250	1540	599	287	170	100	123	295	706	2900
16	1170	1090	3930	1420	549	249	173	120	127	399	578	2810
17	1190	1080	5260	1450	507	233	165	151	145	343	545	3050
18	1880	1170	6050	1400	458	225	157	154	140	215	685	3280
19	2940	1420	5880	1340	420	213	169	161	125	156	1520	3420
20	3650	1590	5420	1400	422	229	174	172	115	184	2930	3900
21	3820	1670	5100	1300	489	240	173	164	120	267	3330	4610
22	4360	1670	4860	1190	633	199	168	135	141	300	3770	5110
23	5080	1760	4550	1100	695	238	173	130	145	356	4070	5220
24	5300	1790	4180	1010	672	354	160	130	156	331	4330	5260
25	5530	1920	3820	942	714	357	136	126	151	298	4340	5220
26	5560	2140	3470	986	679	309	134	127	136	272	4130	5260
27	5390	2180	3170	1020	610	294	128	136	125	236	3890	5150
28	5080	2150	2900	916	533	246	137	134	133	375	3600	4950
29	4740	2240	2790	841	465	221	150	129	124	800	3290	4690
30	4480	—	3330	823	416	210	165	136	123	1060	3040	4400
31	4210	—	4090	—	371	—	149	136	—	1180	—	4130
TOTAL	94820	56670	105720	74188	24227	10324	5488	4093	3966	9064	55981	128320
MEAN	3058.7	1954.1	3410.3	2472.9	781.5	344.1	177.0	132.0	132.2	292.4	1866.0	4139.4
MAX	5560	3960	6050	5950	1610	645	299	172	156	1180	4340	5260
MIN	1170	1080	2040	823	371	199	128	100	115	101	385	2810
AC-FT	188090	112420	209720	147170	48060	20480	10890	8120	7870	17980	111050	254550

† Provisional data–subject to revision

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



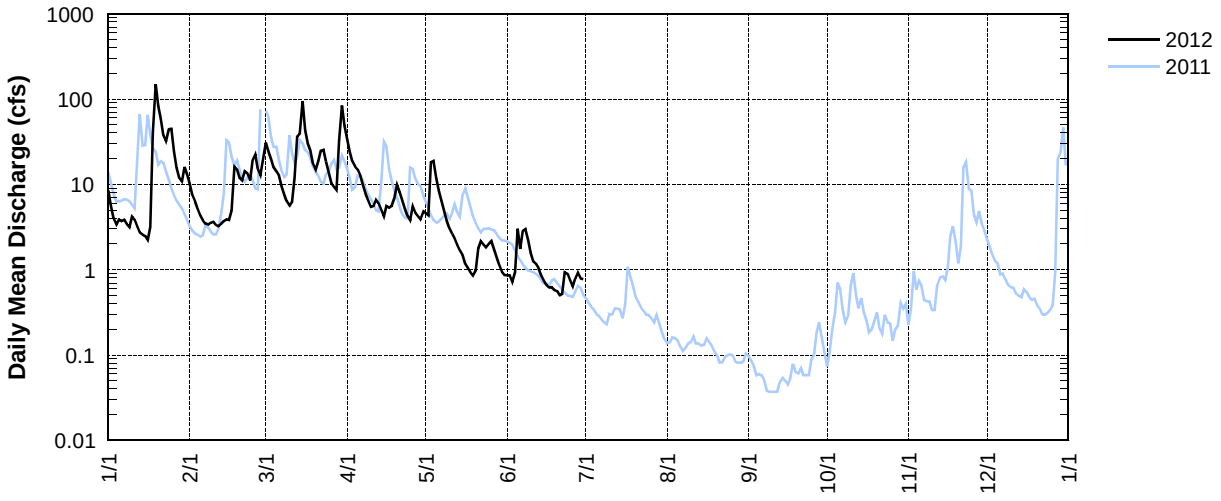
RCRR – 14206310 – ROCK CREEK NEAR BOWERS JUNCTION, OREGON [RM 15.3]

Latitude: 45 37 04 Longitude: 12 53 13 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL*	AUG*	SEP*	OCT*	NOV*	DEC*
1	8.5	10	31	34	4.6	0.86						
2	5.6	7.6	24	24	4.3	0.86						
3	4.0	6.3	20	19	18	0.72						
4	3.4	5.1	16	16	19	0.94						
5	3.9	4.3	14	15	12	3.0						
6	3.7	3.8	13	13	8.3	1.8						
7	3.9	3.5	9.5	10.0	6.3	2.9						
8	3.5	3.4	7.7	8.0	4.9	3.0						
9	3.2	3.6	6.4	6.4	3.8	2.2						
10	4.2	3.7	5.6	5.5	3.0	1.6						
11	3.8	3.4	6.2	5.6	2.6	1.2						
12	3.2	3.2	12	6.7	2.3	1.2						
13	2.7	3.5	36	6.0	1.9	1.0						
14	2.6	3.7	39	5.0	1.7	0.84						
15	2.5	3.9	95	4.2	1.5	0.73						
16	2.2	3.8	43	5.6	1.2	0.66						
17	3.1	4.9	30	5.4	1.0	0.62						
18	40	16	25	5.6	0.94	0.62						
19	e150	15	18	7.0	0.86	0.58						
20	83	12	15	9.9	0.99	0.56						
21	58	11	19	8.1	1.8	0.50						
22	37	14	25	6.5	2.2	0.52						
23	32	14	26	5.3	2.0	0.93						
24	44	11	19	4.2	1.8	0.89						
25	45	19	14	3.8	2.0	0.75						
26	25	23	10	5.5	2.2	0.63						
27	16	15	9.4	4.6	1.8	0.79						
28	12	13	8.6	4.3	1.4	0.93						
29	11	21	32	3.9	1.1	0.78						
30	16	—	84	4.8	0.94	0.77						
31	13	—	48	—	0.87	—			—		—	
TOTAL	646	261.7	761.4	262.9	117.3	33.38						
MEAN	20.8	9.0	24.6	8.8	3.8	1.1						
MAX	150	23	95	34	19	3.0						
MIN	2.2	3.2	5.6	3.8	0.86	0.50						
AC-FT	1281	519	1510	521	233	66						

*station discontinued 6/30/2012; e=estimated value

RCRR — 14206310 — Rock Creek near Bowers Junction, Oregon [RM 15.3]



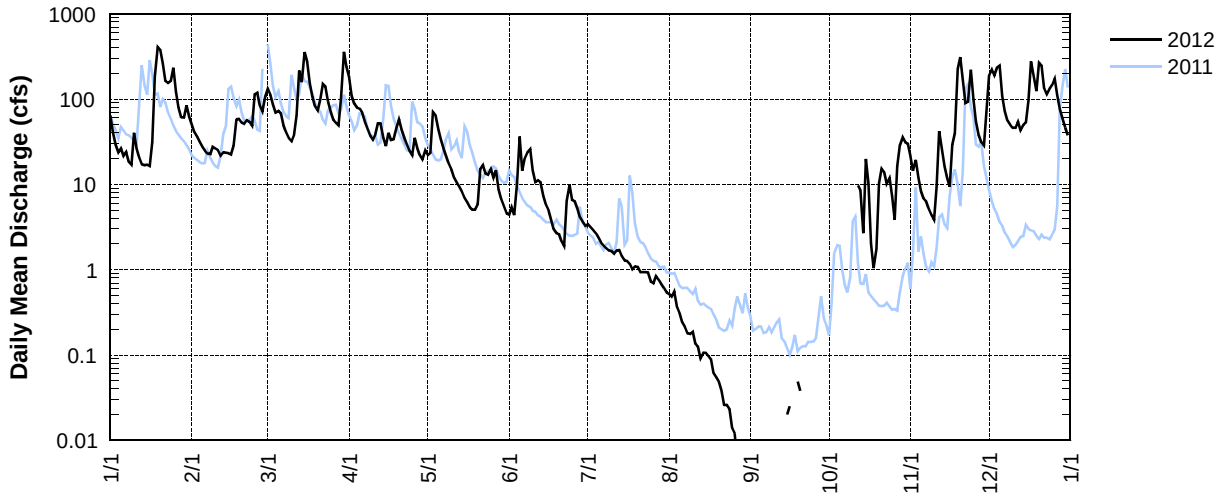
RCBL – 14206340 – ROCK CREEK BELOW BETHANY LAKE [RM 8.9]

Latitude: 45 33 21 Longitude: 122 52 25 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	64	51	132	181	22	4.4	3.4	0.52	e0.00	e0.00	22	e191
2	41	41	112	109	24	5.4	3.2	0.49	e0.00	e0.00	14	e223
3	30	36	86	89	71	4.4	2.9	0.56	e0.00	e0.00	19	190
4	24	31	70	79	65	10	2.7	0.36	e0.00	e0.00	12	235
5	26	28	73	77	44	36	2.4	0.31	e0.00	e0.00	8.4	247
6	22	25	68	69	33	14	2.1	0.24	e0.00	e0.00	6.9	109
7	24	23	49	54	26	21	1.9	0.21	e0.00	e0.00	6.3	72
8	18	23	41	45	22	24	1.8	0.18	e0.00	e0.00	5.1	56
9	17	28	35	37	18	26	1.7	0.18	e0.00	e0.00	4.4	50
10	40	26	32	34	15	14	1.7	0.19	e0.00	e0.00	3.8	46
11	26	25	38	39	12	11	1.5	0.14	e0.00	e0.00	9.4	46
12	21	22	65	52	10	11	1.7	0.13	e0.00	e9.7	42	55
13	17	24	216	52	9.4	11	1.7	0.09	e0.00	8.5	26	43
14	17	23	158	35	8.3	7.3	1.4	0.11	e0.00	2.7	16	50
15	17	23	355	28	6.9	5.8	1.3	0.11	e0.02	20	12	53
16	17	23	275	40	6.1	5.0	1.3	0.10	e0.03	10	9.4	96
17	31	28	155	33	5.4	3.8	1.2	0.09	e0.00	2.0	29	278
18	184	58	108	34	5.1	3.0	1.0	0.06	e0.00	1.0	40	192
19	e410	58	82	46	5.0	2.7	1.1	0.05	e0.05	1.8	226	124
20	378	53	73	58	5.9	2.6	1.1	0.05	e0.04	10	310	267
21	261	51	99	44	15	2.1	0.93	0.04	e0.00	15	176	247
22	162	56	150	36	17	1.9	0.93	0.03	e0.00	14	90	133
23	154	54	140	30	14	6.4	0.94	0.03	e0.00	10	94	114
24	164	49	94	24	13	9.8	0.93	0.02	e0.00	12	221	133
25	233	114	70	22	15	6.6	0.73	0.01	e0.00	7.3	101	147
26	122	119	57	35	12	6.3	0.70	0.01	e0.00	3.8	54	175
27	79	83	53	27	15	5.2	0.84	e0.01	e0.00	16	39	111
28	61	71	49	22	8.8	4.1	0.76	e0.00	e0.00	29	32	76
29	61	107	105	20	6.8	3.6	0.68	e0.00	e0.00	36	e29	58
30	84	—	358	25	5.5	3.3	0.61	e0.00	e0.00	31	e69	47
31	63	—	238	—	4.6	—	0.54	e0.00	—	30	—	38
TOTAL	2868	1353	3636	1476	540.8	271.7	45.69	4.32	0.14	269.8	1726.7	3902
MEAN	92.5	46.8	117.4	49.2	17.4	9.1	1.5	0.14	0.004	8.7	57.5	125.8
MAX	410	119	358	181	71	36	3.4	0.56	0.05	36	310	278
MIN	17	22	32	20	4.6	1.9	0.54	0.00	0.00	0.00	3.8	38
AC-FT	5689	2684	7212	2928	1073	539	91	8.6	0.3	535	3425	7740

e=estimated value

RCBL— 14206340 — Rock Creek below Bethany Lake [RM 8.9]



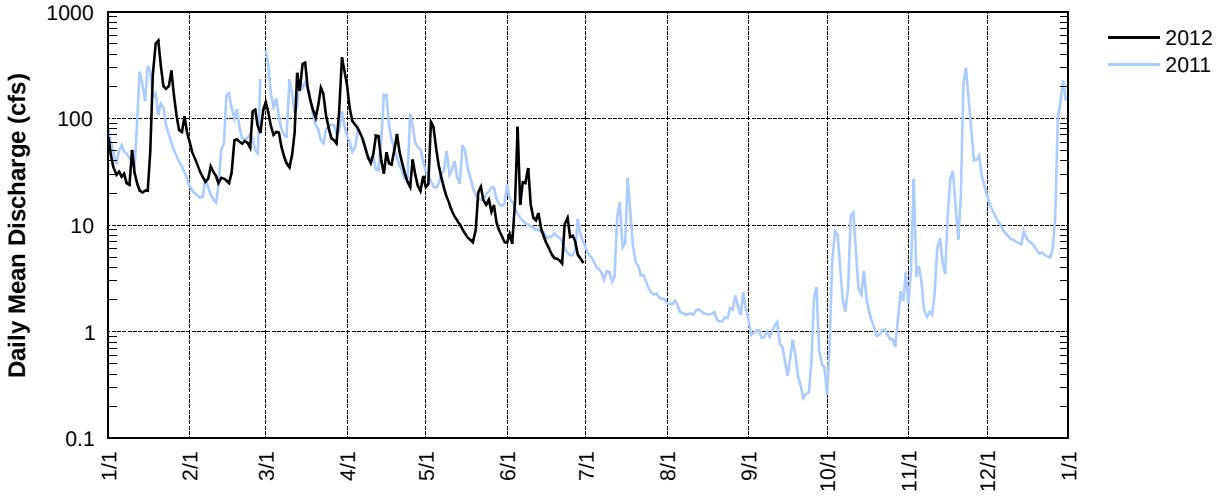
RCQR – 14206347 – ROCK CREEK AT QUATAMA ROAD NEAR ORENCO, OREGON [RM 4.9]

Latitude: 45 31 25 Longitude: 122 54 34 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL*	AUG*	SEP*	OCT*	NOV*	DEC*
1	67	60	142	e204	23	6.9						
2	45	48	114	e125	24	8.2						
3	34	41	85	e95	92	6.7						
4	30	36	70	e87	82	17						
5	32	31	75	e80	51	83						
6	28	28	73	e72	35	16						
7	30	25	54	e63	28	25						
8	25	27	44	53	22	25						
9	24	35	38	42	18	34						
10	51	31	35	38	16	15						
11	31	29	45	46	13	12						
12	25	25	73	69	12	11						
13	21	28	268	68	11	13						
14	20	27	182	40	10	9.1						
15	21	26	325	30	9.0	7.8						
16	21	25	334	48	8.2	6.7						
17	49	31	193	38	7.6	6.0						
18	259	63	149	37	7.3	5.3						
19	505	64	121	51	6.9	4.9						
20	538	60	102	72	8.9	4.8						
21	312	58	133	48	20	4.7						
22	200	62	194	38	23	4.4						
23	190	59	169	31	17	10						
24	200	53	108	25	15	12						
25	282	117	80	23	17	7.8						
26	164	121	65	41	13	8.0						
27	107	84	63	30	15	7.0						
28	78	73	58	23	11	5.3						
29	75	120	114	21	8.9	4.8						
30	105	—	372	29	7.8	4.4						
31	74	—	e273	—	6.9	—			—		—	
TOTAL	3643	1487	4151	1667	639.5	385.8						
MEAN	117.5	51.3	133.8	55.6	20.7	12.9						
MAX	538	121	372	204	92	83						
MIN	20	25	35	21	6.9	4.4						
AC-FT	7226	2949	8233	3306	1268	765						

*station discontinued 6/30/2012; e=estimated value

RCQR — 14206347 — Rock Creek at Quatama Road near Orenco, Oregon [RM 4.9]



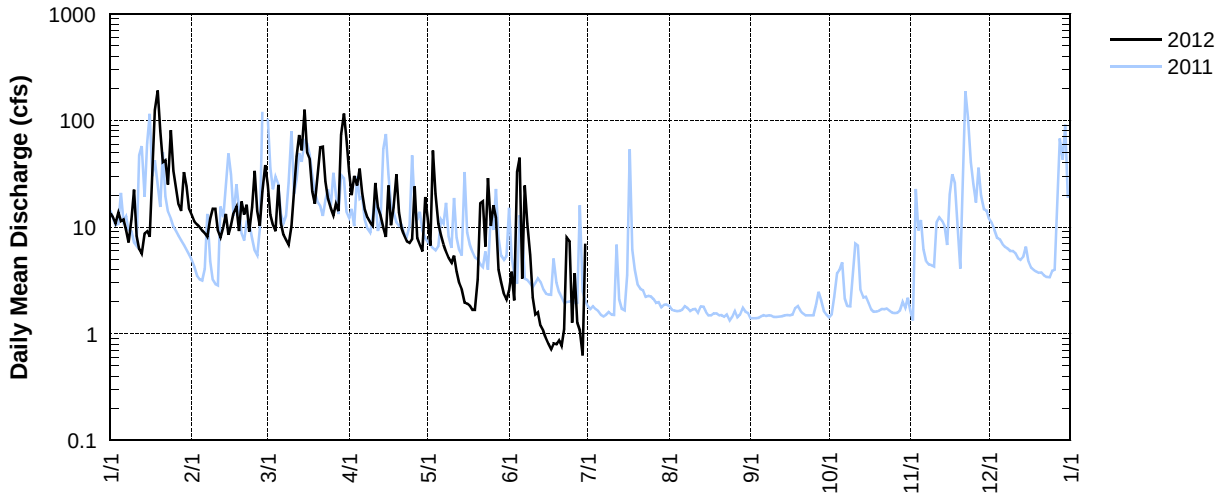
BCCH – 14206360 – BEAVERTON CREEK AT CEDAR HILLS BLVD AT BEAVERTON, OREGON [RM 7.45]

Latitude: 45 49 31 Longitude: 122 81 05 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL*	AUG*	SEP*	OCT*	NOV*	DEC*
1	13	13	25	33	12	2.5						
2	12	11	13	20	6.7	3.8						
3	11	11	10	30	52	2.0						
4	14	10	9.2	25	21	33						
5	11	9.3	25	35	11	45						
6	12	8.8	11	21	8.4	3.3						
7	9.4	8.1	8.4	15	6.9	25						
8	7.2	12	7.5	12	5.8	11						
9	12	15	6.8	11	5.1	5.5						
10	23	15	10	10	4.6	2.2						
11	8.3	9.2	23	26	5.4	1.5						
12	6.2	7.9	46	15	3.8	1.6						
13	5.6	10.0	73	13	3.0	1.2						
14	8.7	13	53	9.9	2.6	1.1						
15	9.1	8.5	126	8.1	2.0	0.90						
16	8.1	10	50	25	1.9	0.80						
17	35	14	43	10	1.8	0.71						
18	125	16	22	15	1.7	0.81						
19	191	9.2	17	31	1.7	0.80						
20	80	17	32	14	3.2	0.87						
21	41	13	56	9.8	17	0.77						
22	42	16	57	8.4	17	1.1						
23	25	9.0	27	7.4	6.6	8.0						
24	81	15	18	7.1	29	7.4						
25	34	34	15	7.8	10	1.3						
26	23	14	13	24	16	3.7						
27	16	10	16	7.9	12	1.3						
28	14	22	14	6.8	4.0	1.1						
29	33	38	74	5.9	3.0	0.63						
30	24	—	116	19	2.4	7.0						
31	15	—	67	—	2.1	—			—		—	
TOTAL	949.6	399	1083.9	483.1	279.7	175.89						
MEAN	30.7	13.8	34.9	16.1	9.0	5.8						
MAX	191	38	126	35	52	45						
MIN	5.6	7.9	6.8	5.9	1.7	0.63						
AC-FT	1884	791	2150	958	555	349						

*station discontinued 6/30/2012; e=estimated value

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



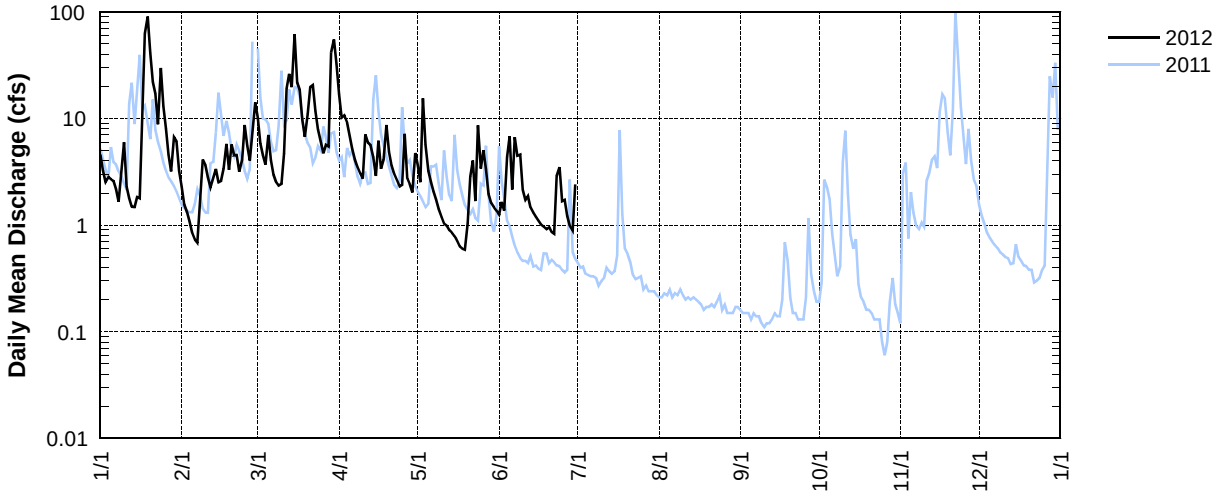
JCDV – 14206372 – JOHNSON CREEK AT DAVIS ROAD NEAR BEAVERTON, OREGON [RM 1.3]

Latitude:45 28 30 Longitude:122 49 52 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL*	AUG*	SEP*	OCT*	NOV*	DEC*
1	4.6	2.3	10	17	3.6	1.3						
2	3.3	1.6	5.8	10	2.5	1.6						
3	2.5	1.3	4.5	11	15	1.4						
4	2.8	1.1	3.7	9.1	5.7	4.3						
5	2.7	0.84	7.0	6.9	3.2	6.8						
6	2.6	0.73	4.1	5.2	2.5	2.2						
7	2.2	0.68	3.0	4.2	2.1	6.7						
8	1.6	1.7	2.5	3.5	1.7	4.5						
9	3.1	4.1	2.3	3.0	1.4	4.6						
10	6.0	3.7	2.4	2.7	1.2	2.1						
11	2.3	2.8	4.7	7.0	1.0	1.7						
12	1.8	2.3	19	6.0	0.99	1.9						
13	1.5	2.8	26	5.6	0.90	1.5						
14	1.5	3.3	20	4.3	0.85	1.3						
15	1.8	2.5	61	2.9	0.78	1.2						
16	1.8	2.6	22	6.2	0.71	1.1						
17	10	3.4	19	3.4	0.63	1.0						
18	63	5.8	9.8	4.1	0.60	0.96						
19	90	3.3	6.7	8.7	0.59	0.91						
20	41	5.7	11	4.9	1.0	0.95						
21	22	4.5	20	3.6	2.9	0.86						
22	17	4.6	21	3.0	4.0	0.82						
23	8.8	3.2	12	2.7	1.7	2.9						
24	30	4.1	7.9	2.3	8.6	3.5						
25	13	8.7	6.0	2.4	3.4	1.7						
26	8.1	5.6	4.7	7.1	5.0	1.7						
27	4.6	4.0	5.7	2.7	3.3	1.2						
28	3.2	7.5	5.5	2.4	2.0	0.98						
29	6.6	14	41	2.0	1.6	0.88						
30	6.1	—	55	4.7	1.5	2.4						
31	3.2	—	32	—	1.4	—			—		—	
TOTAL	368.7	108.75	455.3	158.6	82.35	64.96						
MEAN	11.9	3.7	14.7	5.3	2.7	2.2						
MAX	90	14	61	17	15	6.8						
MIN	1.5	0.68	2.3	2.0	0.59	0.82						
AC-FT	731	216	903	315	163	129						

*station discontinued 6/30/2012; e=estimated value

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



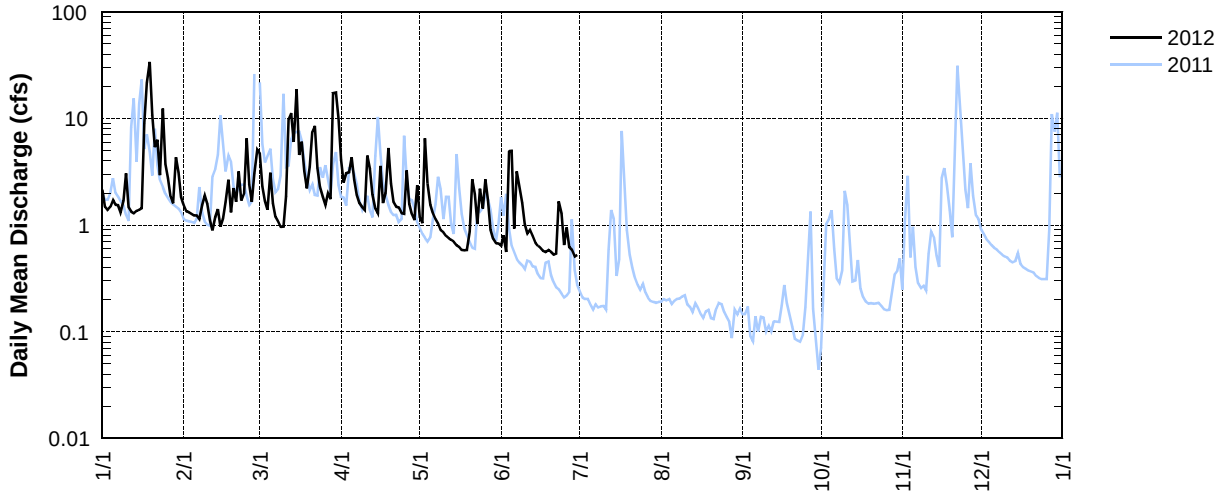
WC143 – 14206410 – WILLOW CREEK AT NW 143RD AVE NEAR BEAVERTON, OREGON [RM 3.5]

Latitude: 45 32 12 Longitude: 122 49 24 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL*	AUG*	SEP*	OCT*	NOV*	DEC*
1	2.2	1.5	4.7	4.1	1.2	0.64						
2	e1.5	1.3	2.3	2.5	1.0	0.80						
3	e1.4	1.3	1.7	3.1	6.5	0.56						
4	e1.5	1.3	1.4	3.1	2.5	4.9						
5	e1.7	1.2	3.1	4.3	1.5	5.0						
6	e1.5	1.2	1.6	2.7	1.3	0.93						
7	e1.5	1.1	1.2	1.9	1.1	3.2						
8	e1.3	1.6	1.1	1.6	1.0	2.3						
9	e1.7	1.9	0.96	1.5	0.90	1.6						
10	e3.1	1.6	0.97	1.4	0.85	1.0						
11	e1.5	1.1	1.9	4.5	0.79	0.84						
12	e1.3	0.89	9.9	3.4	0.75	0.90						
13	e1.3	1.2	11	1.9	0.72	0.80						
14	e1.4	1.4	6.0	1.4	0.70	0.68						
15	e1.4	0.97	19	1.3	0.65	0.64						
16	e1.4	1.2	4.5	3.6	0.62	0.61						
17	9.0	1.6	6.1	1.6	0.58	0.58						
18	22	2.7	3.2	2.0	0.58	0.56						
19	34	1.3	2.2	5.3	0.58	0.58						
20	11	2.2	3.5	2.5	0.87	0.56						
21	5.4	1.7	7.5	1.6	2.7	0.53						
22	6.3	3.2	8.5	1.5	2.0	0.54						
23	2.9	1.7	3.4	1.5	1.0	1.7						
24	12	2.0	2.3	1.3	2.2	1.3						
25	3.8	6.5	1.8	1.3	1.4	0.65						
26	2.8	2.4	1.5	3.3	2.7	0.95						
27	1.8	1.7	2.0	1.6	1.7	0.62						
28	1.6	3.1	1.8	1.3	0.90	0.59						
29	4.3	5.1	17	1.1	0.74	0.51						
30	3.1	—	17	2.4	0.68	0.53						
31	1.8	—	10	—	0.67	—			—		—	
TOTAL	147.5	55.96	159.13	70.6	41.38	35.6						
MEAN	4.8	1.9	5.2	2.3	1.3	1.2						
MAX	34	6.5	19	5.3	6.5	5.0						
MIN	1.3	0.89	0.96	1.1	0.58	0.51						
AC-FT	293	111	316	140	82	71						

*station discontinued 6/30/2012; e=estimated value

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



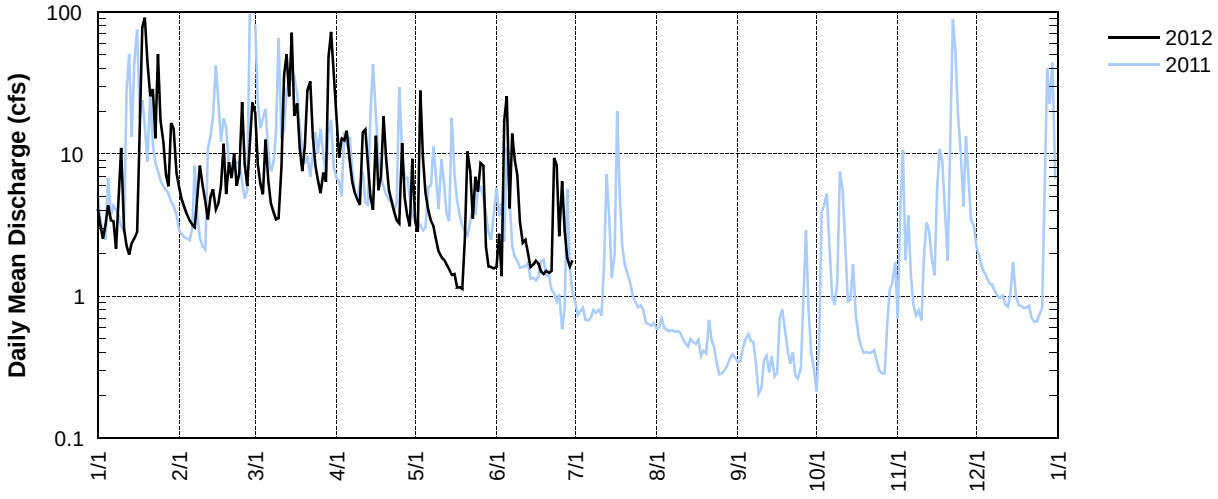
WCHP – 14206413 – WILLOW CREEK AT HERITAGE PARKWAY NEAR BEAVERTON, OREGON [RM 0.75]

Latitude: 45 31 12 Longitude: 122 51 35 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL*	AUG*	SEP*	OCT*	NOV*	DEC*
1	4.1	5.8	20	17	3.3	1.6						
2	3.1	4.8	8.5	9.4	2.8	2.8						
3	2.5	4.2	6.2	13	28	1.4						
4	3.2	3.8	5.2	12	9.5	17						
5	4.4	3.4	13	15	5.3	25						
6	3.4	3.2	6.4	9.0	4.0	4.1						
7	3.4	3.0	4.5	6.4	3.4	14						
8	2.2	5.2	3.9	5.3	3.1	9.1						
9	4.3	8.3	3.5	4.8	2.5	7.1						
10	11	6.0	3.6	4.4	2.1	3.4						
11	3.0	4.6	8.2	14	1.9	2.4						
12	2.3	3.5	36	15	1.8	2.5						
13	2.0	5.0	50	8.4	1.7	2.0						
14	2.4	5.7	25	5.0	1.5	1.6						
15	2.6	4.1	71	4.1	1.4	1.7						
16	2.8	4.5	19	13	1.4	1.8						
17	16	6.0	23	5.5	1.1	1.7						
18	78	12	11	6.9	1.2	1.5						
19	91	5.2	7.6	18	1.1	1.4						
20	45	8.8	11	9.3	2.5	1.5						
21	26	6.8	28	5.5	10	1.4						
22	29	10	32	4.7	7.5	1.5						
23	13	6.0	13	3.9	3.5	9.4						
24	50	7.3	8.3	3.4	6.9	8.3						
25	17	23	6.5	3.2	5.5	2.6						
26	12	8.5	5.3	12	8.6	6.4						
27	7.2	6.0	7.4	4.9	8.2	2.9						
28	5.9	12	6.4	3.7	2.2	1.8						
29	17	23	48	3.1	1.6	1.6						
30	15	—	72	9.2	1.6	1.8						
31	7.4	—	40	—	1.6	—			—		—	
TOTAL	486.2	209.7	603.5	249.1	136.8	141.3						
MEAN	15.6	7.2	19.5	8.3	4.4	4.7						
MAX	91	23	72	18	28	25						
MIN	2.0	3.0	3.5	3.1	1.1	1.4						
AC-FT	964	416	1197	494	271	280						

*station discontinued 6/30/2012

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

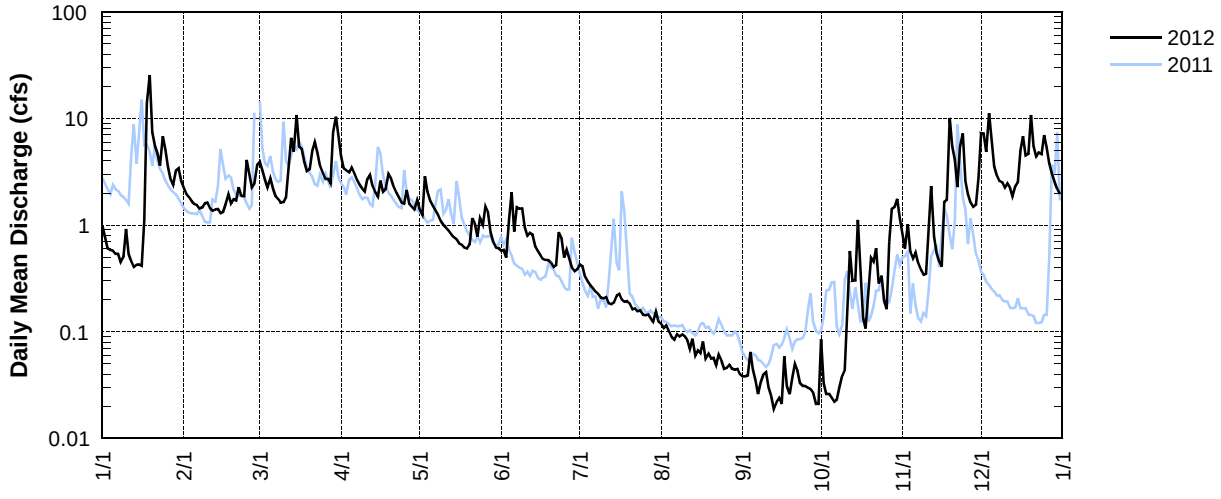


BCSR – 14206419 – BRONSON CREEK AT SALTZMAN ROAD [RM 5.1]

Latitude: 45 33 19 Longitude: 122 48 25 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.00	2.2	3.9	4.4	1.4	0.58	0.43	0.12	0.04	0.09	0.83	7.3
2	0.77	2.0	3.3	3.4	1.2	0.59	0.41	0.11	0.04	0.03	0.60	7.2
3	0.61	1.8	2.7	3.3	2.9	0.50	0.33	0.11	0.04	0.03	1.0	4.9
4	0.58	1.7	2.3	3.1	2.0	1.1	0.30	0.10	0.07	0.03	0.56	11
5	0.58	1.6	2.8	3.5	1.7	2.0	0.27	0.09	0.04	0.02	0.49	6.1
6	0.54	1.5	2.2	3.1	1.5	0.87	0.26	0.08	0.04	0.02	0.55	3.6
7	0.54	1.4	1.9	2.7	1.4	1.5	0.24	0.10	0.03	0.02	0.44	2.9
8	0.45	1.5	1.8	2.4	1.2	1.4	0.23	0.09	0.03	0.03	0.38	2.6
9	0.51	1.6	1.6	2.2	1.1	1.4	0.21	0.09	0.04	0.04	0.34	2.5
10	0.92	1.6	1.6	2.1	1.00	0.95	0.21	0.09	0.04	0.04	0.35	2.3
11	0.54	1.4	1.8	2.7	0.95	0.79	0.21	0.08	0.03	0.13	0.78	2.5
12	0.46	1.4	3.4	2.9	0.89	0.85	0.18	0.07	0.03	0.57	2.3	2.3
13	0.40	1.4	6.6	2.3	0.82	0.82	0.18	0.09	0.02	0.30	0.79	1.9
14	0.42	1.4	4.9	2.0	0.77	0.62	0.19	0.06	0.02	0.30	0.55	2.3
15	0.43	1.3	11	1.8	0.73	0.57	0.22	0.07	0.02	1.1	0.46	2.5
16	0.41	1.3	5.4	2.6	0.67	0.52	0.23	0.06	0.02	0.37	0.41	5.0
17	1.1	1.6	5.2	2.0	0.66	0.48	0.20	0.08	0.06	0.14	1.6	6.8
18	14	1.9	3.9	2.2	0.62	0.47	0.19	0.06	0.03	0.11	1.7	4.5
19	26	1.6	3.2	3.0	0.60	0.47	0.19	0.06	0.03	0.23	10	4.6
20	7.4	1.7	3.4	2.7	0.67	0.44	0.18	0.06	0.04	0.49	5.4	11
21	5.6	1.7	5.0	2.3	1.2	0.40	0.16	0.06	0.05	0.45	4.1	5.5
22	4.7	2.3	6.0	2.0	1.0	0.42	0.17	0.05	0.04	0.61	2.3	4.4
23	3.6	1.9	4.8	1.8	0.78	0.86	0.16	0.06	0.03	0.29	5.4	4.8
24	6.8	1.9	3.6	1.6	1.2	0.75	0.16	0.05	0.03	0.33	7.2	4.6
25	5.1	4.1	3.1	1.6	1.00	0.50	0.14	0.05	0.03	0.20	2.6	7.0
26	3.5	3.0	2.7	2.1	1.5	0.59	0.14	0.05	0.03	0.16	1.9	5.3
27	2.7	2.3	2.7	1.6	1.3	0.48	0.14	0.05	0.03	0.70	1.6	3.8
28	2.4	2.5	2.4	1.5	0.86	0.40	0.13	0.05	0.03	1.4	1.5	3.1
29	3.3	3.7	7.4	1.4	0.70	0.37	0.12	0.04	0.02	1.5	1.6	2.5
30	3.4	—	10	1.7	0.61	0.38	0.15	0.05	0.02	1.8	2.8	2.2
31	2.6	—	6.8	—	0.61	—	0.12	0.04	—	1.2	—	2.0
TOTAL	55.3	127.4	72	33.54	22.07	6.45	2.22	1.02	12.73	60.53	139	
MEAN	3.3	1.9	4.1	2.4	1.1	0.74	0.21	0.071	0.034	0.41	2.0	4.5
MAX	26	4.1	11	4.4	2.9	2.0	0.43	0.12	0.07	1.8	10	11
MIN	0.40	1.3	1.6	1.4	0.60	0.37	0.12	0.04	0.02	0.02	0.34	1.9
AC-FT	201	110	253	143	67	44	13	4.4	2.0	25	120	276

BCSR — 14206419 — Bronson Creek at Saltzman Road [RM 5.1]



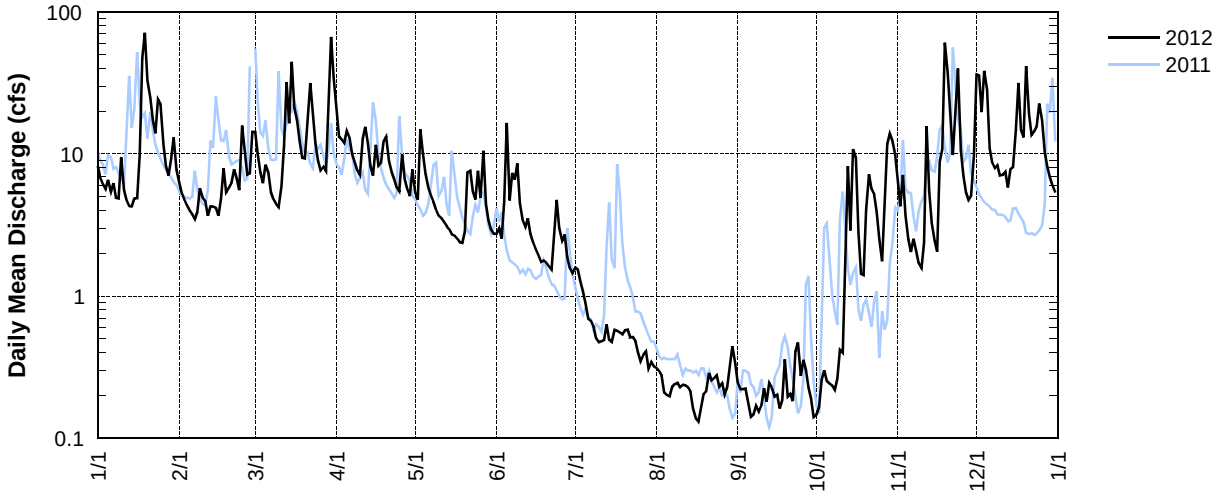
BCBR – 14206423 – BRONSON CREEK AT BRONSON ROAD NEAR ORENCO, OREGON [RM 2.1]

Latitude: 45 32 18 Longitude: 122 51 15 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	8.3	6.4	14	21	5.3	2.7	1.6	0.31	0.24	0.15	6.6	36
2	6.7	5.3	9.9	13	4.7	3.0	1.5	0.30	0.22	0.17	4.3	36
3	6.1	4.8	7.4	13	15	2.5	1.3	0.28	0.22	0.26	7.1	20
4	5.7	4.4	6.2	12	10	4.6	1.1	0.21	0.22	0.30	3.7	38
5	6.6	4.0	8.4	14	7.3	17	0.90	0.20	0.18	0.25	2.5	28
6	5.4	3.7	7.4	13	5.8	4.7	0.69	0.20	0.14	0.24	2.1	11
7	6.2	3.5	5.4	10.0	5.1	7.4	0.67	0.23	0.15	0.23	2.5	8.7
8	4.9	3.9	4.8	8.7	4.6	6.6	0.61	0.24	0.17	0.22	2.1	7.9
9	4.9	5.7	4.4	7.6	4.0	8.6	0.51	0.25	0.15	0.26	1.7	8.3
10	9.5	4.9	4.2	7.1	3.7	4.5	0.47	0.23	0.17	0.42	1.6	7.0
11	5.6	4.7	6.0	13	3.5	3.4	0.48	0.24	0.22	0.40	2.4	7.1
12	4.7	3.7	11	16	3.3	3.1	0.49	0.24	0.18	2.3	16	7.5
13	4.3	4.3	32	12	3.1	3.5	0.63	0.23	0.24	8.2	5.5	5.8
14	4.3	4.3	16	8.2	2.9	2.7	0.49	0.21	0.23	2.9	3.3	7.8
15	4.9	4.2	44	7.1	2.7	2.4	0.47	0.16	0.20	11	2.5	8.1
16	4.9	3.7	21	12	2.7	2.1	0.58	0.14	0.20	9.4	2.1	15
17	9.8	4.9	17	8.3	2.5	1.9	0.57	0.13	0.16	2.8	8.8	32
18	47	8.0	12	8.7	2.4	1.7	0.56	0.16	0.19	1.4	11	15
19	e71	5.4	9.4	12	2.4	1.8	0.54	0.21	0.36	1.4	61	13
20	33	5.8	9.3	13	2.8	1.7	0.58	0.22	0.20	4.1	37	42
21	25	6.3	16	8.9	7.4	1.6	0.58	0.29	0.21	7.2	21	19
22	17	7.8	32	7.5	7.6	1.5	0.51	0.26	0.18	5.6	9.8	14
23	14	6.7	20	6.7	5.5	2.9	0.52	0.27	0.41	5.2	18	14
24	24	5.6	12	5.8	4.8	4.7	0.48	0.28	0.47	3.9	40	16
25	22	16	9.0	5.4	7.6	3.0	0.40	0.23	0.28	2.5	11	23
26	12	11	7.7	9.9	4.9	2.5	0.35	0.24	0.36	1.8	7.1	17
27	8.2	7.2	8.1	6.7	10	2.7	0.39	0.20	0.30	4.5	5.4	10
28	7.0	7.3	7.5	5.6	4.4	1.9	0.41	0.23	0.23	12	4.8	8.2
29	9.2	14	26	5.1	3.4	1.6	0.31	0.32	0.19	14	5.1	6.9
30	13	—	e67	7.8	2.9	1.4	0.34	0.45	0.14	12	9.9	6.0
31	7.7	—	34	—	2.7	—	0.32	0.34	—	9.8	—	5.3
TOTAL	412.9	177.5	489.1	299.1	155	109.7	19.35	7.5	6.81	124.9	315.9	493.6
MEAN	13.4	6.1	15.8	9.9	5.0	3.6	0.62	0.24	0.23	4.0	10.5	15.9
MAX	71	16	67	21	15	17	1.6	0.45	0.47	14	61	42
MIN	4.3	3.5	4.2	5.1	2.4	1.4	0.31	0.13	0.14	0.15	1.6	5.3
AC-FT	819	352	970	593	307	218	38	15	14	248	627	979

e=estimated value

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

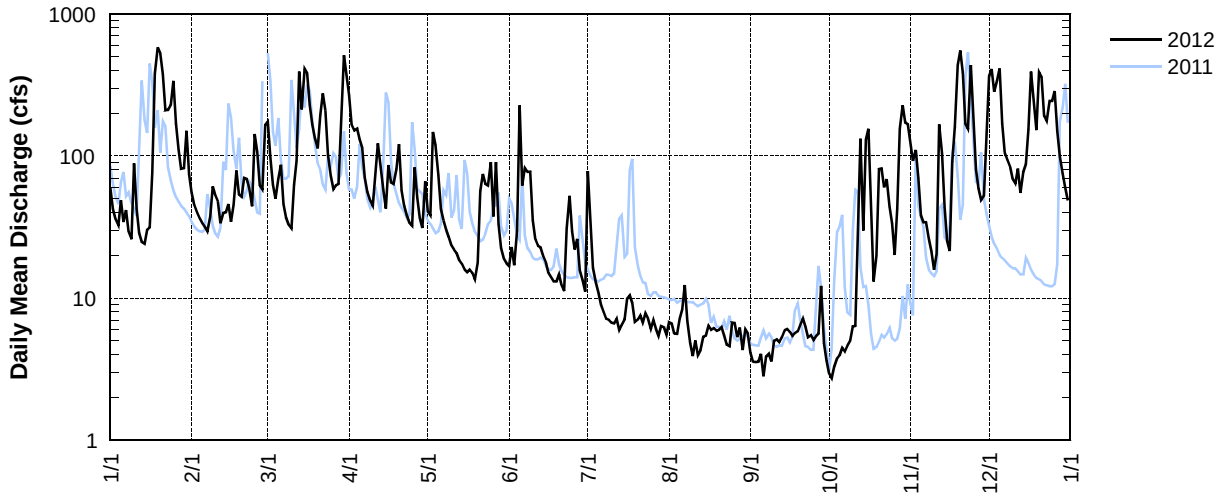


BVTS – 14206435 – BEAVERTON CREEK AT NE GUSTON COURT NEAR ORENCO, OREGON [RM 1.2]

Latitude: 45 31 15 Longitude: 122 53 59 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	60	55	175	269	41	17	78	6.8	4.1	3.0	122	364
2	42	45	98	165	38	23	38	6.7	3.6	2.7	93	409
3	36	40	63	151	147	17	16	5.6	3.5	3.3	110	283
4	32	36	50	156	119	30	13	5.6	3.6	3.8	70	340
5	49	34	70	131	74	227	11	7.1	4.1	4.0	38	412
6	34	32	87	114	42	62	9.0	8.3	2.8	4.5	34	169
7	41	29	46	70	35	82	8.0	12	3.9	4.2	34	105
8	29	37	37	56	31	77	7.2	6.9	4.1	4.7	26	94
9	26	61	33	48	27	77	7.1	4.8	3.6	5.1	21	83
10	89	53	31	44	23	36	6.7	3.9	5.0	6.3	16	69
11	43	48	63	74	22	26	6.6	5.0	5.1	6.4	21	64
12	29	34	93	123	21	23	7.2	4.0	4.9	29	167	82
13	25	40	393	87	18	23	6.0	4.3	5.3	132	104	55
14	24	40	213	58	18	20	6.5	5.4	6.0	30	44	78
15	30	46	409	43	16	18	7.1	5.4	6.1	130	25	88
16	31	35	381	87	15	15	10.0	6.4	5.8	155	21	154
17	76	45	229	65	16	14	11	6.0	5.4	43	91	393
18	380	79	167	64	15	13	9.3	6.1	5.7	13	161	248
19	580	53	134	81	13	13	6.8	5.9	5.9	20	434	152
20	526	51	113	121	18	15	7.1	6.0	6.6	81	552	386
21	376	70	194	57	57	12	7.5	6.2	7.2	81	385	358
22	210	69	276	45	75	11	6.8	5.5	6.3	60	167	191
23	211	59	208	38	64	31	7.8	4.7	5.3	69	154	176
24	230	44	102	34	62	53	7.2	4.6	5.5	44	435	244
25	338	143	72	32	91	29	6.1	6.7	5.1	33	189	244
26	169	107	59	83	37	22	7.0	6.7	5.4	20	81	286
27	112	62	62	51	91	26	6.1	5.3	5.6	43	59	150
28	81	58	64	37	33	16	5.4	6.2	12	156	49	100
29	82	166	140	31	22	13	6.4	4.3	4.8	228	53	75
30	150	—	511	66	19	11	6.3	6.0	3.6	172	115	60
31	74	—	373	—	18	—	5.5	5.6	—	168	—	49
TOTAL	4215	1671	4946	2481	1318	1052	343.7	184	155.9	1755	3871	5961
MEAN	136.0	57.7	159.5	82.8	42.5	35.1	11.1	6.0	5.2	56.6	129.1	192.2
MAX	580	166	511	269	147	227	78	12	12	228	552	412
MIN	24	29	31	31	13	11	5.4	3.9	2.8	2.7	16	49
AC-FT	8360	3314	9810	4921	2614	2087	682	365	309	3481	7678	11820

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

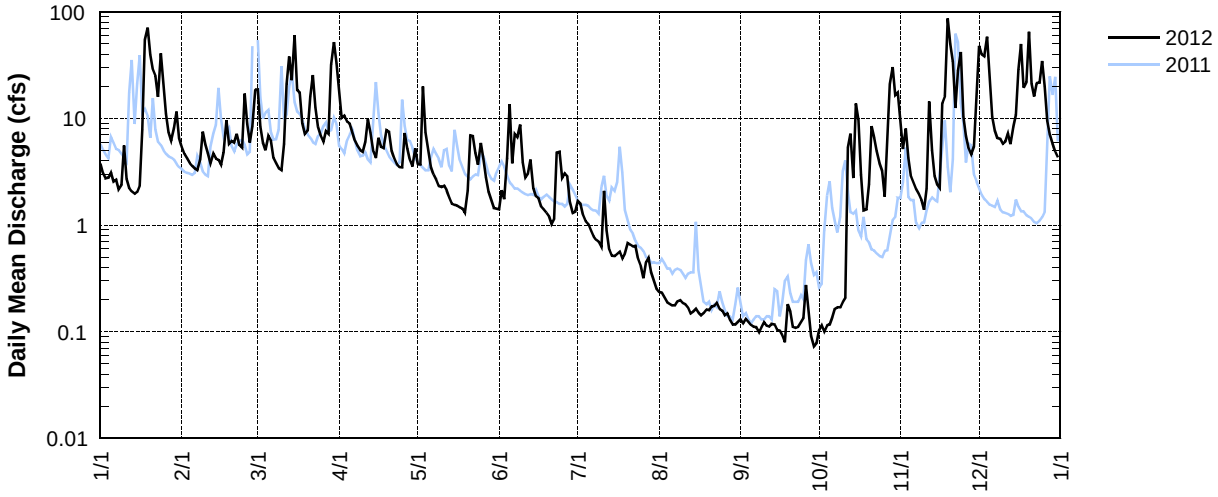


DCBR – 14206443 – DAWSON CREEK AT BROOKWOOD ROAD NEAR HILLSBORO, OREGON [RM 0.7]

Latitude: 45 31 27 Longitude:122 56 01 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	3.8	5.4	19	18	3.7	1.4	1.7	0.24	0.13	0.10	10.0	48
2	3.1	4.7	8.4	10	3.7	2.1	1.6	0.23	0.12	0.11	5.2	40
3	2.7	4.2	6.0	11	20	1.8	1.2	0.21	0.13	0.10	8.1	38
4	2.8	3.8	5.0	9.3	7.4	4.2	1.1	0.19	0.12	0.12	4.3	58
5	3.1	3.6	6.8	9.0	5.0	14	1.0	0.18	0.12	0.12	2.9	26
6	2.6	3.4	6.2	7.4	3.5	3.8	0.89	0.18	0.11	0.14	2.5	10
7	2.7	3.3	4.2	6.2	3.0	7.2	0.79	0.18	0.11	0.16	2.2	7.7
8	2.2	4.1	3.8	5.5	2.7	6.7	0.73	0.19	0.10	0.17	1.9	6.5
9	2.4	7.5	3.4	5.0	2.3	8.8	0.70	0.20	0.11	0.17	1.7	6.4
10	5.6	5.7	3.3	4.9	2.3	3.9	0.62	0.19	0.12	0.19	1.4	5.8
11	2.7	4.7	5.8	6.0	2.3	2.8	2.1	0.18	0.11	0.21	2.2	6.1
12	2.2	3.8	21	9.9	2.1	3.0	0.89	0.17	0.11	5.4	14	7.2
13	2.1	4.6	38	7.4	1.8	4.1	0.59	0.15	0.12	7.2	5.0	5.7
14	2.0	4.2	23	4.9	1.6	2.2	0.51	0.16	0.12	2.8	2.9	8.4
15	2.0	4.1	60	4.3	1.5	1.9	0.51	0.16	0.10	14	2.4	11
16	2.4	3.7	18	6.6	1.5	1.8	0.54	0.15	0.10	9.7	2.2	29
17	7.8	4.8	17	5.4	1.5	1.5	0.57	0.14	0.09	3.0	14	50
18	55	9.6	9.0	5.3	1.4	1.4	0.49	0.15	0.08	1.4	16	19
19	71	5.8	7.2	7.8	1.3	1.3	0.54	0.16	0.18	1.4	87	22
20	40	6.2	7.7	7.5	2.1	1.2	0.68	0.16	0.16	2.4	50	65
21	29	5.9	16	5.0	6.9	1.0	0.66	0.17	0.11	8.4	34	21
22	25	7.1	26	4.2	6.8	1.2	0.63	0.17	0.11	6.6	13	16
23	16	5.7	13	3.7	4.7	4.8	0.64	0.19	0.11	4.9	28	21
24	41	5.3	8.3	3.5	3.7	4.9	0.49	0.16	0.12	3.8	42	22
25	22	17	6.8	3.5	5.9	2.8	0.41	0.16	0.14	3.2	10	35
26	11	8.8	6.0	7.3	4.2	3.1	0.32	0.14	0.28	1.8	6.8	20
27	7.4	6.0	7.6	5.2	2.8	2.9	0.45	0.15	0.15	6.7	5.3	9.5
28	6.2	8.5	7.2	4.1	2.1	1.7	0.49	0.13	0.09	21	4.6	7.1
29	8.1	19	32	3.5	1.8	1.3	0.36	0.12	0.07	30	5.5	5.7
30	12	—	52	5.2	1.4	1.3	0.30	0.12	0.08	17	15	4.9
31	6.5	—	33	—	1.4	—	0.25	0.12	—	17	—	4.3
TOTAL	402.4	180.5	480.7	196.6	112.4	100.1	22.75	5.2	3.6	169.29	400.1	636.3
MEAN	12.9	6.2	15.5	6.5	3.6	3.3	0.73	0.17	0.12	5.5	13.3	20.5
MAX	71	19	60	18	20	14	2.1	0.24	0.28	30	87	65
MIN	2.0	3.3	3.3	3.5	1.3	1.0	0.25	0.12	0.07	0.10	1.4	4.3
AC-FT	798	358	953	390	223	199	45	10	7.1	336	794	1262

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

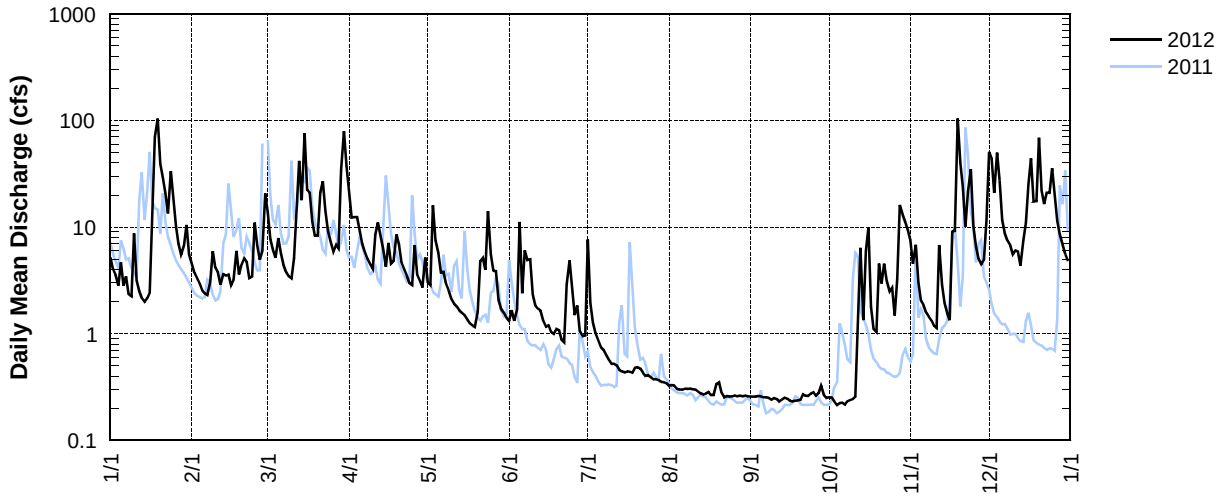


BCRR – 14206483 – BUTTERNUT CREEK AT ROSA ROAD [RM 1.0]

Latitude: 43 28 42 Longitude:122 55 05 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.2	4.6	14	21	3.0	1.3	7.6	0.33	0.26	0.25	7.5	51
2	4.0	3.8	7.7	12	2.9	1.7	1.9	0.33	0.26	0.25	4.6	44
3	3.6	3.3	6.1	12	16	1.3	1.3	0.33	0.26	0.23	6.9	21
4	2.8	2.9	5.2	12	7.5	1.7	0.99	0.30	0.26	0.21	3.1	50
5	4.7	2.6	7.9	9.3	5.7	11	0.85	0.30	0.26	0.22	2.0	27
6	2.8	2.4	5.7	7.0	3.7	2.4	0.75	0.30	0.25	0.23	1.9	12
7	3.5	2.3	4.4	5.8	3.8	6.0	0.70	0.31	0.25	0.22	1.6	8.8
8	2.4	3.1	3.8	5.0	2.9	4.9	0.63	0.30	0.25	0.23	1.4	7.5
9	2.2	5.9	3.5	4.5	2.5	5.0	0.57	0.30	0.24	0.24	1.3	6.7
10	8.7	4.1	3.3	4.1	2.1	2.3	0.52	0.30	0.25	0.24	1.2	5.6
11	3.1	3.8	5.1	8.5	1.9	1.8	0.53	0.30	0.24	0.26	1.1	6.0
12	2.5	2.9	16	11	1.8	1.7	0.51	0.29	0.23	0.90	6.8	5.9
13	2.2	3.6	42	8.3	1.7	1.7	0.46	0.28	0.24	6.4	2.9	4.4
14	2.0	3.5	18	6.1	1.6	1.3	0.44	0.27	0.25	1.3	1.9	7.5
15	2.2	3.6	76	4.2	1.5	1.2	0.43	0.28	0.25	6.0	1.6	11
16	2.4	2.9	22	7.1	1.4	1.2	0.44	0.29	0.23	9.9	1.3	25
17	11	3.2	21	4.6	1.2	1.0	0.44	0.27	0.23	1.8	9.1	44
18	70	6.0	11	4.8	1.2	0.99	0.43	0.27	0.23	1.1	9.2	17
19	104	3.6	8.3	8.5	1.2	1.1	0.48	0.34	0.24	1.0	104	18
20	39	4.5	8.3	6.9	1.6	1.1	0.49	0.35	0.24	4.5	40	69
21	29	5.1	21	4.6	4.8	0.88	0.47	0.28	0.27	3.0	24	22
22	21	4.7	27	4.0	5.2	0.83	0.43	0.25	0.26	4.5	10	16
23	14	3.3	14	3.5	4.0	2.9	0.40	0.26	0.26	3.2	21	21
24	33	3.4	9.2	3.0	14	4.9	0.41	0.26	0.27	2.5	35	21
25	19	11	7.2	2.8	5.6	2.7	0.39	0.26	0.28	2.7	10	36
26	10	6.8	5.9	6.8	3.9	1.5	0.37	0.26	0.26	1.5	6.6	21
27	6.9	4.9	6.9	3.5	3.9	1.8	0.38	0.26	0.28	3.3	5.0	11
28	5.5	6.0	6.3	3.1	2.1	1.0	0.37	0.26	0.32	16	4.5	8.5
29	6.7	21	34	2.7	1.7	0.95	0.35	0.26	0.27	13	5.0	6.8
30	10	—	80	5.2	1.6	0.96	0.35	0.26	0.25	11	12	5.6
31	5.5	—	37	—	1.4	—	0.34	0.26	—	9.4	—	4.8
TOTAL	438.9	138.8	537.8	201.9	113.4	69.11	24.72	8.91	7.64	105.58	342.5	615.1
MEAN	14.2	4.8	17.3	6.8	3.7	2.3	0.80	0.29	0.26	3.4	11.4	19.8
MAX	104	21	80	21	16	11	7.6	0.35	0.32	16	104	69
MIN	2.0	2.3	3.3	2.7	1.2	0.83	0.34	0.25	0.23	0.21	1.1	4.4
AC-FT	871	275	1067	400	225	137	49	18	15	209	679	1220

BCRR — 14206483 — Butternut Creek at Rosa Road [RM 1.0]



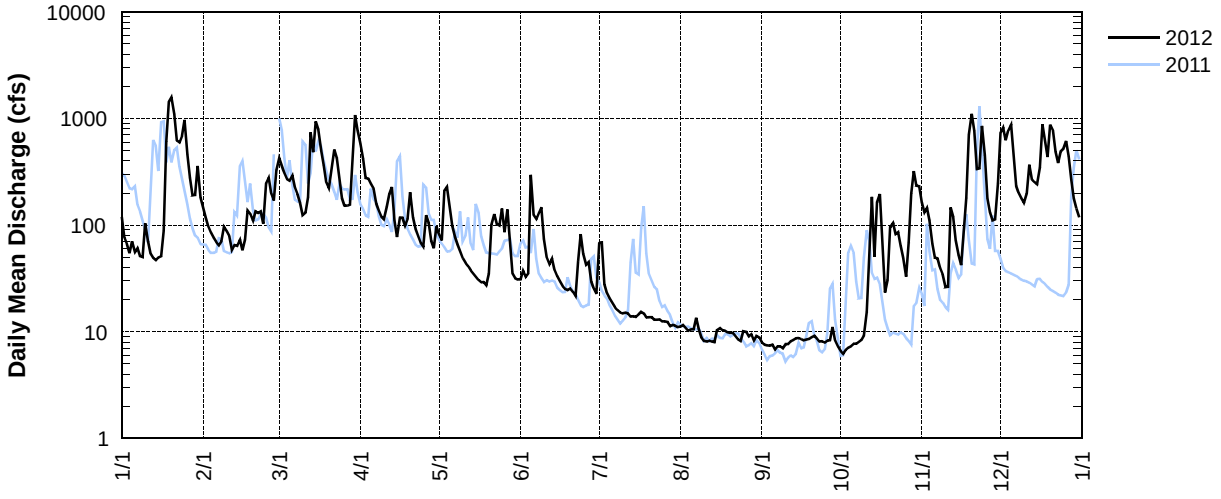
RCTV – 14206451** – ROCK CREEK AT HWY 8 NEAR HILLSBORO, OREGON [RM 1.2]

Latitude: 45 30 08 Longitude: 122 56 52 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	120	e145	425	e574	81	31	69	11	e7.9	e6.6	e163	e736
2	76	e118	359	e420	72	37	69	12	e7.5	e6.2	e132	e820
3	66	e97	306	e276	211	33	28	11	e7.4	e6.7	e145	e623
4	55	e85	271	e272	229	35	23	10	e7.4	e7.1	e110	e773
5	70	e76	262	e244	150	295	21	10	e7.5	e7.3	e67	e883
6	56	e69	291	e218	97	124	19	11	e6.8	e7.7	e50	e479
7	61	e65	225	e160	78	114	17	14	e7.3	e7.7	e49	e232
8	51	e70	194	e136	66	130	16	11	e7.3	e8.0	e40	e198
9	50	96	161	e120	57	147	15	8.8	e7.0	e8.4	e35	e177
10	104	87	124	e113	49	74	15	8.2	e7.7	e9.2	26	e161
11	71	79	131	e148	44	49	15	8.1	e7.6	e15	26	e198
12	54	59	182	e196	41	43	15	8.3	e8.2	e49	146	370
13	49	65	e742	228	38	49	14	8.1	e8.4	e184	120	268
14	47	64	e483	111	35	38	14	8.0	e8.7	e50	72	252
15	50	73	e938	77	33	33	14	e10	e8.7	e163	52	241
16	51	58	e790	117	31	30	15	e11	e8.6	e195	42	347
17	89	72	e503	117	29	27	15	e10	e8.3	e78	89	e879
18	605	137	e364	99	29	25	15	e10	e8.4	e23	180	e609
19	1440	128	e250	115	27	25	14	e9.9	e8.6	e30	705	e434
20	e1580	109	e221	203	e35	25	14	e9.8	e8.9	e96	e1110	e877
21	e1100	135	e334	118	e101	24	14	e9.7	e9.2	e105	e765	e768
22	e619	130	e510	92	e126	21	13	e9.1	e8.6	e82	e334	e486
23	e594	135	e423	78	e102	46	13	e8.5	e8.1	e86	e339	e383
24	e688	103	e281	68	e99	83	13	e8.2	e8.2	e64	e853	e490
25	e969	248	e178	63	e143	54	12	e10	e7.9	e49	e454	e519
26	e459	280	e151	124	e86	42	12	e10.0	e8.2	e33	e179	e615
27	e278	197	e152	105	e140	45	12	e9.1	e8.3	e69	e132	e441
28	e190	170	e156	71	e66	30	11	e9.5	e11	e198	e111	e268
29	e192	326	e390	61	35	25	12	e8.3	e8.2	e321	e113	e177
30	e359	—	e1080	97	32	23	11	e9.2	e7.3	e234	e247	e143
31	e181	—	e767	—	31	—	11	e8.8	—	e230	—	e118
TOTAL	10374	3476	11644	4821	2393	1757	571	300.6	243.2	2428.9	6886	13965
MEAN	334.4	119.9	375.4	160.7	77.2	58.5	18.3	9.7	8.1	78.3	229.6	450.4
MAX	1580	326	1080	574	229	295	69	14	11	321	1110	883
MIN	47	58	124	61	27	21	11	8.0	6.8	6.2	26	118
AC-FT	20580	6895	23100	9562	4746	3485	1133	596	482	4818	13660	27700

**Site moved 120 feet downstream, previous ID was 14205450l e=estimated value

RCTV — 14206451 — Rock Creek at Hwy 8 near Hillsboro, Oregon [RM 1.2]



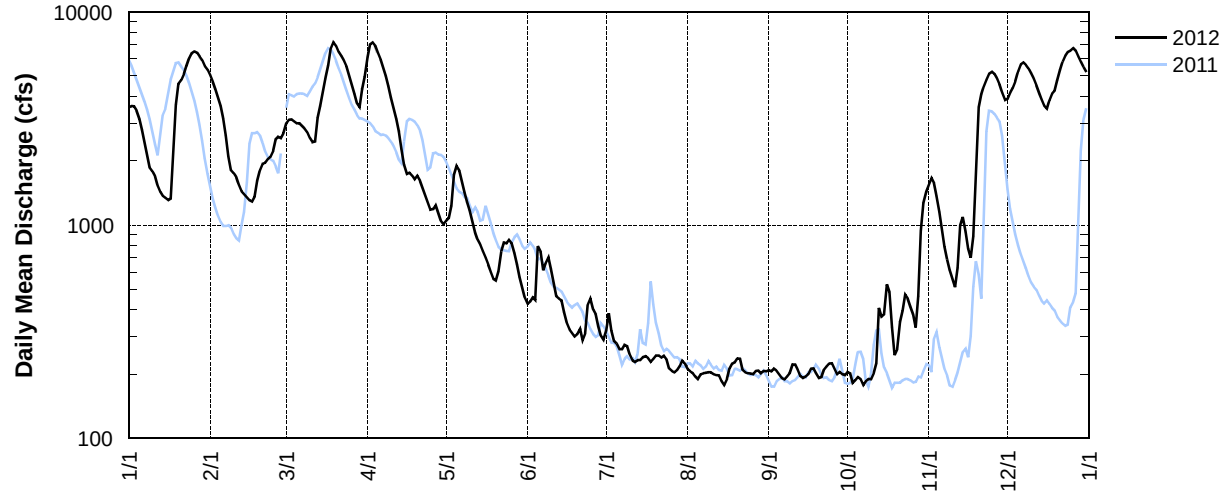
FRMO – 14206500 – TUALATIN RIVER AT FARMINGTON, OREGON [RM 33.3]

Latitude: 45 26 58 Longitude: 122 57 02 Source Agency: District 18 Watermaster

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	3560	5050	3000	e6100	1050	e428	321	211	209	205	1550	3910
2	3610	4710	3120	e7030	1080	e438	387	206	206	202	1660	4180
3	3600	4360	3130	e7180	1230	e458	320	203	212	182	1570	4400
4	3440	4000	3060	e6950	1720	e445	286	195	208	187	1370	4720
5	3150	3610	3000	e6440	1890	e795	279	190	199	194	1150	5260
6	2800	3160	3000	e5970	1790	747	262	200	192	189	947	5670
7	2450	2630	2920	e5470	1600	615	262	202	189	178	791	5780
8	2120	2100	2840	5000	1420	667	275	203	195	185	692	5650
9	1860	1810	2730	4480	1280	709	271	204	202	190	616	5430
10	1790	1750	2570	3960	1170	622	248	204	222	189	558	5150
11	1690	1670	2450	3490	1030	529	232	200	222	203	512	4840
12	1530	1540	2460	3140	924	463	228	198	210	225	631	4520
13	1430	1440	3180	2740	853	452	233	197	196	408	997	4190
14	1370	1400	3610	2270	811	444	233	185	192	372	1090	3890
15	1340	1350	4170	1920	756	391	240	178	195	381	930	3640
16	1310	1310	e4850	1740	702	346	243	190	200	528	774	3520
17	1330	1290	e5600	1760	653	324	238	213	212	486	704	3860
18	2180	1360	e6760	1710	601	312	229	224	213	332	887	4130
19	3670	1610	e7200	1640	559	300	236	227	202	246	1780	4260
20	4600	1820	e6950	1700	550	308	244	237	192	262	3560	4770
21	4800	1940	e6500	1610	606	327	244	236	194	351	4110	5340
22	5110	1960	e6190	1480	752	289	239	209	210	396	4500	5840
23	e5590	2040	e5910	1370	826	311	244	204	217	471	4810	6220
24	e6050	2090	e5550	1270	821	424	235	202	224	451	5120	6490
25	e6380	2230	5060	1180	e852	453	213	201	225	416	5230	6580
26	e6520	2520	4580	1190	e825	401	207	200	212	382	5100	6760
27	e6430	2590	4120	1240	e738	382	204	207	200	331	4870	6560
28	e6180	2560	3720	1140	e653	335	209	208	205	465	4550	6180
29	e5940	2690	3560	1050	e570	303	218	202	200	941	4180	5820
30	e5580	—	4320	1010	e512	289	232	207	198	1270	3860	5510
31	5360	—	4950	—	e458	—	225	206	—	1430	—	5210
TOTAL	112770	68590	131060	93230	29282	13307	7737	6349	6153	12248	69099	158280
MEAN	3639	2365	4228	3108	945	444	250	205	205	395	2303	5106
MAX	6520	5050	7200	7180	1890	795	387	237	225	1430	5230	6760
MIN	1310	1290	2450	1010	458	289	204	178	189	178	512	3520
AC-FT	223700	136060	259980	184940	58090	26400	15350	12590	12210	24300	137070	313980

† Provisional data–subject to revision; e=estimated value

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



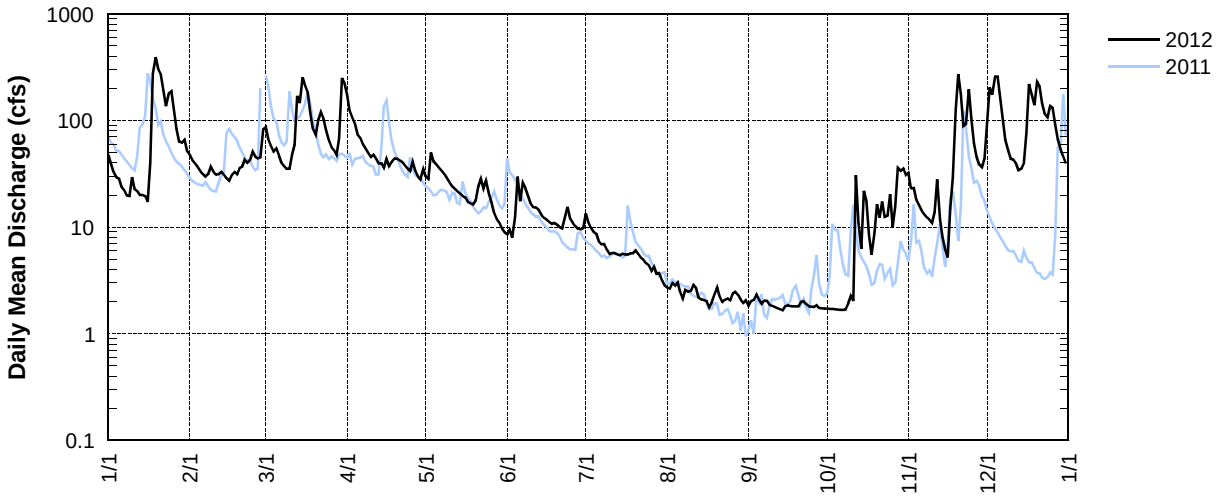
CCSR – 14206750 – CHICKEN CREEK AT ROY ROGERS ROAD NEAR SHERWOOD, OREGON [RM 2.3]

Latitude: 45 22 31 Longitude: 122 51 24 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	48	48	87	175	30	8.5	13	2.7	1.8	e1.7	32	102
2	39	43	66	123	28	9.5	11	2.7	2.0	e1.7	23	204
3	33	40	57	106	50	8.0	9.8	3.0	2.1	e1.7	23	175
4	29	36	51	92	41	13	9.0	2.8	2.3	e1.7	18	257
5	29	34	55	74	39	30	8.6	3.0	2.1	e1.7	16	257
6	24	31	47	69	36	17	7.4	2.4	1.9	e1.7	14	156
7	22	30	40	60	34	26	6.9	2.1	2.0	e1.7	13	100
8	20	31	38	55	32	23	6.9	2.6	2.0	e1.7	12	66
9	20	37	35	49	29	19	6.2	2.5	e1.9	e1.9	12	52
10	29	33	35	45	26	16	5.6	2.5	e1.8	e2.3	11	43
11	23	31	48	48	24	15	5.7	2.9	e1.8	e2.0	14	43
12	22	31	59	44	23	15	5.7	2.7	e1.7	e31	28	40
13	20	33	170	40	22	15	5.6	2.2	e1.7	11	12	34
14	20	31	146	39	21	13	5.4	2.1	e1.7	6.2	7.9	35
15	20	29	253	36	20	12	5.6	2.1	e1.8	22	6.2	40
16	17	27	210	43	19	12	5.5	2.0	e1.8	18	5.2	77
17	40	31	182	37	17	11	5.5	1.8	e1.8	8.4	15	220
18	e275	33	118	41	17	11	5.7	1.9	e1.8	5.5	29	176
19	e392	31	83	44	16	11	5.7	2.4	e1.8	8.8	126	139
20	e301	36	73	44	18	11	6.0	2.7	e1.8	16	271	229
21	267	37	101	42	24	10	5.6	2.2	e2.0	12	177	207
22	192	43	119	41	28	9.7	5.2	2.0	e2.0	17	89	144
23	136	40	104	38	23	12	4.9	2.1	e1.9	12	92	115
24	179	43	82	35	27	15	4.6	2.1	e1.8	13	197	107
25	188	51	65	34	21	12	4.3	2.1	e1.8	20	103	136
26	126	46	56	41	17	11	3.9	2.4	e1.8	10	61	131
27	83	44	52	34	14	10	4.2	2.5	e1.9	16	46	91
28	63	45	47	30	12	9.7	3.6	2.3	e1.7	36	39	66
29	62	83	68	28	11	9.5	3.7	2.1	e1.7	34	36	53
30	66	—	250	35	9.7	9.8	3.2	1.9	e1.7	36	44	45
31	52	—	223	—	8.9	—	2.8	2.1	—	31	—	40
TOTAL	2837	1108	3020	1622	737.6	404.7	186.8	72.9	55.9	383.7	1572.3	3580
MEAN	91.5	38.1	97.4	54.0	23.8	13.5	6.0	2.4	1.9	12.4	52.4	115.5
MAX	392	83	253	175	50	30	13	3.0	2.3	36	271	257
MIN	17	27	35	28	8.9	8.0	2.8	1.8	1.7	1.7	5.2	34
AC-FT	5627	2198	5990	3217	1463	803	371	145	111	761	3119	7101

e=estimated value

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



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

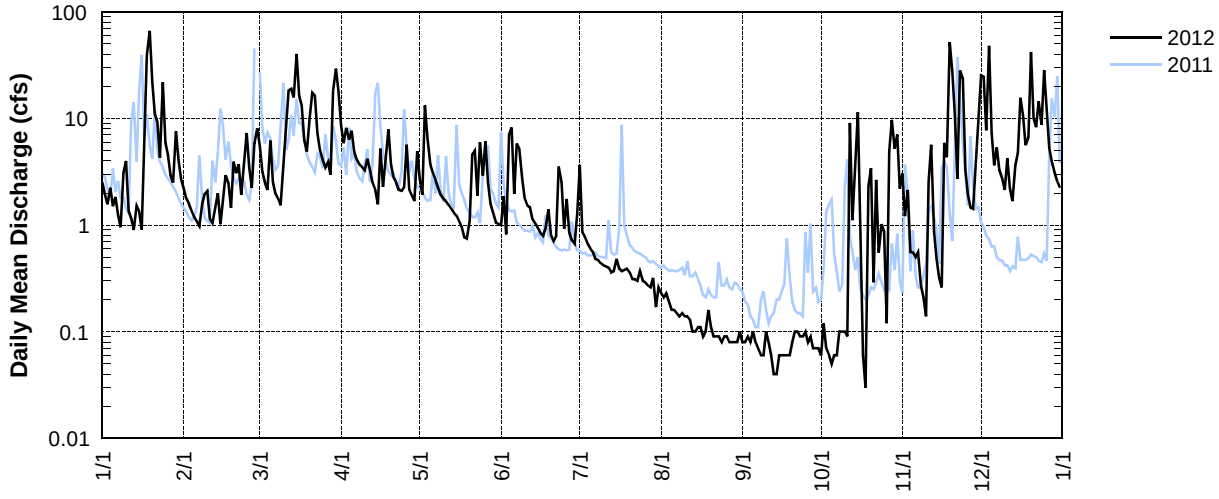
STATION NUMBER 14206900 FANNO CREEK AT 56TH AVENUE

LATITUDE: 452917 LONGITUDE: 1224401 DRAINAGE AREA: 2.37

Discharge, Cubic Feet per Second, Calendar Year January to December 2012 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2.5	2.2	5.6	8.7	2.7	0.99	3.7	0.23	0.08	0.06	3.0	25
2	1.9	1.8	3.2	5.9	1.9	1.9	0.85	0.21	0.08	0.12	1.2	25
3	1.6	1.6	2.5	8.1	13	0.82	0.77	0.23	0.09	0.08	2.1	7.6
4	2.2	1.3	2.1	6.3	6.6	6.9	0.66	0.19	0.08	0.06	0.56	48
5	1.5	1.2	6.2	7.7	3.7	8.4	0.60	0.16	0.10	0.05	0.55	7.4
6	1.8	1.1	2.5	4.9	3.1	1.9	0.56	0.16	0.08	0.06	0.49	3.6
7	1.3	0.97	2.0	4.1	2.6	5.8	0.48	0.15	0.07	0.06	0.56	5.3
8	0.95	1.6	1.8	3.7	2.3	5.2	0.47	0.14	0.06	0.10	0.27	3.3
9	3.0	2.0	1.5	3.5	1.9	2.7	0.43	0.15	0.06	0.10	0.21	2.8
10	4.0	2.1	3.5	3.2	1.8	1.8	0.42	0.14	0.10	0.10	0.14	2.1
11	1.4	1.1	8.2	4.2	1.7	1.5	0.41	0.15	0.08	0.09	2.5	4.2
12	1.2	1.0	18	3.3	1.5	1.5	0.40	0.13	0.06	9.0	5.7	2.2
13	0.90	1.5	19	2.5	1.4	1.1	0.36	0.11	0.05	1.1	0.87	1.7
14	1.5	2.0	16	2.1	1.3	1.0	0.37	0.10	0.05	3.5	0.48	3.6
15	1.3	1.0	40	1.6	1.2	0.93	0.47	0.11	0.06	12	0.33	4.8
16	0.90	1.8	16	5.2	1.1	0.84	0.39	0.11	0.06	1.9	0.26	16
17	7.5	2.9	13	2.3	0.96	0.79	0.37	0.09	0.06	0.06	5.9	11
18	39	2.5	6.2	4.2	0.77	0.93	0.38	0.10	0.06	0.04	4.2	5.6
19	66	1.4	4.9	7.9	0.75	1.4	0.39	0.16	0.06	2.3	52	6.6
20	22	3.9	10	3.7	1.1	0.80	0.36	0.11	0.08	3.4	28	42
21	11	3.1	17	2.8	4.6	0.70	0.31	0.09	0.10	0.30	11	10
22	9.2	3.7	16	2.5	5.0	0.78	0.31	0.09	0.10	2.7	2.7	8.3
23	4.3	1.9	7.3	2.1	1.9	3.5	0.30	0.09	0.09	0.53	28	14
24	22	3.7	5.0	2.1	6.0	2.5	0.37	0.09	0.10	1.0	24	8.8
25	6.0	7.3	4.1	2.3	2.9	0.92	0.30	0.09	0.10	0.87	3.3	28
26	4.6	3.5	3.5	5.7	6.1	1.8	0.29	0.09	0.09	0.12	1.9	12
27	2.9	2.3	3.9	2.1	2.5	0.85	0.27	0.08	0.09	4.9	1.5	5.3
28	2.5	5.7	3.0	1.9	1.6	0.72	0.26	0.08	0.07	9.7	1.4	3.9
29	7.5	8.1	18	1.7	1.3	0.67	0.32	0.08	0.07	5.1	4.1	3.1
30	4.1	—	29	4.9	1.1	1.2	0.17	0.09	0.07	7.2	9.6	2.6
31	2.7	—	18	—	1.0	—	0.26	0.10	—	2.2	—	2.2
TOTAL	239.25	74.27	307.0	121.2	85.38	60.84	16.00	3.90	2.30	68.80	196.82	326.0
MEAN	7.72	2.56	9.90	4.04	2.75	2.03	0.52	0.13	0.08	2.22	6.56	10.5
MAX	66	8.1	40	8.7	13	8.4	3.7	0.23	0.10	12	52	48
MIN	0.90	0.97	1.5	1.6	0.75	0.67	0.17	0.08	0.05	0.04	0.14	1.7
AC-FT	475	147	609	240	169	121	32	7.7	4.6	136	390	647

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



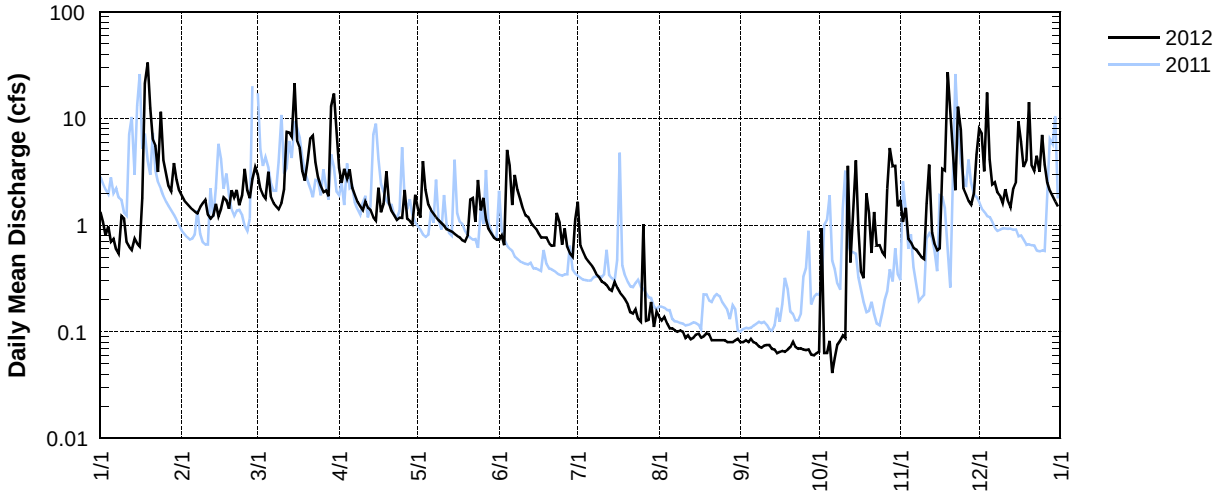
SCRL – 14206905 – SYLVAN CREEK AT RALEIGHWOOD LANE NEAR WEST SLOPE, OREGON [RM 1.0]

Latitude: 45 29 35 Longitude: 122 44 48 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.3	1.9	3.0	3.4	1.4	0.73	1.7	e0.14	e0.08	0.07	1.7	7.9
2	1.1	1.7	2.2	2.5	1.2	0.80	0.64	e0.13	e0.08	0.93	1.1	7.2
3	0.81	1.6	1.9	3.4	4.0	0.65	0.56	e0.14	e0.08	0.06	1.5	3.2
4	0.97	1.5	1.8	2.7	2.1	5.1	0.50	e0.12	e0.08	0.06	0.74	17
5	0.70	1.4	3.2	3.3	1.5	3.6	0.46	e0.11	e0.09	0.08	0.69	4.1
6	0.74	1.3	1.8	2.3	1.4	1.6	0.43	e0.11	e0.08	0.04	0.61	2.4
7	0.59	1.3	1.6	1.9	1.3	3.0	0.39	e0.10	e0.08	0.06	0.59	2.5
8	0.54	1.5	1.5	1.7	1.2	2.2	0.35	e0.10	0.07	0.08	0.54	2.0
9	1.2	1.6	1.4	1.5	1.1	1.8	0.33	e0.10	0.07	0.08	0.50	1.9
10	1.2	1.7	1.6	1.4	1.0	1.4	0.30	e0.10	0.07	0.09	0.48	1.6
11	0.69	1.2	2.2	1.7	0.99	1.2	0.29	0.09	0.08	0.09	1.6	2.2
12	0.63	1.2	7.4	1.5	0.91	1.2	0.27	0.09	0.08	3.6	3.7	1.7
13	0.58	1.2	7.3	1.4	0.89	1.1	0.25	0.09	0.07	0.45	0.85	1.5
14	0.74	1.6	6.7	1.2	0.87	0.99	0.24	0.09	0.07	1.6	0.66	2.2
15	0.67	1.2	21	1.1	0.82	0.93	0.29	0.09	0.06	4.0	0.58	2.5
16	0.63	1.4	6.1	2.2	0.79	0.83	0.26	0.10	0.07	0.91	0.60	9.4
17	1.8	1.8	5.3	1.3	0.77	0.77	0.23	0.09	0.07	0.36	3.4	6.1
18	21	1.7	3.2	1.6	0.72	0.77	0.22	0.09	0.07	0.32	3.2	3.5
19	33	1.4	2.6	3.2	0.70	0.76	0.20	0.10	0.07	2.0	27	4.1
20	12	2.1	4.0	1.6	0.81	0.68	0.18	0.10	0.07	1.3	11	14
21	6.3	1.8	6.5	1.3	1.7	0.64	0.15	e0.08	0.08	0.55	4.9	3.6
22	5.6	2.1	6.9	1.2	1.8	0.64	0.15	e0.08	0.07	1.3	2.1	3.2
23	3.1	1.5	3.9	1.1	1.1	1.3	0.16	e0.08	0.07	0.64	13	4.5
24	11	1.9	2.8	1.2	2.6	1.1	0.13	e0.08	0.07	0.65	7.8	3.2
25	4.0	3.4	2.3	1.2	1.4	0.66	0.12	e0.08	0.07	0.56	2.2	7.0
26	3.0	2.1	2.0	2.1	1.8	0.93	1.0	e0.08	0.07	0.52	1.9	3.7
27	2.3	1.8	2.1	1.1	1.1	0.62	0.13	e0.08	0.07	2.2	1.7	2.5
28	2.1	2.7	1.9	1.1	0.92	0.54	0.13	e0.08	0.06	5.3	1.5	2.1
29	3.8	3.5	13	1.0	0.84	0.50	e0.19	e0.08	0.06	3.6	2.0	1.9
30	2.7	—	17	1.9	0.76	1.1	e0.11	e0.08	0.06	3.6	4.6	1.7
31	2.1	—	7.8	—	0.73	—	e0.15	e0.09	—	1.5	—	1.5
TOTAL	126.9	51.1	152	54.1	39.22	38.14	10.51	2.97	2.17	36.6	102.74	131.9
MEAN	4.1	1.8	4.9	1.8	1.3	1.3	0.34	0.096	0.072	1.2	3.4	4.3
MAX	33	3.5	21	3.4	4.0	5.1	1.7	0.14	0.09	5.3	27	17
MIN	0.54	1.2	1.4	1.0	0.70	0.50	0.11	0.08	0.06	0.04	0.48	1.5
AC-FT	252	101	301	107	78	76	21	5.9	4.3	73	204	262

e=estimated value

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



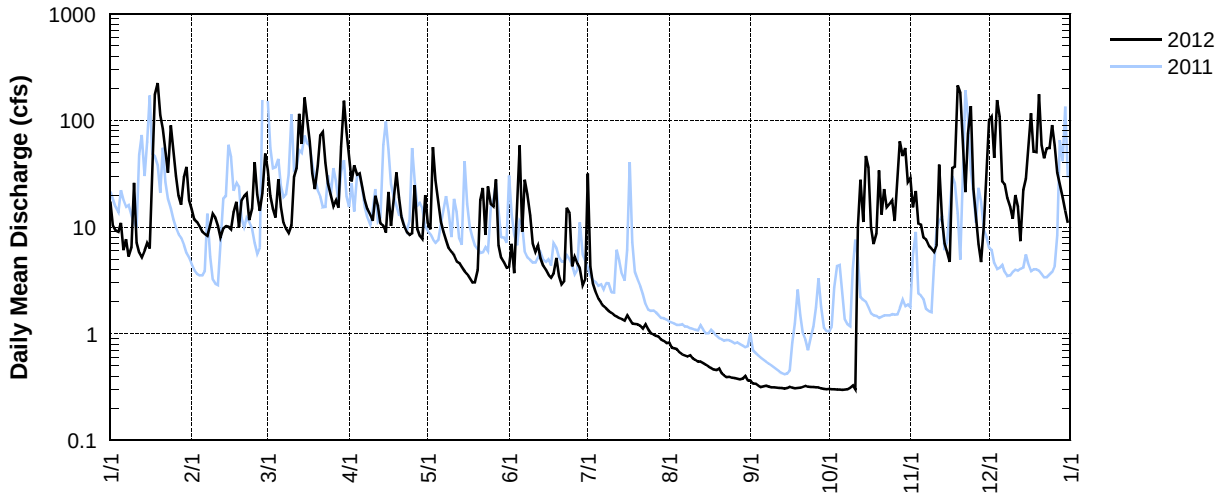
FCTW – 14206927 – FANNO CREEK AT TUCKERWOOD [RM 7.3]

Latitude: 45 27 27 Longitude: 122 47 49 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	17	15	35	46	11	4.2	32	e0.83	e0.37	e0.30	29	101
2	e10	12	20	27	9.5	7.0	4.3	e0.74	e0.34	e0.30	15	109
3	e9.2	11	15	38	56	3.7	2.9	e0.73	e0.34	e0.30	22	45
4	e9.0	10	12	31	27	15	2.4	e0.71	e0.32	e0.30	11	155
5	e11	9.0	28	32	18	58	e2.1	e0.66	e0.32	e0.30	e11	109
6	e6.1	8.6	15	24	11	9.0	e2.0	e0.64	e0.32	e0.30	e8.0	27
7	7.7	8.2	11	18	9.0	28	e1.8	e0.63	e0.32	e0.30	e7.6	25
8	5.3	10	9.6	15	7.5	20	e1.7	e0.61	e0.32	e0.30	e6.7	19
9	6.5	13	8.8	13	6.4	13	e1.6	e0.63	e0.31	e0.31	e6.3	16
10	26	12	10	11	5.9	7.0	e1.6	e0.59	e0.31	e0.33	e5.9	12
11	7.1	10	30	20	5.4	5.9	e1.5	e0.57	e0.31	e0.30	e6.8	20
12	5.7	8.0	36	16	4.8	6.8	e1.4	e0.55	e0.31	e10	38	16
13	5.2	9.7	115	11	e4.6	5.1	e1.4	e0.55	e0.31	28	12	7.4
14	6.1	10	60	10	e4.2	4.3	e1.4	e0.53	e0.31	11	7.0	22
15	7.1	10	164	8.9	e3.9	e4.0	e1.3	e0.51	e0.31	46	e5.8	28
16	6.3	9.5	100	21	e3.6	e3.6	e1.5	e0.49	e0.32	36	e4.7	61
17	30	14	64	10	e3.3	e3.3	e1.4	e0.48	e0.31	e10.0	36	117
18	175	17	32	17	e3.0	e3.7	e1.2	e0.46	e0.31	e6.9	37	51
19	224	10	23	33	e3.0	e5.2	e1.2	e0.46	e0.31	e8.7	214	50
20	112	18	37	19	e4.0	e3.5	e1.2	e0.47	e0.31	34	182	176
21	84	20	72	12	18	e2.9	e1.2	e0.43	e0.32	13	67	59
22	53	21	79	10	23	e3.1	e1.1	e0.41	e0.32	23	21	44
23	32	12	40	9.0	8.4	15	e1.2	e0.39	e0.32	15	75	55
24	90	15	26	8.5	24	13	e1.1	e0.40	e0.32	17	136	55
25	52	41	20	8.8	16	4.3	e1.0	e0.39	e0.32	18	23	90
26	30	20	16	25	16	5.3	e0.99	e0.38	e0.31	11	12	59
27	20	14	18	9.7	28	4.6	e0.95	e0.38	e0.31	28	6.9	32
28	16	21	15	8.3	6.7	e4.1	e0.94	e0.37	e0.31	64	4.7	25
29	29	49	56	7.8	5.1	e2.9	e0.88	e0.38	e0.30	46	11	19
30	37	—	153	20	4.6	e3.3	e0.85	e0.40	e0.30	55	33	14
31	18	—	78	—	4.1	—	e0.82	e0.36	—	26	—	11
TOTAL	1147.3	438	1398.4	540	355	268.8	76.93	16.13	9.51	509.94	1055.4	1629.4
MEAN	37.0	15.1	45.1	18.0	11.5	9.0	2.5	0.52	0.32	16.5	35.2	52.6
MAX	224	49	164	46	56	58	32	0.83	0.37	64	214	176
MIN	5.2	8.0	8.8	7.8	3.0	2.9	0.82	0.36	0.30	0.30	4.7	7.4
AC-FT	2276	869	2774	1071	704	533	153	32	19	1011	2093	3232

e=estimated value

FCTW — 14206927 — Fanno Creek at Tuckerwood [RM 7.3]

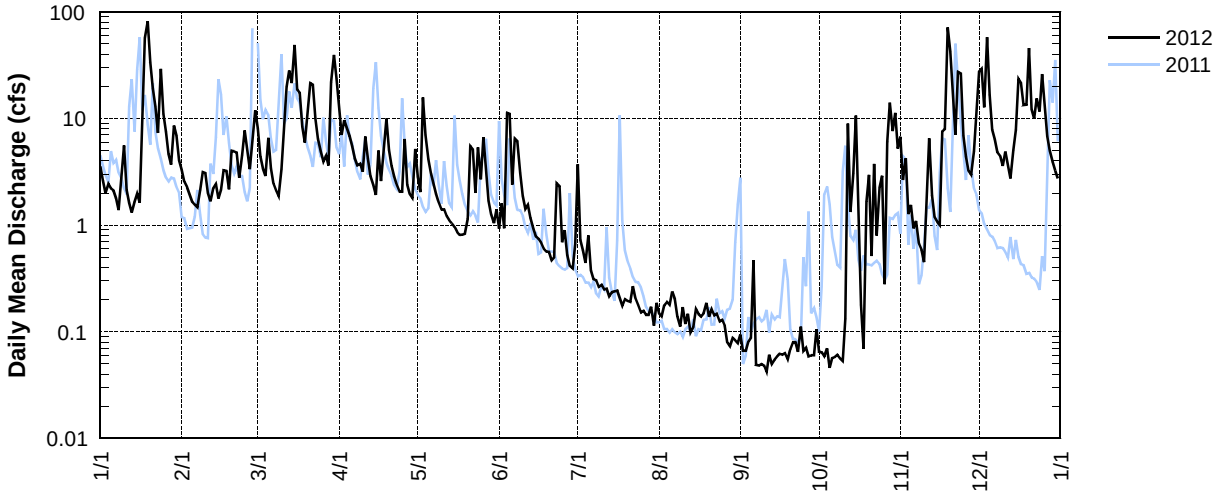


ASMP – 14206933 – ASH CREEK AT METZGER PARK AT METZGER, OREGON [RM 1.25]

Latitude: 45 27 00 Longitude: 122 45 45 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	3.6	3.3	8.1	12	2.8	0.93	3.7	0.15	0.09	0.07	6.7	27
2	2.6	2.6	4.4	7.0	2.0	1.6	0.72	0.14	0.07	0.06	2.6	29
3	2.0	2.3	3.4	9.6	16	0.93	0.58	0.18	0.07	0.06	4.2	13
4	2.4	1.9	2.9	8.0	7.0	11	0.44	0.19	0.08	0.07	1.3	58
5	2.2	1.7	6.6	6.8	4.2	11	0.80	0.18	0.09	0.05	1.6	17
6	2.1	1.6	3.4	5.5	3.1	2.4	0.37	0.24	0.47	0.06	0.93	7.9
7	1.8	1.5	2.4	4.2	2.4	6.4	0.31	0.20	0.05	0.06	1.1	6.3
8	1.4	2.1	2.1	3.6	2.0	6.1	0.30	0.14	0.05	0.06	0.67	4.8
9	3.0	3.1	1.9	3.8	1.6	3.1	0.26	0.11	0.05	0.06	0.59	4.4
10	5.6	3.1	3.3	3.2	1.4	1.9	0.28	0.17	0.05	0.05	0.45	3.6
11	2.1	2.0	7.7	6.8	1.4	1.4	0.25	0.12	0.04	0.13	1.4	4.9
12	1.6	1.7	20	4.2	1.2	1.6	0.25	0.15	0.06	8.9	6.5	3.7
13	1.3	2.2	28	2.9	1.1	1.2	0.22	0.10	0.05	1.3	1.9	2.7
14	1.7	2.4	22	2.4	1.0	0.93	0.23	0.11	0.06	3.1	1.2	5.0
15	2.0	1.8	49	1.9	0.96	0.78	0.24	0.16	0.06	11	1.1	7.8
16	1.6	2.1	19	5.0	0.86	0.74	0.24	0.15	0.06	2.3	1.0	23
17	9.4	3.3	17	2.6	0.81	0.68	0.21	0.14	0.06	0.18	7.6	21
18	57	3.2	8.4	4.7	0.81	0.60	0.18	0.15	0.06	0.07	8.0	13
19	81	2.2	5.9	10	0.83	0.56	0.20	0.19	0.06	1.7	71	13
20	34	5.0	12	5.1	1.1	0.56	0.19	0.14	0.07	3.0	43	46
21	19	4.9	21	3.6	5.5	0.47	0.19	0.16	0.08	0.51	19	12
22	13	4.8	21	2.9	5.2	0.50	0.27	0.14	0.08	3.7	7.0	10
23	7.3	2.8	10	2.4	2.0	2.4	0.21	0.15	0.07	0.80	27	15
24	29	4.5	6.4	2.1	5.4	2.3	0.18	0.12	0.11	2.2	26	12
25	11	7.8	4.9	2.1	2.7	0.69	0.15	0.13	0.07	2.9	6.9	26
26	7.5	5.0	3.9	6.4	6.7	0.89	0.16	0.11	0.07	0.28	4.4	13
27	4.6	3.3	4.5	2.4	3.4	0.52	0.14	0.08	0.06	6.0	3.2	6.8
28	3.7	5.9	3.6	1.9	1.7	0.41	0.14	0.07	0.06	14	3.0	5.0
29	8.5	12	22	1.8	1.3	0.39	0.17	0.09	0.06	7.6	4.9	3.9
30	6.9	—	39	5.2	1.0	0.67	0.11	0.08	0.11	11	11	3.2
31	4.0	—	24	—	1.4	—	0.19	0.08	—	5.2	—	2.7
TOTAL	332.9	100.1	387.8	140.1	88.87	63.65	11.88	4.32	2.42	86.47	275.24	420.7
MEAN	10.7	3.4	12.5	4.7	2.9	2.1	0.38	0.14	0.080	2.8	9.2	13.6
MAX	81	12	49	12	16	11	3.7	0.24	0.47	14	71	58
MIN	1.3	1.5	1.9	1.8	0.81	0.39	0.11	0.07	0.04	0.05	0.45	2.7
AC-FT	660	199	769	278	176	126	24	8.6	4.8	172	546	834

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



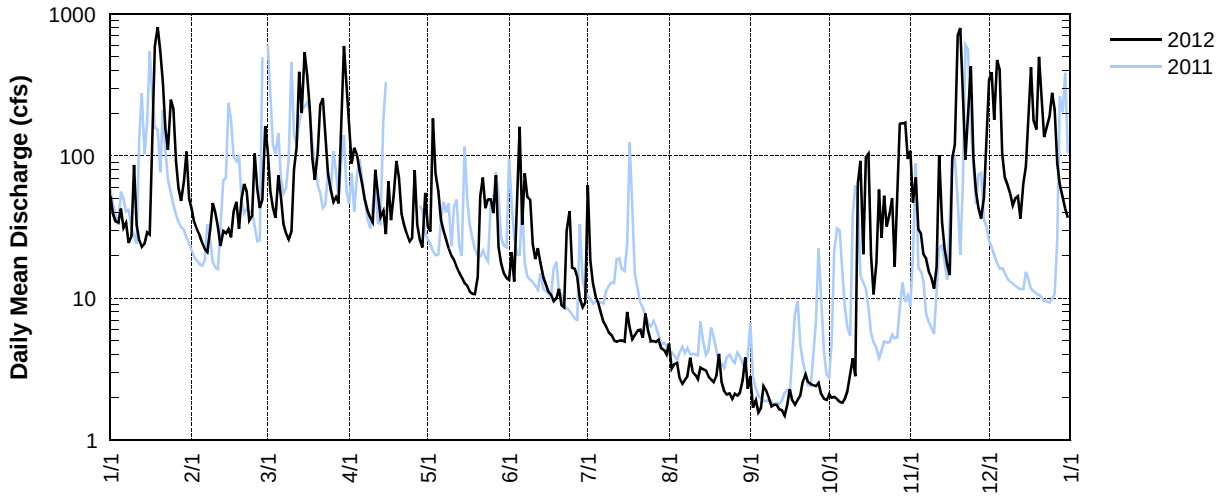
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY – OREGON WATER SCIENCE CENTER

STATION NUMBER 14206950 FANNO CREEK AT DURHAM

LATITUDE: 452413 LONGITUDE: 1224513 DRAINAGE AREA: 31.50

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	53	42	109	180	32	13	62	4.8	2.8	2.1	109	340
2	40	34	57	89	30	21	19	3.2	1.7	2.0	47	390
3	35	30	44	113	181	13	13	3.5	1.9	2.0	71	181
4	33	28	37	102	76	41	10	3.5	1.6	2.0	31	465
5	43	24	71	79	58	163	9.2	2.7	1.7	1.9	28	413
6	31	22	53	64	36	33	7.9	2.5	2.4	1.8	20	105
7	34	21	33	50	30	75	6.8	2.6	2.2	1.9	19	71
8	25	30	29	42	26	51	6.3	2.8	2.0	2.2	15	64
9	26	47	26	37	22	50	5.8	3.8	1.7	2.9	14	54
10	88	40	29	34	20	24	5.5	3.0	1.8	3.8	12	45
11	33	32	81	79	18	19	5.1	2.9	1.8	2.8	16	50
12	26	23	107	55	17	22	4.9	2.7	1.7	60	100	53
13	23	30	395	37	15	18	5.0	3.2	1.6	97	35	37
14	24	28	199	42	14	14	5.1	3.2	1.5	19	22	64
15	29	31	533	28	13	13	4.9	3.1	1.7	96	17	83
28	27	378	66	12	11	7.7	2.8	2.3	107	15	180	
17	92	40	220	36	11	11	6.5	2.7	1.9	21	93	425
18	586	48	97	51	11	9.5	5.1	2.6	1.8	11	121	179
19	795	31	69	90	11	10	5.5	2.9	1.9	17	680	153
20	556	48	102	72	14	12	5.9	4.1	2.1	58	811	493
21	341	65	230	39	51	9.0	6.0	2.6	2.6	27	322	277
22	153	56	256	33	71	8.5	5.3	2.2	2.9	52	97	137
23	114	36	139	28	44	29	7.7	2.1	2.6	33	193	155
24	242	37	76	25	48	41	6.0	2.1	2.5	39	433	194
25	220	104	58	26	51	17	5.0	2.0	2.5	52	100	273
26	94	60	48	79	37	16	5.0	2.1	2.4	17	57	217
27	60	43	51	33	75	14	4.9	2.1	2.5	51	43	90
28	49	47	47	26	23	10	5.1	2.1	2.1	164	36	63
29	64	162	167	23	18	8.6	4.5	2.5	2.0	175	50	51
30	110	—	597	55	15	9.3	4.3	4.0	1.9	170	113	43
31	50	—	310	—	14	—	4.0	2.3	—	96	—	37
TOTAL	4097	1266	4648	1713	1094	785.9	259.0	88.7	62.1	1387.4	3720	5382
MEAN	132	43.7	150	57.1	35.3	26.2	8.35	2.86	2.07	44.8	124	174
MAX	795	162	597	180	181	163	62	4.8	2.9	175	811	493
MIN	23	21	26	23	11	8.5	4.0	2.0	1.5	1.8	12	37
AC-FT	8130	2510	9220	3400	2170	1560	514	176	123	2750	7380	10680

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

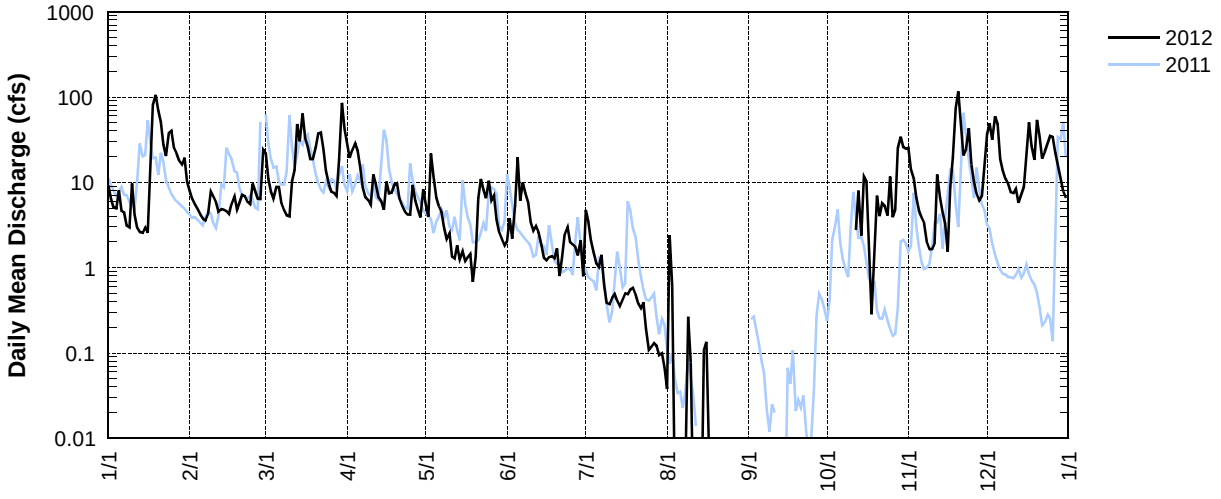


HCTP – 14206958 – HEDGES CREEK AT TUALATIN PARK AT TUALATIN, OREGON [RM 0.3]

Latitude: 45 23 08 Longitude:122 45 37 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	9.3	7.9	22	29	5.5	2.1	4.7	0.04	0.00	0.00	26	37
2	6.4	6.3	11	19	4.0	3.8	3.4	2.4	0.00	0.00	14	49
3	5.1	5.4	7.9	24	22	2.2	2.1	0.60	0.00	0.00	11	32
4	4.9	4.8	6.5	29	12	5.3	1.5	0.00	0.00	0.00	6.6	60
5	8.1	4.2	8.8	24	6.6	20	1.1	0.00	0.00	0.00	4.7	49
6	4.7	3.8	8.8	15	5.2	6.1	1.0	0.00	0.00	0.00	3.9	19
7	4.5	3.6	5.6	8.7	4.5	9.9	1.4	0.01	0.00	0.00	3.4	14
8	3.1	4.4	4.7	6.7	3.0	7.5	0.64	0.01	0.00	0.00	2.0	11
9	3.0	7.8	4.1	6.2	2.2	5.8	0.39	0.27	0.00	0.00	1.6	9.5
10	9.7	6.8	4.0	5.4	2.6	3.4	0.37	0.08	0.00	0.00	1.7	7.7
11	4.2	5.9	10	12	1.3	2.7	0.45	0.00	0.00	0.00	1.9	7.5
12	2.9	4.6	14	9.4	1.3	3.1	0.49	0.00	0.00	2.8	12	8.4
13	2.6	4.9	49	6.7	1.8	2.6	0.41	0.00	0.00	8.0	6.6	5.8
14	2.6	4.8	30	6.0	1.3	1.9	0.36	0.00	0.00	2.4	4.5	7.3
15	3.0	4.6	65	4.8	1.6	1.3	0.42	0.11	0.00	12	3.3	8.9
16	2.6	4.3	33	10	1.2	1.2	0.50	0.13	0.00	10	1.6	22
17	14	5.7	26	7.5	1.3	1.3	0.49	0.01	0.00	2.1	8.8	51
18	80	6.9	19	7.6	1.5	1.4	0.55	0.00	0.00	0.28	19	27
19	106	4.8	19	9.4	0.69	1.3	0.58	0.00	0.00	1.2	75	18
20	69	5.9	26	9.8	1.4	1.7	0.48	0.00	0.00	7.0	117	54
21	51	7.2	38	6.3	6.5	0.80	0.38	0.03	0.00	4.0	49	35
22	28	6.9	39	5.3	11	1.3	0.33	0.00	0.00	5.7	21	19
23	20	5.9	25	4.6	8.2	2.5	0.40	0.00	0.00	5.3	24	23
24	38	5.6	14	4.2	6.5	3.0	0.19	0.00	0.00	4.1	43	29
25	40	9.7	9.6	4.2	10	2.0	0.11	0.00	0.00	12	16	35
26	25	7.9	7.8	9.4	6.2	1.9	0.12	0.00	0.00	3.9	10	34
27	22	6.4	7.5	6.1	7.1	1.8	0.13	0.00	0.00	4.8	7.4	22
28	18	6.4	7.0	4.8	3.7	1.4	0.12	0.00	0.00	25	6.1	16
29	16	24	18	3.9	2.6	2.1	0.10	0.00	0.00	34	7.0	11
30	20	—	85	8.3	2.1	0.80	0.10	0.00	0.00	26	15	7.8
31	10	—	42	—	1.8	—	0.07	0.00	—	25	—	6.6
TOTAL	633.7	187.4	667.3	307.3	146.69	102.2	23.38	3.69	0	195.58	523.1	736.5
MEAN	20.5	6.5	21.5	10.3	4.7	3.4	0.76	0.12	0.000	6.3	17.5	23.7
MAX	106	24	85	29	22	20	4.7	2.4	0.00	34	117	60
MIN	2.6	3.6	4.0	3.9	0.69	0.80	0.07	0.00	0.00	0.00	1.6	5.8
AC-FT	1257	372	1324	610	291	203	46	7.3	0.00	388	1038	1461

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



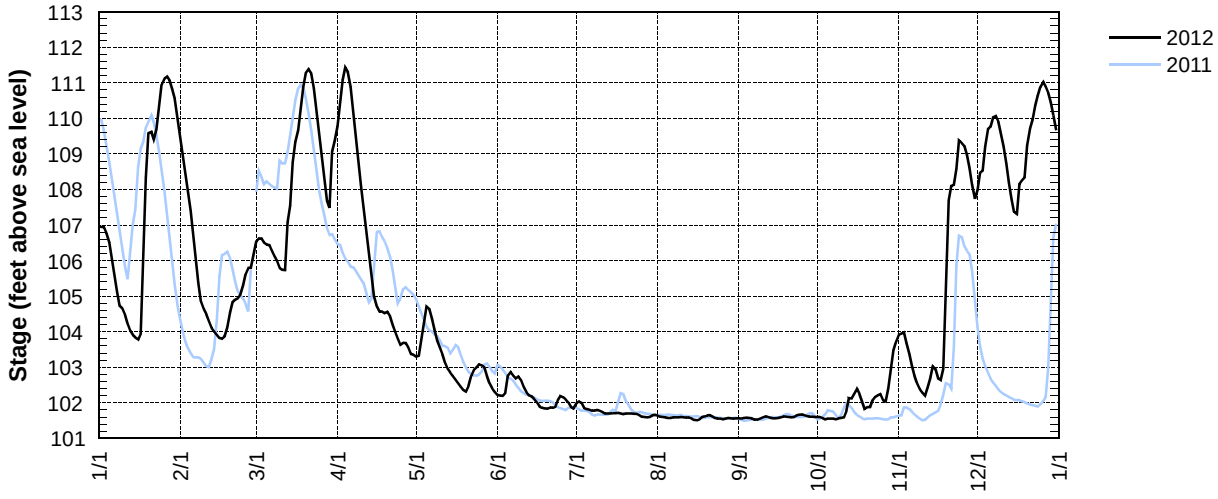
TRT – 14206956 (formerly 14206960) – TUALATIN RIVER AT TUALATIN, OREGON [RM 8.9]

Latitude: 45 23 14 Longitude: 122 45 46 Source Agency: District 18 Watermaster

Day	Daily Elevation in Feet above Mean Sea Level for 2012											
	JAN†	FEB†	MAR†	APR†	MAY†	JUN†	JUL†	AUG†	SEP†	OCT†	NOV†	DEC†
1	106.98	109.58	106.54	109.78	103.30	102.22	101.99	101.64	101.56	101.60	103.92	107.98
2	106.95	109.08	106.62	110.43	103.33	102.20	102.04	101.61	101.55	101.60	103.95	108.48
3	106.94	108.55	106.62	111.08	103.81	102.19	102.00	101.60	101.57	101.57	103.98	108.53
4	106.77	108.00	106.50	111.43	104.28	102.27	101.86	101.59	101.58	101.54	103.68	109.21
5	106.50	107.41	106.45	111.30	104.70	102.76	101.82	101.57	101.57	101.55	103.37	109.71
6	106.05	106.80	106.43	110.88	104.63	102.87	101.81	101.57	101.56	101.55	103.04	109.77
7	105.60	106.13	106.27	110.31	104.37	102.77	101.78	101.59	101.53	101.55	102.76	110.03
8	105.13	105.37	106.12	109.66	104.06	102.69	101.78	101.59	101.53	101.54	102.54	110.07
9	104.73	104.85	105.98	108.92	103.77	102.74	101.80	101.59	101.55	101.56	102.39	109.91
10	104.66	104.63	105.79	108.13	103.57	102.64	101.78	101.60	101.59	101.57	102.28	109.58
11	104.47	104.49	105.74	107.46	103.35	102.44	101.74	101.59	101.62	101.59	102.20	109.19
12	104.22	104.29	105.73	106.85	103.12	102.30	101.70	101.58	101.61	101.77	102.43	108.74
13	104.03	104.11	107.08	106.28	102.96	102.21	101.70	101.59	101.58	102.13	102.68	108.20
14	103.91	104.01	107.55	105.62	102.85	102.18	101.70	101.56	101.56	102.12	103.02	107.75
15	103.84	103.91	108.77	104.99	102.76	102.11	101.71	101.52	101.56	102.25	102.94	107.37
16	103.79	103.82	109.33	104.70	102.65	102.01	101.71	101.51	101.57	102.39	102.69	107.31
17	103.95	103.80	109.66	104.56	102.55	101.90	101.72	101.54	101.59	102.25	102.64	108.16
18	105.84	103.87	110.25	104.57	102.45	101.86	101.70	101.60	101.62	102.04	102.96	108.26
19	108.34	104.10	110.89	104.52	102.36	101.84	101.68	101.62	101.61	101.83	104.63	108.34
20	109.59	104.53	111.28	104.56	102.32	101.83	101.70	101.64	101.60	101.88	107.70	109.24
21	109.63	104.83	111.38	104.43	102.47	101.87	101.70	101.65	101.59	101.88	108.11	109.71
22	109.41	104.90	111.26	104.20	102.77	101.86	101.70	101.62	101.60	102.08	108.13	109.96
23	109.69	104.94	110.85	103.99	102.93	101.89	101.69	101.57	101.64	102.17	108.58	110.35
24	110.33	105.04	110.33	103.80	102.99	102.08	101.69	101.55	101.66	102.21	109.38	110.64
25	110.95	105.31	109.74	103.63	103.08	102.19	101.66	101.55	101.67	102.25	109.30	110.88
26	111.12	105.63	109.07	103.69	103.06	102.16	101.61	101.54	101.65	102.07	109.22	111.02
27	111.18	105.79	108.37	103.68	102.99	102.09	101.60	101.55	101.63	102.04	108.97	110.89
28	111.07	105.79	107.69	103.55	102.75	102.01	101.59	101.57	101.61	102.40	108.60	110.72
29	110.83	106.14	107.49	103.37	102.54	101.89	101.60	101.56	101.61	102.97	108.13	110.45
30	110.56	—	109.06	103.35	102.41	101.84	101.64	101.55	101.60	103.47	107.74	110.09
31	110.06	—	109.36	—	102.31	—	101.66	101.56	—	103.74	—	109.66
MEAN	107.33	105.51	108.20	106.46	103.14	102.20	101.74	101.58	101.59	102.04	105.07	109.36
MAX	111.18	109.58	111.38	111.43	104.70	102.87	102.04	101.65	101.67	103.74	109.38	111.02
MIN	103.79	103.80	105.73	103.35	102.31	101.83	101.59	101.51	101.53	101.54	102.20	107.31

† Preliminary data–subject to revision

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



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

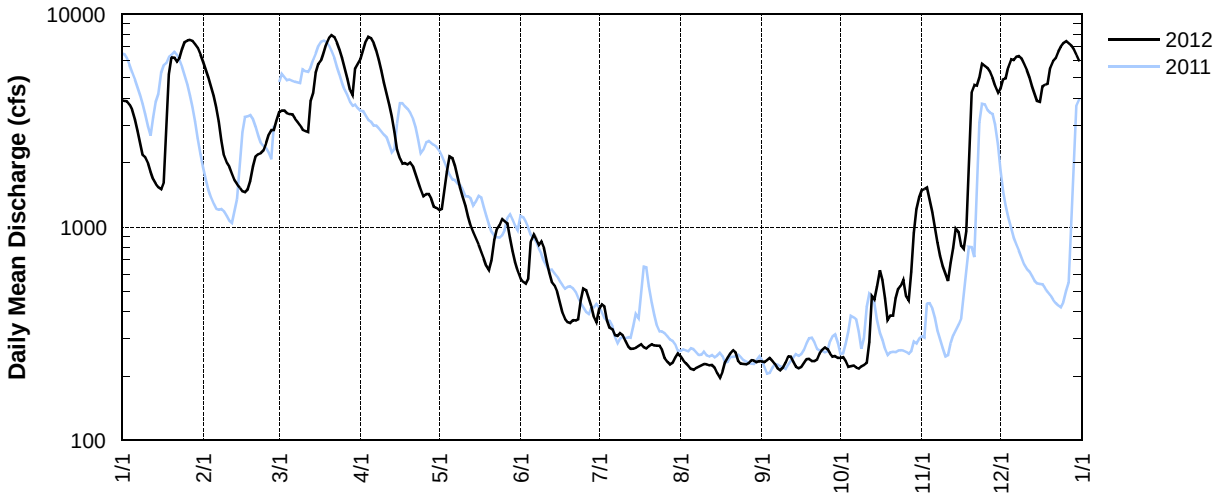
STATION NUMBER: 14207500 TUALATIN RIVER AT WEST LINN, OREG.

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

Discharge, Cubic Feet per Second, Calendar Year January to December 2012 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	3940	5970	3470	6160	1200	574	414	248	234	244	1490	4460
2	3900	5500	3520	6750	1220	553	433	237	233	245	1510	4920
3	3890	5050	3510	7410	1500	543	426	231	238	236	1540	4980
4	3760	4590	3420	7800	1820	571	366	224	243	221	1360	5600
5	3560	4120	3380	7700	2140	855	337	217	236	223	1170	6100
6	3200	3650	3370	7290	2110	923	332	214	228	224	999	6060
7	2830	3130	3230	6730	1940	876	312	219	217	220	846	6270
8	2470	2560	3120	6100	1730	823	309	222	213	217	734	6330
9	2170	2170	3000	5420	1530	857	318	225	219	222	658	6170
10	2130	2010	2860	4750	1390	799	312	228	232	226	604	5850
11	1990	1910	2820	4200	1260	688	292	227	248	231	560	5450
12	1810	1780	2780	3730	1120	610	276	225	247	287	677	5060
13	1670	1660	3870	3290	1020	552	268	225	234	477	797	4590
14	1600	1590	4250	2790	948	533	269	220	222	458	984	4220
15	1540	1530	5280	2310	890	501	272	207	218	524	949	3900
16	1510	1470	5830	2100	829	442	278	197	221	627	819	3850
17	1620	1460	6070	1980	763	397	282	210	230	565	789	4560
18	3050	1500	6590	2000	711	372	274	232	240	466	956	4650
19	5180	1640	7220	1960	657	359	269	245	241	368	1990	4700
20	6230	1920	7690	2010	628	355	276	256	235	383	4300	5570
21	6230	2140	7930	1930	695	366	282	264	235	384	4630	6010
22	5960	2200	7780	1770	870	365	278	259	239	462	4610	6200
23	6190	2220	7350	1630	978	370	277	237	255	513	5020	6620
24	6800	2290	6810	1500	1020	451	278	229	265	532	5820	7010
25	7360	2480	6220	1390	1090	515	265	228	273	569	5680	7270
26	7500	2710	5570	1430	1060	506	243	227	268	472	5570	7440
27	7550	2850	4950	1430	1040	466	234	230	256	451	5340	7270
28	7460	2850	4390	1360	889	426	227	238	247	612	5010	7080
29	7210	3140	4150	1250	772	380	231	237	249	938	4590	6800
30	6950	—	5540	1230	684	357	245	233	244	1210	4270	6410
31	6440	—	5810	—	625	—	256	236	—	1380	—	5990
TOTAL	133700	78090	151780	107400	35129	16385	9131	7127	7160	14187	74272	177390
MEAN	4313	2693	4896	3580	1133	546	295	230	239	458	2476	5722
MAX	7550	5970	7930	7800	2140	923	433	264	273	1380	5820	7440
MIN	1510	1460	2780	1230	625	355	227	197	213	217	560	3850
AC-FT	265200	154900	301100	213000	69680	32500	18110	14140	14200	28140	147300	351900

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

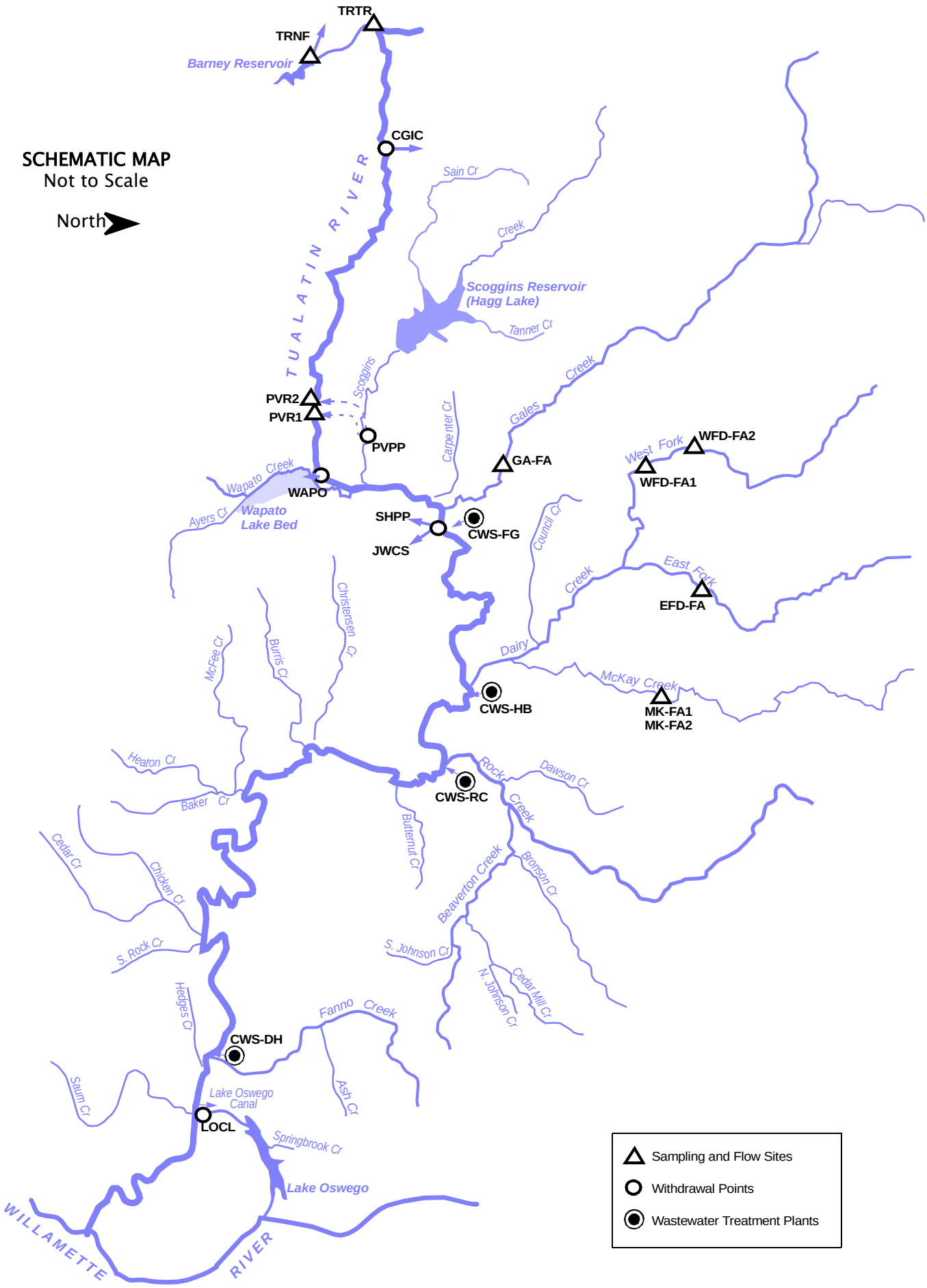


Appendix B

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

SITE CODE	SITE NAME	RIVER MILE	PAGE
CGIC	City of Hillsboro Withdrawal at Cherry Grove	73.3	B-6
CWS-DH	CWS Durham WWTF Release	9.33	B-12
CWS-FG	CWS Forest Grove WWTF Release	55.2	B-9
CWS-HB	CWS Hillsboro WWTF Release	43.8	B-10
CWS-RC	CWS Rock Creek WWTF Release	38.08	B-11
EFD-FA	CWS East Fork Dairy Flow Augmentation with TVID	4.9	B-13
GA-FA	CWS Gales Creek Flow Augmentation with TVID	5.0	B-13
JWCS	Joint Water Commission Withdrawal at Spring Hill Pump Plant	56.1	B-8
LOCL	Lake Oswego Corp. Canal Diversion	6.7	*
MK-FA1	CWS McKay Creek Flow Augmentation with TVID – Site 1	7.6	B-13
MK-FA2	CWS McKay Creek Flow Augmentation with TVID – Site 2	7.8	B-13
PVPP	TVID Withdrawal at Patton Valley Pump Plant	1.71	**
PVR1	TVID—Patton Valley River Turnout #1 Release	63.13	**
PVR2	TVID—Patton Valley River Turnout #2 Release	64.26	**
SHPP	TVID–Withdrawal at Spring Hill Pump Plant	56.1	B-7
TRNF	Barney Reservoir Measured Flow to North Fork Trask River	—	B-4
TRTR	Barney Reservoir Release to Tualatin River	78.0	B-5
WAPO	Wapato Canal Diversion	62.0	**
WFD-FA1	CWS West Fork Dairy Flow Augmentation with TVID – Site 1	0.7	B-13
WFD-FA2	CWS West Fork Dairy Flow Augmentation with TVID – Site 2	0.4	B-13

*Monitoring of the Lake Oswego Canal Diversion was discontinued 8/23/2011.

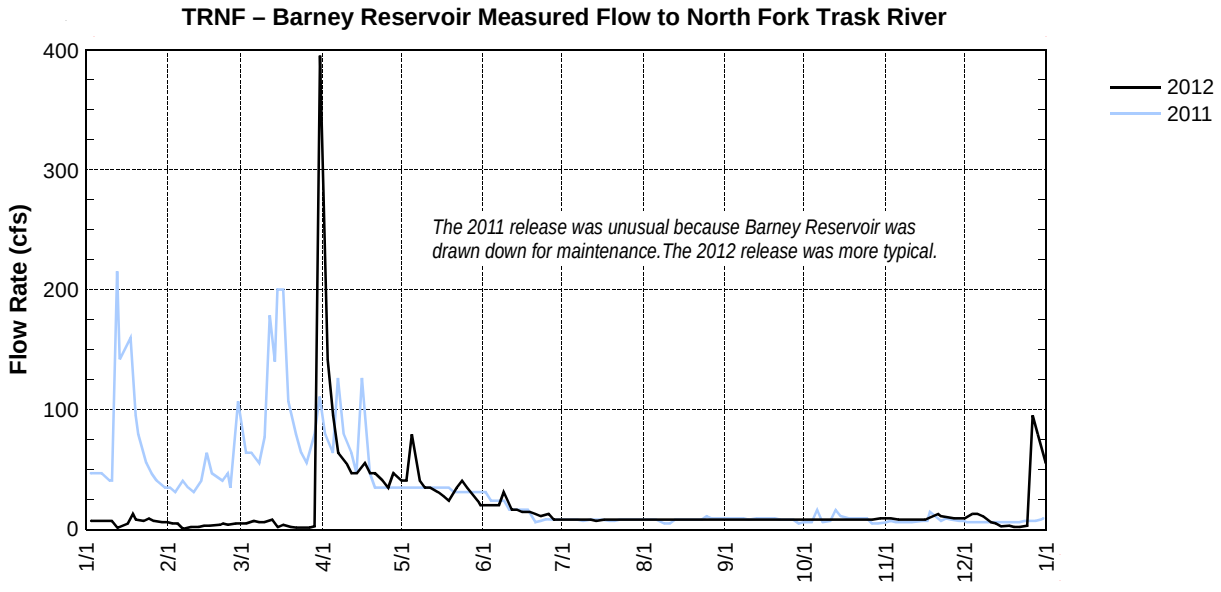
**Withdrawals and releases at Patton Valley Pump Plant, Patton Valley River turnouts and Wapato Canal Diversion were not measured in 2012.

**Wapato Creek was monitored by the USGS; results are in Appendix A.

TRNF – BARNEY RESERVOIR MEASURED FLOW TO NORTH FORK TRASK RIVER

Source Agency: Joint Water Commission

Day	2012 — Instantaneous Measured Flow Rate in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		6.2				20.2		8.4		8.4		
2			5.1	142.0	41.0		8.4				9.5	
3	7.3	5.1						8.4		8.4		13.0
4	7.3			95.2	79.6	20.2			8.4			
5		5.1	7.3				8.4		8.4	8.4	8.4	13.0
6	7.3			64.0		20.2	8.4	8.4				
7		0.5	6.2		41.0				8.4		8.4	11.3
8						31.3		8.4		8.4		
9	7.3		6.2	55.5	35.0		8.4				8.4	
10		2.3						8.4	8.4	8.4		6.2
11	7.3			47.0	35.0	16.5	8.4					
12			8.4						8.4	8.4		5.1
13	1.7	2.3		47.0		16.5	7.3	8.4			8.4	
14			2.3		31.3				8.4		8.4	2.8
15		3.4				14.8		8.4		8.4	8.4	
16			4.0	55.5	27.6		8.4	8.4				
17	5.1	3.4							8.4	8.4		3.4
18				47.0	23.9	14.8	8.4					
19	13.0		2.3						8.4	8.4		2.3
20	8.4			47.0		13.0	8.4	8.4			13.0	
21		4.0	1.7		35.0				8.4		11.3	2.3
22		5.1				11.3		8.4		8.4		
23	7.3		1.7	41.0	41.0		8.4					
24		4.0						8.4	8.4	8.4		3.4
25	9.5			35.0	35.0	13.0	8.4		8.4			
26			1.7							8.4	9.5	95.2
27	7.3	5.1		47.0		8.4	8.4	8.4				
28			2.8						8.4		9.5	79.6
29		5.1			23.9	8.4		8.4		9.5		
30	6.2	—	395.0	41.0	20.2		8.4	8.4			9.5	
31		—		—		—		8.4	—	9.5	—	55.5

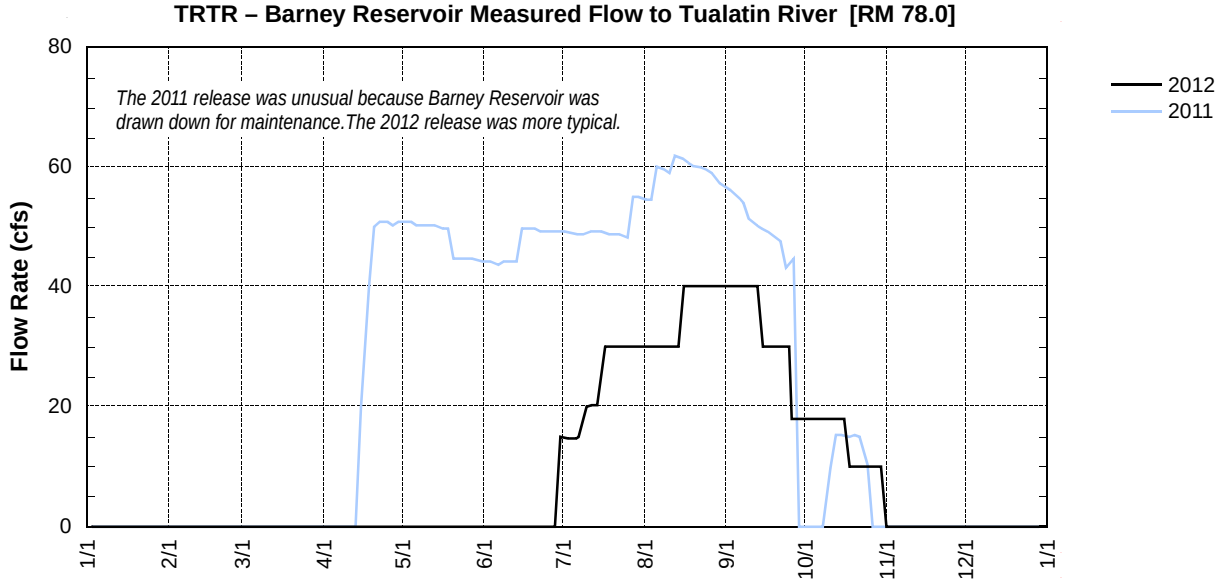


TRTR — BARNEY RESERVOIR MEASURED FLOW TO TUALATIN RIVER [RM 78.0]

Source Agency: Joint Water Commission

Day	2012 — Instantaneous Measured Flow Rate in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		0.0				0.0		30.0		18.0		
2			0.0	0.0	0.0		14.7				0.0	
3	0.0	0.0						30.0		18.0		0.0
4	0.0			0.0	0.0	0.0			40.1			
5		0.0	0.0				14.7		40.1	18.0	0.0	0.0
6	0.0			0.0		0.0	15.0	30.0				
7		0.0	0.0		0.0				40.1		0.0	0.0
8						0.0		30.0		18.0		
9	0.0		0.0	0.0	0.0		20.0				0.0	
10		0.0						30.0	40.1	18.0		0.0
11	0.0			0.0	0.0	0.0	20.3					
12			0.0						40.1	18.0		0.0
13	0.0	0.0		0.0		0.0	20.3	30.0			0.0	
14			0.0		0.0				30.0		0.0	0.0
15		0.0				0.0		40.1		18.0	0.0	
16			0.0	0.0	0.0		30.0	40.1				
17	0.0	0.0							30.0	10.0		0.0
18				0.0	0.0	0.0	30.0					
19	0.0		0.0						30.0	10.0		0.0
20	0.0			0.0		0.0	30.0	40.1			0.0	
21		0.0	0.0		0.0				30.0		0.0	0.0
22		0.0				0.0		40.1		10.0		
23	0.0		0.0	0.0	0.0		30.0					
24		0.0						40.1	30.0	10.0		0.0
25	0.0			0.0	0.0	0.0	30.0		18.0			
26			0.0							10.0	0.0	0.0
27	0.0	0.0		0.0		0.0	30.0	40.1				
28			0.0						18.0		0.0	0.0
29		0.0			0.0	15.0		40.1		10.0		
30	0.0	—	0.0	0.0	0.0		30.0	40.1			0.0	
31		—		—		—		40.1	—	0.0	—	0.0

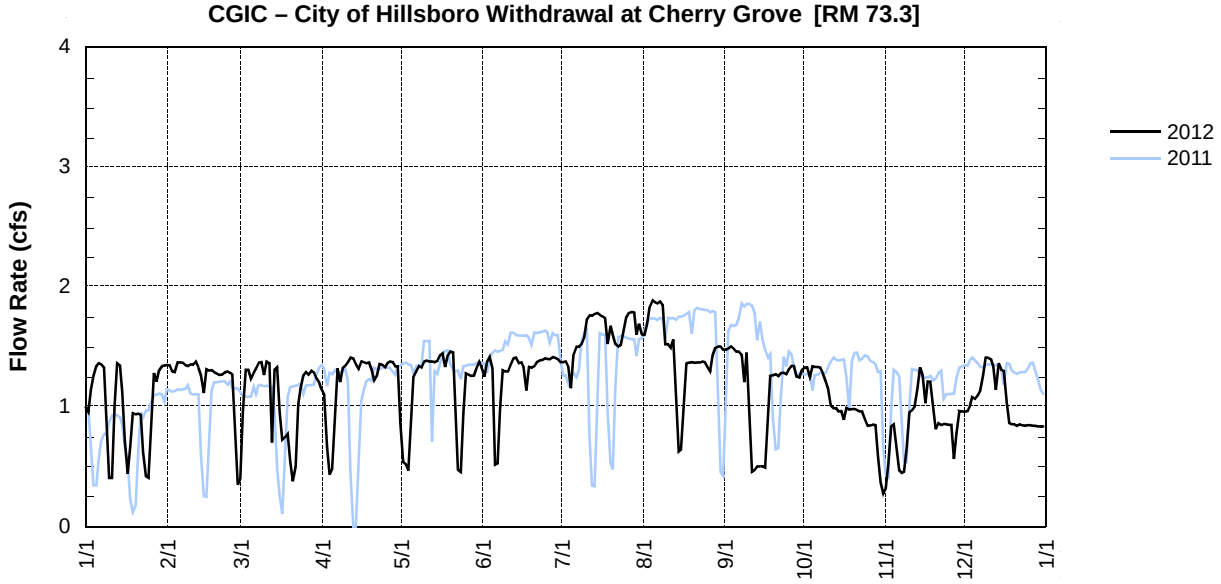
TRTR – Barney Reservoir Measured Flow to Tualatin River [RM 78.0]



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

Source Agency: Joint Water Commission

Day	2012 — Calculated Average Flow Rate in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.00	1.35	0.97	1.10	0.54	1.25	1.37	1.60	1.48	1.32	0.32	0.96
2	0.96	1.34	1.31	0.67	0.52	1.38	1.38	1.69	1.49	1.33	0.52	0.97
3	1.14	1.29	1.31	0.44	0.47	1.42	1.33	1.83	1.50	1.25	0.84	1.01
4	1.25	1.29	1.23	0.49	0.90	1.32	1.16	1.89	1.48	1.34	0.86	1.08
5	1.34	1.37	1.29	0.99	1.25	0.52	1.44	1.87	1.46	1.33	0.68	1.07
6	1.36	1.37	1.32	1.32	1.29	0.53	1.50	1.86	1.46	1.33	0.47	1.09
7	1.36	1.36	1.37	1.21	1.34	1.00	1.50	1.88	1.43	1.33	0.45	1.13
8	1.33	1.34	1.37	1.32	1.33	1.30	1.52	1.85	1.21	1.28	0.46	1.26
9	0.79	1.34	1.27	1.34	1.38	1.30	1.58	1.52	1.45	1.21	0.65	1.41
10	0.41	1.35	1.38	1.37	1.38	1.29	1.73	1.52	0.99	1.15	0.95	1.41
11	0.41	1.35	1.36	1.41	1.38	1.36	1.76	1.49	0.46	1.01	0.97	1.39
12	1.00	1.38	0.70	1.40	1.38	1.40	1.76	1.56	0.48	0.99	1.00	1.34
13	1.36	1.32	1.31	1.35	1.37	1.41	1.77	1.09	0.50	0.99	1.15	1.14
14	1.34	1.26	1.33	1.32	1.38	1.36	1.78	0.63	0.50	0.96	1.33	1.36
15	1.12	1.12	0.96	1.38	1.43	1.37	1.77	0.64	0.51	0.97	1.27	1.31
16	0.72	1.31	0.73	1.37	1.45	1.33	1.75	1.03	0.49	0.89	1.03	1.30
17	0.44	1.30	0.75	1.36	1.33	1.14	1.74	1.36	0.88	0.99	1.21	1.04
18	0.67	1.31	0.78	1.37	1.43	1.33	1.52	1.37	1.26	0.98	1.21	0.86
19	0.95	1.29	0.55	1.31	1.46	1.33	1.68	1.37	1.26	0.98	1.00	0.85
20	0.94	1.28	0.38	1.22	1.45	1.34	1.60	1.37	1.27	0.98	0.81	0.86
21	0.94	1.27	0.50	1.26	0.83	1.38	1.52	1.37	1.25	0.97	0.86	0.84
22	0.93	1.27	1.02	1.36	0.48	1.39	1.50	1.37	1.28	0.96	0.85	0.85
23	0.63	1.29	1.15	1.35	0.45	1.39	1.51	1.38	1.28	0.96	0.86	0.85
24	0.42	1.30	1.26	1.33	0.95	1.40	1.62	1.37	1.27	0.90	0.86	0.84
25	0.41	1.28	1.29	1.37	1.28	1.40	1.75	1.33	1.31	0.84	0.85	0.85
26	0.86	1.27	1.27	1.38	1.27	1.40	1.78	1.30	1.34	0.84	0.85	0.85
27	1.28	0.75	1.30	1.37	1.26	1.42	1.79	1.43	1.34	0.85	0.56	0.84
28	1.21	0.35	1.28	1.34	1.26	1.41	1.79	1.49	1.25	0.85	0.78	0.84
29	1.30	0.40	1.23	1.34	1.33	1.40	1.60	1.50	1.24	0.58	0.97	0.84
30	1.34	—	1.20	0.87	1.38	1.37	1.69	1.50	1.31	0.37	0.96	0.84
31	1.34	—	1.14	—	1.33	—	1.60	1.47	—	0.28	—	0.83

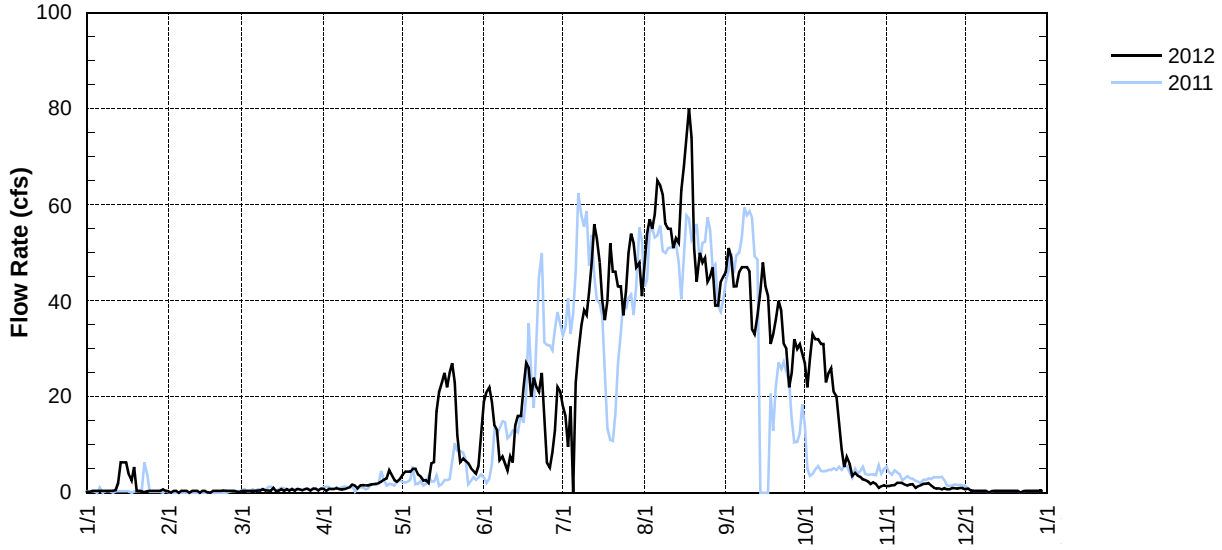


SHPP – TVID WITHDRAWAL AT SPRING HILL PUMP PLANT [RM 56.1]

Source Agency: US Geological Survey, Oregon Water Science Center

Day	2012 — Mean Daily Water Withdrawal in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.2	0.3	0.4	0.4	4.4	21.0	16.0	54.0	51.0	22.0	1.4	0.4
2	0.2	0.1	0.4	0.8	4.4	22.0	9.6	57.0	49.0	28.0	1.5	0.4
3	0.4	0.4	0.4	0.9	4.4	19.0	9.6	55.0	43.0	33.0	1.6	0.4
4	0.4	0.4	0.4	0.9	5.0	14.0	0.0	58.0	43.0	32.0	2.1	0.4
5	0.4	0.0	0.4	1.0	5.0	13.0	23.0	65.0	46.0	32.0	2.1	0.4
6	0.4	0.4	0.5	0.9	3.8	6.8	29.0	64.0	47.0	31.0	2.1	0.4
7	0.4	0.4	0.5	0.7	3.4	7.6	35.0	62.0	47.0	31.0	1.7	0.4
8	0.4	0.4	0.8	0.8	2.5	6.1	38.0	56.0	47.0	23.0	1.5	0.4
9	0.4	0.0	0.4	1.0	2.7	4.7	37.0	55.0	46.0	25.0	1.7	0.4
10	0.4	0.4	0.5	1.2	2.1	7.6	42.0	55.0	34.0	26.0	1.8	0.4
11	0.4	0.4	0.4	1.7	6.2	6.3	48.0	51.0	33.0	21.0	1.1	0.4
12	0.5	0.4	1.1	1.5	6.4	14.0	56.0	53.0	37.0	20.0	1.4	0.4
13	2.1	0.0	0.4	1.0	17.0	16.0	53.0	52.0	42.0	15.0	1.6	0.4
14	6.3	0.4	0.4	1.5	21.0	16.0	48.0	63.0	48.0	9.1	1.9	0.4
15	6.3	0.4	0.8	1.6	23.0	22.0	40.0	68.0	43.0	5.4	0.4	0.4
16	6.3	0.1	0.4	1.5	25.0	27.0	36.0	74.0	41.0	7.5	0.4	0.4
17	3.9	0.0	0.8	1.5	22.0	26.0	40.0	80.0	31.0	6.0	0.4	0.4
18	2.5	0.4	0.4	1.7	25.0	20.0	52.0	74.0	33.0	3.5	0.4	0.4
19	5.4	0.4	0.8	1.8	27.0	24.0	46.0	51.0	36.0	4.2	0.4	0.4
20	0.4	0.4	0.4	1.9	23.0	22.0	46.0	44.0	40.0	3.6	0.4	0.4
21	0.4	0.4	0.8	2.1	12.0	21.0	43.0	50.0	38.0	3.3	0.4	0.4
22	0.3	0.4	0.7	2.3	6.4	25.0	43.0	48.0	31.0	2.8	0.4	0.4
23	0.1	0.4	0.5	2.8	7.1	17.0	37.0	49.0	30.0	2.6	0.4	0.4
24	0.3	0.4	0.9	3.0	6.6	6.2	42.0	44.0	22.0	2.4	0.4	0.4
25	0.4	0.4	0.9	4.7	6.1	5.2	50.0	45.0	25.0	1.9	0.4	0.4
26	0.4	0.4	0.4	3.7	5.2	8.4	54.0	47.0	32.0	2.2	0.4	0.4
27	0.4	0.3	0.9	2.7	4.6	13.0	52.0	39.0	30.0	1.9	0.4	0.4
28	0.4	0.1	0.9	2.3	4.0	22.0	47.0	39.0	31.0	1.1	0.4	0.4
29	0.4	0.4	0.4	2.9	5.6	21.0	48.0	44.0	29.0	1.4	0.4	0.4
30	0.8	—	0.9	3.8	13.0	18.0	41.0	45.0	27.0	1.6	0.4	0.4
31	0.4	—	0.8	—	19.0	—	48.0	46.0	—	1.4	—	0.4

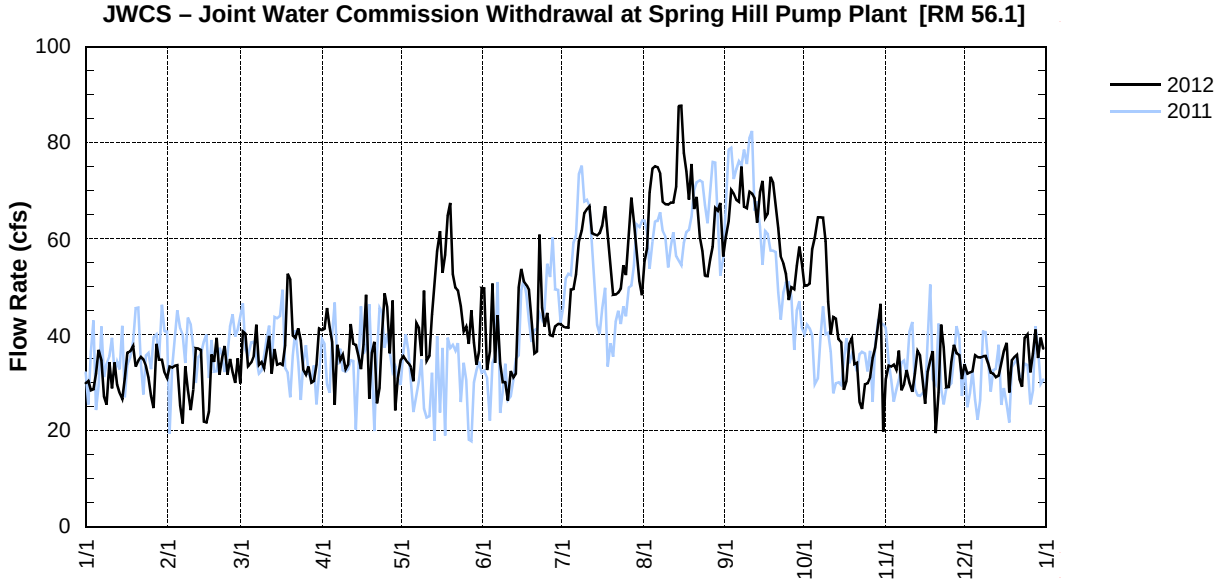
SHPP – Tualatin Valley Irrigation District Withdrawal at Spring Hill Pump Plant [RM 56.1]



JWCS – JOINT WATER COMMISSION WITHDRAWAL AT SPRING HILL PUMP PLANT [RM 56.1]

Source Agency: Joint Water Commission

Day	2012 — Calculated Average Flow Rate in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	29.9	31.0	40.7	41.3	35.5	49.6	41.7	55.3	60.4	50.2	30.7	33.9
2	30.4	33.4	40.2	45.6	34.7	32.6	41.5	58.0	63.6	50.3	33.6	32.0
3	28.5	33.2	33.4	41.6	34.1	36.6	41.5	69.7	70.1	50.6	33.4	32.2
4	28.7	33.5	34.3	38.5	33.2	50.6	49.4	74.7	69.3	57.8	33.8	32.4
5	32.0	33.6	35.7	25.4	30.4	34.1	49.5	75.1	68.1	60.2	32.6	35.7
6	36.9	25.3	42.1	37.9	42.4	44.0	52.5	74.9	67.6	64.4	36.7	35.3
7	34.7	21.5	33.7	34.7	41.4	34.1	59.5	73.6	75.0	64.4	28.4	35.2
8	27.1	33.4	34.3	35.9	35.5	30.1	61.7	67.6	66.7	64.4	29.7	35.5
9	25.5	28.6	33.0	32.9	49.2	30.2	65.4	67.2	66.4	59.5	32.7	35.6
10	34.3	24.3	36.3	33.9	34.6	26.3	66.2	67.1	69.8	46.9	30.0	34.1
11	28.8	28.6	39.8	42.3	35.7	32.5	66.8	67.5	69.4	40.1	28.1	32.1
12	34.2	37.2	31.9	38.1	44.2	31.1	61.2	67.5	68.4	43.7	31.9	32.0
13	29.6	37.1	37.1	37.9	50.5	32.0	60.9	70.8	63.4	43.4	36.5	31.2
14	27.8	36.9	33.8	35.5	57.5	50.0	60.7	87.7	69.6	39.1	35.7	31.5
15	26.6	21.9	34.1	32.8	61.6	53.7	61.2	87.7	72.0	38.4	30.7	34.0
16	30.9	21.7	33.7	38.0	53.0	51.1	62.8	77.9	64.4	28.5	25.7	36.6
17	36.3	24.0	37.8	48.3	56.7	50.4	66.8	74.0	65.3	30.3	32.3	38.3
18	36.6	35.9	52.7	26.7	64.8	49.3	60.7	68.2	72.9	38.2	34.6	28.0
19	37.7	34.4	51.5	36.2	67.4	43.1	54.4	75.6	71.6	39.4	36.6	34.7
20	33.4	39.3	39.9	38.5	52.7	36.1	48.3	66.2	67.1	33.9	19.5	35.4
21	34.6	31.7	39.3	25.7	49.8	36.5	48.4	68.7	62.2	34.2	28.0	35.9
22	35.4	35.1	41.3	28.9	49.3	60.8	48.8	60.4	56.2	26.0	42.1	30.7
23	34.9	37.7	38.8	40.4	45.9	45.7	49.6	57.5	54.9	24.6	37.4	29.2
24	33.4	31.7	32.6	48.7	40.7	41.7	54.4	52.2	52.6	29.7	29.0	39.4
25	31.1	35.0	31.6	45.8	41.7	44.6	52.4	52.2	47.3	29.9	29.2	40.1
26	27.3	32.2	33.4	36.1	38.1	39.9	60.3	55.6	49.9	31.2	34.4	32.2
27	24.8	30.0	30.1	47.2	45.1	39.7	68.5	58.3	49.5	35.1	37.9	36.1
28	38.1	35.1	30.4	24.2	38.4	41.8	63.6	66.5	54.4	37.3	36.2	41.1
29	34.8	29.9	33.8	30.9	33.8	42.3	57.5	65.9	58.4	42.1	35.8	35.2
30	34.8	—	41.3	34.7	36.5	42.2	51.2	67.5	54.9	46.5	30.8	39.5
31	32.2	—	41.0	—	49.7	—	48.3	56.3	—	19.8	—	37.1

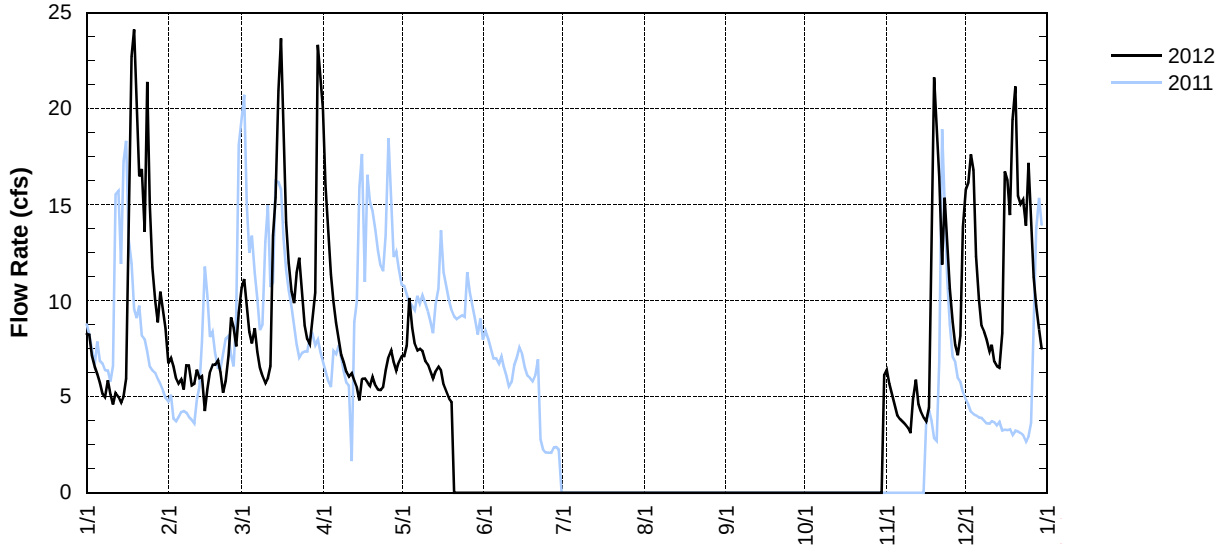


CWSFG – CLEAN WATER SERVICES FOREST GROVE WASTEWATER TREATMENT FACILITY DISCHARGE [RM 55.2]

Source Agency: Clean Water Services

Day	2012 — Mean Daily Water Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	8.3	6.7	11.1	16.0	7.1	0.0	0.0	0.0	0.0	0.0	6.4	15.8
2	8.2	7.0	9.9	13.3	7.7	0.0	0.0	0.0	0.0	0.0	5.7	16.2
3	7.2	6.6	8.4	11.4	10.2	0.0	0.0	0.0	0.0	0.0	5.1	17.6
4	6.6	5.9	7.8	10.0	8.6	0.0	0.0	0.0	0.0	0.0	4.6	16.8
5	6.2	5.7	8.6	8.9	7.7	0.0	0.0	0.0	0.0	0.0	4.0	12.3
6	5.7	5.9	7.3	7.9	7.4	0.0	0.0	0.0	0.0	0.0	3.9	10.1
7	5.2	5.4	6.5	7.2	7.5	0.0	0.0	0.0	0.0	0.0	3.7	8.7
8	5.0	6.6	6.1	6.8	7.4	0.0	0.0	0.0	0.0	0.0	3.6	8.4
9	5.9	6.6	5.7	6.3	6.9	0.0	0.0	0.0	0.0	0.0	3.4	8.0
10	5.1	5.6	6.0	6.0	6.7	0.0	0.0	0.0	0.0	0.0	3.1	7.4
11	4.6	5.7	6.6	6.2	6.3	0.0	0.0	0.0	0.0	0.0	4.9	7.7
12	5.2	6.4	13.4	5.8	6.0	0.0	0.0	0.0	0.0	0.0	5.9	6.8
13	5.0	6.0	15.4	5.5	6.3	0.0	0.0	0.0	0.0	0.0	4.6	6.6
14	4.7	6.1	20.9	4.8	6.6	0.0	0.0	0.0	0.0	0.0	4.2	6.5
15	5.0	4.3	23.7	5.9	6.4	0.0	0.0	0.0	0.0	0.0	3.9	8.3
16	6.0	5.4	17.8	5.9	5.6	0.0	0.0	0.0	0.0	0.0	3.7	16.7
17	10.6	6.3	14.1	5.7	5.3	0.0	0.0	0.0	0.0	0.0	4.4	16.3
18	22.7	6.7	12.0	5.6	4.9	0.0	0.0	0.0	0.0	0.0	9.9	14.5
19	24.1	6.7	10.5	6.0	4.7	0.0	0.0	0.0	0.0	0.0	21.6	19.4
20	20.0	6.9	9.9	5.6	0.0	0.0	0.0	0.0	0.0	0.0	18.7	21.2
21	16.5	6.3	11.5	5.4	0.0	0.0	0.0	0.0	0.0	0.0	16.4	15.5
22	16.9	5.2	12.3	5.3	0.0	0.0	0.0	0.0	0.0	0.0	11.9	15.0
23	13.6	5.8	10.2	5.5	0.0	0.0	0.0	0.0	0.0	0.0	15.4	15.3
24	21.4	7.1	8.7	6.4	0.0	0.0	0.0	0.0	0.0	0.0	13.0	13.9
25	15.0	9.1	8.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	10.6	17.2
26	11.8	8.6	7.7	7.4	0.0	0.0	0.0	0.0	0.0	0.0	8.9	14.0
27	10.0	7.6	9.1	6.8	0.0	0.0	0.0	0.0	0.0	0.0	7.7	11.2
28	8.9	9.4	10.4	6.4	0.0	0.0	0.0	0.0	0.0	0.0	7.2	9.7
29	10.5	10.7	23.3	6.8	0.0	0.0	0.0	0.0	0.0	0.0	8.2	8.5
30	9.5	—	21.7	7.1	0.0	0.0	0.0	0.0	0.0	0.0	13.8	7.5
31	8.6	—	20.0	—	0.0	—	0.0	0.0	—	6.2	—	6.9

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

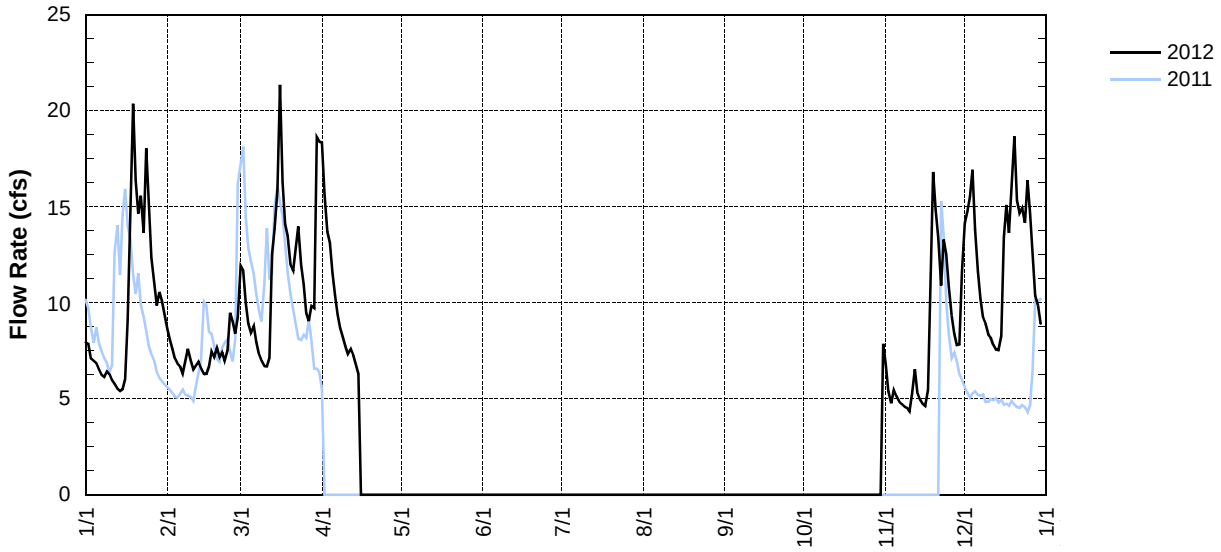


CWSHB – CLEAN WATER SERVICES HILLSBORO WASTEWATER TREATMENT FACILITY DISCHARGE [RM 43.8]

Source Agency: Clean Water Services

Day	2012 — Mean Daily Water Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7.9	8.6	11.7	15.7	0.0	0.0	0.0	0.0	0.0	0.0	6.8	14.2
2	7.9	8.1	10.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0	5.4	14.7
3	7.1	7.6	8.9	13.1	0.0	0.0	0.0	0.0	0.0	0.0	4.8	15.5
4	7.0	7.1	8.5	11.6	0.0	0.0	0.0	0.0	0.0	0.0	5.5	16.9
5	6.9	6.9	8.8	10.4	0.0	0.0	0.0	0.0	0.0	0.0	5.1	13.8
6	6.5	6.7	7.9	9.4	0.0	0.0	0.0	0.0	0.0	0.0	4.9	11.6
7	6.3	6.3	7.3	8.7	0.0	0.0	0.0	0.0	0.0	0.0	4.7	10.2
8	6.1	6.9	7.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0	4.6	9.2
9	6.4	7.6	6.7	7.8	0.0	0.0	0.0	0.0	0.0	0.0	4.5	8.9
10	6.3	7.0	6.7	7.3	0.0	0.0	0.0	0.0	0.0	0.0	4.3	8.3
11	6.0	6.5	7.1	7.6	0.0	0.0	0.0	0.0	0.0	0.0	5.2	8.2
12	5.8	6.7	12.5	7.3	0.0	0.0	0.0	0.0	0.0	0.0	6.5	7.8
13	5.5	6.9	13.8	6.8	0.0	0.0	0.0	0.0	0.0	0.0	5.3	7.6
14	5.4	6.6	15.9	6.3	0.0	0.0	0.0	0.0	0.0	0.0	5.0	7.5
15	5.5	6.3	21.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	8.3
16	6.0	6.3	16.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	13.4
17	9.1	6.7	14.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	15.1
18	15.1	7.5	13.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	13.7
19	20.4	7.2	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.8	15.7
20	16.4	7.6	11.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.8	18.7
21	14.7	7.2	12.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.4	15.3
22	15.6	7.4	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.9	14.7
23	13.7	7.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3	15.0
24	18.0	7.5	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	14.2
25	15.0	9.5	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.8	16.4
26	12.4	9.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	14.7
27	11.0	8.4	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.4	12.3
28	9.9	9.3	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	10.4
29	10.6	11.9	18.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	9.8
30	10.1	—	18.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.6	8.9
31	9.4	—	18.3	—	0.0	—	0.0	0.0	—	7.9	—	8.2

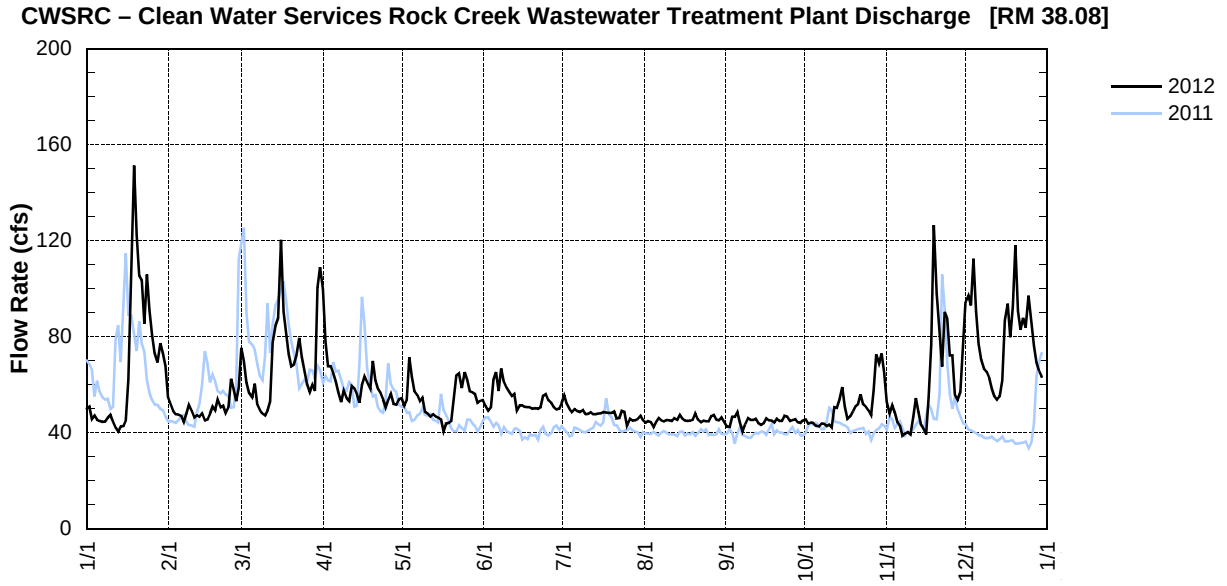
CWSHB – Clean Water Services Hillsboro Wastewater Treatment Plant Discharge [RM 43.8]



CWSRC – CLEAN WATER SERVICES ROCK CREEK WASTEWATER TREATMENT FACILITY DISCHARGE [RM 38.08]

Source Agency: Clean Water Services

Day	2012 — Mean Daily Water Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	50.1	54.7	69.9	78.2	51.5	51.3	55.5	44.3	42.5	45.6	52.8	94.5
2	50.9	51.9	61.0	67.8	53.8	49.2	52.0	45.0	42.4	43.8	48.0	97.3
3	45.7	49.1	56.7	67.7	71.4	50.7	50.0	44.5	46.6	44.3	51.4	93.1
4	47.2	47.8	54.9	64.9	63.3	62.3	48.6	42.3	46.7	44.1	48.4	112.5
5	45.5	47.6	60.5	61.5	57.3	65.2	49.9	44.5	48.8	42.9	44.5	90.7
6	44.9	47.1	51.7	57.0	55.6	57.4	49.1	46.1	44.3	42.6	43.0	77.1
7	44.5	44.4	49.5	52.9	53.2	66.8	48.7	45.2	40.6	43.8	38.7	70.5
8	44.6	47.8	47.9	57.6	54.7	61.3	49.5	44.8	43.6	43.7	39.8	66.6
9	46.3	51.6	47.3	54.3	48.9	59.0	47.7	45.3	46.1	42.7	40.2	65.3
10	47.5	49.0	49.3	53.2	48.0	57.2	47.8	45.2	45.3	43.5	39.1	62.9
11	44.5	46.4	53.1	59.4	46.9	55.3	48.5	44.8	45.4	42.2	46.9	58.5
12	42.1	47.4	77.7	58.6	47.7	56.4	47.7	46.1	45.8	50.6	54.6	55.3
13	40.5	46.7	84.8	56.1	46.7	49.3	47.7	45.4	44.2	50.4	48.6	53.8
14	42.7	48.1	87.8	52.5	46.4	51.5	48.0	47.5	43.4	53.7	43.3	55.3
15	42.7	45.2	120.4	59.9	45.5	51.5	48.1	45.9	44.0	59.1	41.7	61.9
16	45.4	45.6	90.6	63.3	40.6	50.9	48.6	45.1	46.0	50.9	39.3	87.0
17	62.3	47.9	81.8	61.1	43.9	50.8	48.3	44.9	45.2	45.9	55.2	93.8
18	117.5	51.0	72.7	58.3	44.2	50.6	48.3	45.1	45.2	47.0	76.8	79.8
19	151.3	49.4	67.7	70.0	44.8	50.0	48.2	45.5	44.2	48.9	126.5	92.7
20	122.3	53.9	68.4	61.8	53.6	50.2	49.0	48.1	45.9	51.1	98.2	118.1
21	105.3	50.6	72.2	58.3	64.0	50.0	46.0	45.6	45.0	51.9	82.1	90.8
22	103.4	51.3	79.6	56.6	64.7	50.6	46.1	44.3	45.0	55.9	67.5	83.0
23	85.4	48.3	71.7	53.9	58.7	55.5	49.2	45.2	47.1	51.8	90.4	87.8
24	106.0	50.9	66.1	50.7	65.3	56.0	48.9	44.8	46.8	50.8	87.5	83.9
25	91.0	62.6	60.5	53.8	62.1	53.6	43.0	44.7	44.9	49.4	72.2	97.2
26	80.9	58.2	57.1	56.5	57.3	52.5	45.9	46.9	45.3	47.4	72.3	86.9
27	73.1	53.1	60.1	51.9	56.9	50.6	45.1	47.4	45.8	57.7	55.6	76.2
28	69.2	58.9	57.5	51.7	56.1	49.8	45.2	45.5	44.4	72.6	53.7	69.1
29	77.4	75.5	100.5	54.0	52.5	49.9	45.7	45.2	44.1	68.8	57.1	65.8
30	73.0	—	109.1	54.3	53.4	52.6	47.1	46.4	45.2	73.0	74.8	63.3
31	67.9	—	100.1	—	53.7	—	45.2	44.4	—	64.9	—	61.4

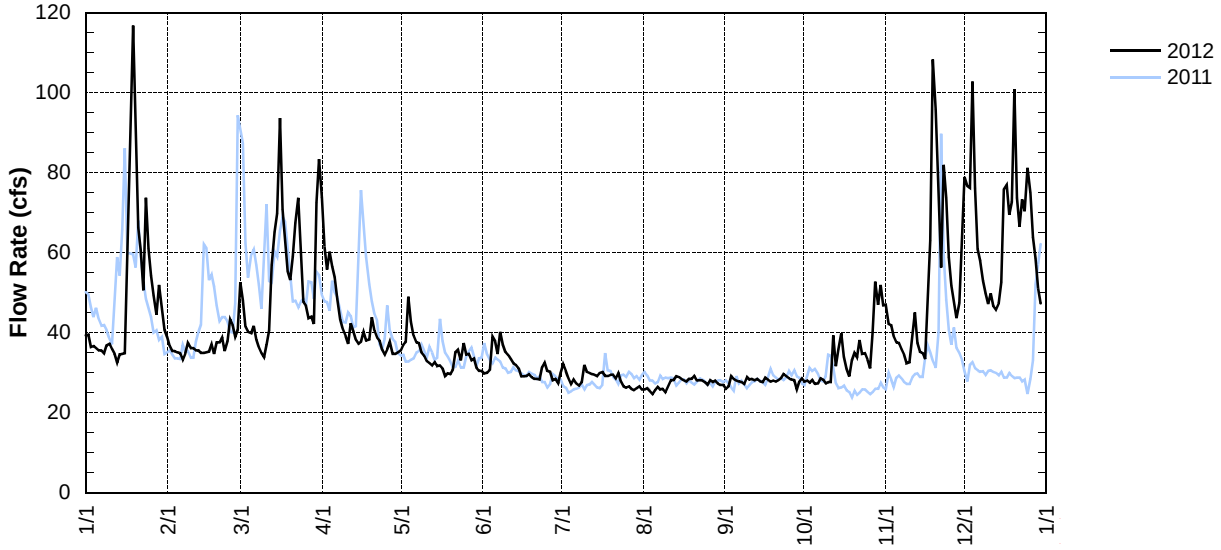


CWSDH – CLEAN WATER SERVICES DURHAM WASTEWATER TREATMENT FACILITY DISCHARGE [RM 9.33]

Source Agency: Clean Water Services

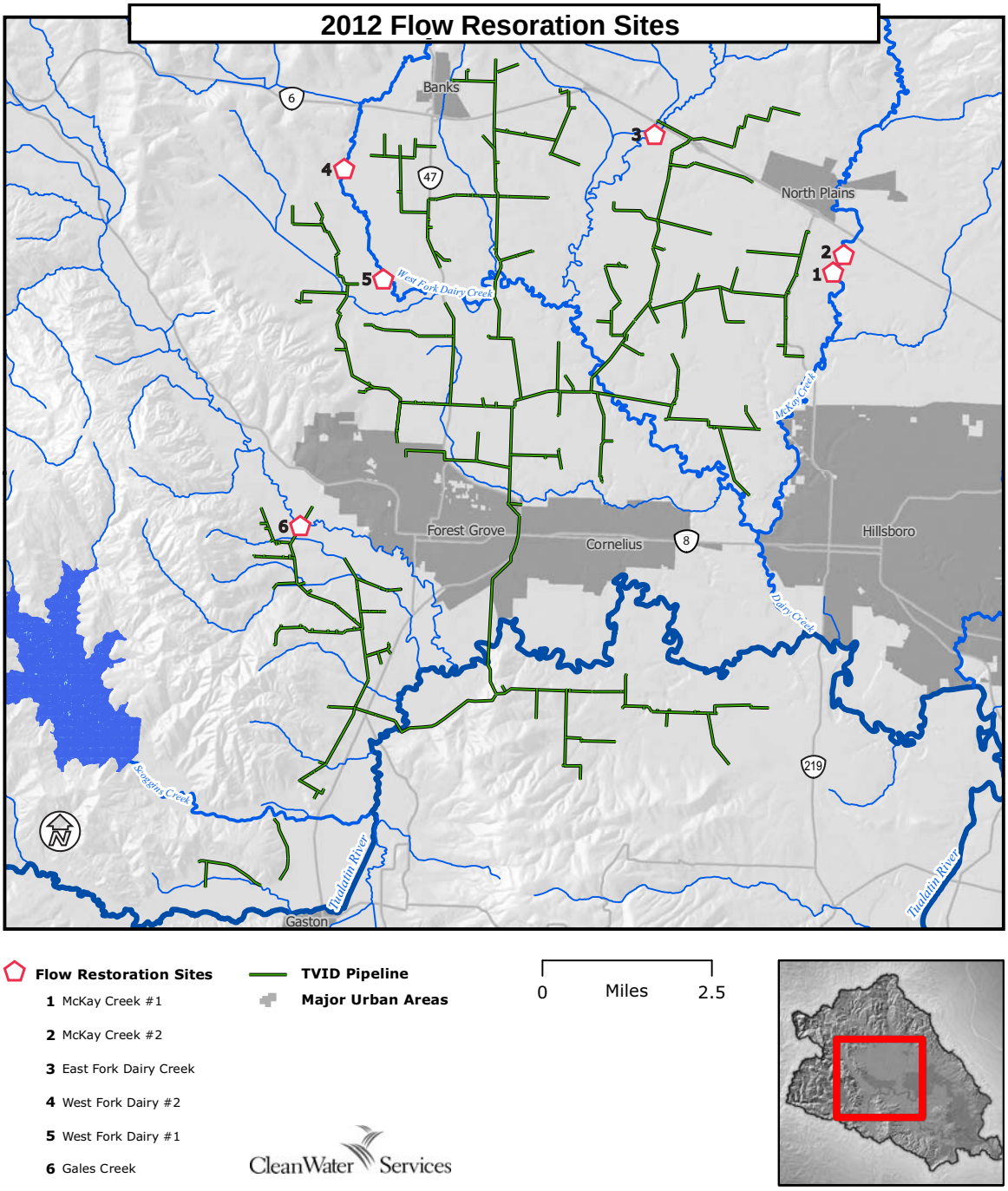
Day	2012 — Mean Daily Water Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	39.3	39.0	48.1	61.6	37.0	29.9	32.2	25.8	26.0	27.8	47.0	78.9
2	39.6	36.7	41.5	55.8	37.7	30.0	30.5	26.1	26.6	28.0	42.2	76.6
3	36.5	35.4	40.2	60.3	49.0	30.8	28.6	25.5	29.2	27.5	41.9	76.1
4	36.7	35.4	39.9	56.6	42.9	39.0	27.2	24.8	28.5	28.2	39.0	102.7
5	36.2	35.1	41.8	53.8	39.3	37.9	28.3	25.7	28.0	27.2	37.6	76.1
6	35.6	34.8	38.4	48.4	37.6	34.7	27.4	26.5	27.8	27.4	37.4	61.0
7	35.6	33.3	36.4	43.3	37.4	40.2	26.8	25.8	27.7	28.6	35.9	58.0
8	34.8	34.8	34.8	41.0	35.1	37.1	27.7	26.0	27.2	28.3	34.5	52.9
9	36.8	37.4	33.9	39.1	34.3	35.3	32.0	25.2	28.9	27.4	32.3	49.8
10	37.3	36.2	37.0	37.3	33.0	34.5	30.2	26.8	28.3	27.7	32.6	47.2
11	35.9	36.2	40.7	42.4	32.3	33.4	30.0	28.2	28.5	27.7	39.1	49.8
12	34.7	35.6	56.9	40.4	31.9	32.3	29.7	28.2	28.2	39.3	45.2	46.7
13	32.5	35.6	65.1	38.2	32.6	32.0	29.5	29.2	28.5	31.7	37.4	45.8
14	34.5	35.0	69.8	37.3	31.7	31.1	29.2	28.9	27.8	35.9	35.3	47.5
15	34.7	35.0	93.6	37.7	31.9	29.1	30.0	28.5	27.7	39.9	35.0	52.6
16	34.8	35.1	70.9	40.2	31.1	29.1	30.2	28.2	28.8	34.0	33.4	76.0
17	53.1	35.3	63.0	38.1	29.2	29.2	29.2	27.8	28.3	31.1	46.6	77.0
18	89.3	37.1	55.4	38.4	29.9	29.7	29.2	28.5	27.8	29.1	63.0	69.5
19	116.8	34.7	53.2	43.9	29.7	28.9	29.5	28.5	28.0	33.1	108.3	72.7
20	87.3	37.6	59.1	40.5	30.8	28.5	29.5	29.2	27.8	35.0	95.8	100.9
21	66.4	37.6	67.4	38.8	35.1	28.5	28.6	28.0	28.2	33.9	70.9	73.8
22	60.5	38.8	73.8	38.1	35.7	28.3	30.0	28.2	28.6	38.2	56.3	66.5
23	50.6	35.4	58.9	35.7	33.1	31.4	27.8	28.0	29.7	34.7	82.0	73.3
24	73.8	37.9	47.6	34.5	37.4	32.5	26.6	27.7	29.2	34.8	73.8	70.4
25	61.1	43.3	46.7	35.9	34.5	30.5	26.3	27.1	28.6	33.3	58.9	81.2
26	54.3	41.9	43.6	37.7	34.7	30.2	26.6	28.2	28.3	31.1	51.8	75.0
27	49.3	39.0	44.1	34.7	33.1	28.2	26.0	27.7	28.2	40.2	47.8	63.9
28	44.6	40.8	42.2	34.7	33.6	28.5	25.7	28.0	25.8	52.8	43.6	58.6
29	52.0	52.6	72.6	35.1	31.2	27.4	26.1	27.4	27.8	47.0	47.5	51.2
30	46.4	—	83.4	35.6	30.5	30.0	26.6	26.9	28.6	52.0	60.8	47.3
31	40.8	—	73.8	—	30.5	—	25.8	26.9	—	46.9	—	44.7

CWSDH – Clean Water Services Durham Wastewater Treatment Plant Discharge [RM 9.33]



RELEASES FOR CLEAN WATER SERVICES TRIBUTARY FLOW AUGMENTATION AT TVID RELEASE POINTS

Map #	ID	Site Name	River Mile	Start Date	End Date	Flow (cfs)	Total Release (ac-ft)
3	EFD-FA	East Fork Dairy Creek	4.9	7/20/2012	10/16/2012	0.7	118
5	WFD-FA1	West Fork Dairy Creek #1	5.2	7/20/2012	10/16/2012	1	175
4	WFD-FA2	West Fork Dairy Creek #2	7.5	7/20/2012	10/16/2012	0.8	146
6	GA-FA	Gales Creek	5.0	7/20/2012	10/16/2012	intermittent	177
1	MK-FA1	McKay Creek #1	6.5	7/20/2012	10/16/2012	intermittent	140
2	MK-FA2	McKay Creek #2	7.0	7/20/2012	10/16/2012	2.2	388



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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 2012

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

Source: Tualatin Valley Irrigation District

	INFLOW				HENRY HAGG LAKE						TUALATIN RIVER						WEATHER			WATER DELIVERIES				
DAY	SCHO (cfs) [1]	SCLO (cfs) [2]	TANO (cfs) [3]	TOT INFLO (cfs) [4]	W.S. ELEV (ft) [5]	STOR CONT (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL (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	116	167	7	290	289.85	39020	751	379	55	434	584	881	2490	2820	3293	3700	0.00	40	33	0	0	0	0	0
2	97	121	6	224	290.17	39334	314	158	141	299	431	787	2180	2900	3355	3640	0.00	48	34	0	0	0	0	0
3	83	104	5	192	290.29	39452	118	59	192	251	375	720	1770	2900	3369	3640	0.25	49	36	0	0	0	0	0
4	61	85	4	150	290.11	39275	-177	-89	320	231	291	708	1460	2760	3190	3540	0.00	51	37	0	0	0	0	0
5	72	96	4	172	289.92	39089	-186	-94	317	223	320	695	1280	2540	2954	3350	0.28	52	37	0	0	0	0	0
6	59	85	3	147	289.70	38873	-216	-109	315	206	280	675	1170	2280	2635	3010	0.01	50	32	0	0	0	0	0
7	56	78	3	137	289.45	38629	-244	-123	314	191	247	652	1070	2020	2304	2690	0.12	40	32	0	0	0	0	0
8	44	69	2	115	289.14	38327	-302	-152	312	160	206	625	981	1780	1990	2340	0.00	44	40	0	0	0	0	0
9	49	63	2	114	288.80	37997	-330	-166	311	145	177	600	911	1570	1746	2050	0.00	43	36	0	0	0	0	0
10	35	59	2	96	288.51	37716	-281	-142	310	168	175	588	865	1510	1646	2010	0.18	42	33	0	0	0	0	0
11	32	53	2	87	288.10	37320	-396	-200	308	108	148	570	806	1440	1596	1870	0.00	45	29	0	0	0	0	0
12	30	48	2	80	287.54	36782	-538	-271	395	124	135	597	793	1300	1434	1710	0.00	46	27	0	0	0	0	0
13	27	46	2	75	286.93	36200	-582	-293	405	112	124	598	777	1220	1342	1570	0.00	47	27	0	0	0	0	0
14	26	42	2	70	286.32	35620	-580	-292	407	115	116	597	769	1170	1285	1490	0.00	44	27	0	0	0	0	0
15	25	41	2	68	285.72	35054	-566	-285	377	92	115	584	754	1140	1245	1440	0.10	43	32	0	0	0	0	0
16	23	38	2	63	285.19	34557	-497	-251	344	93	105	563	729	1120	1224	1410	0.20	36	28	0	0	0	0	0
17	34	40	2	76	284.77	34165	-392	-198	312	114	115	549	694	1090	1198	1430	0.63	34	29	0	0	0	0	0
18	68	53	2	123	284.34	33765	-400	-202	409	207	174	646	822	1550	1652	2480	0.42	38	32	0	0	0	0	0
19	673	203	8	884	284.94	34323	558	281	66	347	851	841	1260	2620	3077	4130	2.46	51	33	0	0	0	0	0
20	546	288	9	843	286.88	36152	1829	922	44	966	1057	1810	2260	3590	4451	6220	0.89	52	40	0	0	0	0	0
21	673	562	14	1249	289.32	38502	2350	1185	44	1229	1145	1780	2850	3700	4664	6310	0.90	52	40	0	0	0	0	0
22	485	317	12	814	291.20	40351	1849	932	45	977	989	1550	3100	4160	4937	5870	0.21	45	36	0	0	0	0	0
23	332	249	10	591	292.24	41389	1038	523	241	764	915	1410	2950	5020	5702	6160	0.56	45	30	0	0	0	0	0
24	311	194	8	513	292.42	41569	180	91	474	565	715	1270	na	5220	6315	6460	0.18	41	30	0	0	0	0	0
25	608	408	13	1029	294.13	43302	1733	874	345	1219	1155	1720	2770	5490	7296	7300	1.21	56	47	0	0	0	0	0
26	303	327	12	642	295.52	44732	1430	721	46	767	1007	1370	2890	5560	7744	7490	0.05	54	37	0	0	0	0	0
27	174	239	10	423	295.76	44981	249	126	462	588	809	1320	2730	5420	7633	7540	0.03	47	28	0	0	0	0	0
28	134	187	7	328	295.31	44515	-466	-235	649	414	621	1240	2580	5120	6958	7490	0.00	45	28	0	0	0	0	0
29	99	157	6	262	294.70	43886	-629	-317	629	312	516	1130	2440	4780	6276	7200	0.05	45	31	0	0	0	0	0
30	116	223	8	347	294.31	43486	-400	-202	616	414	825	1150	2300	4520	5822	7030	0.60	48	38	0	0	0	0	0
31	106	178	6	290	293.82	42986	-500	-252	602	350	594	1140	2290	4250	5360	6510	0.00	50	40	0	0	0	0	0
TOTALS																								
cfs	5497	4820	177	10494				2378	9807	12185	15317	29366	50741	92560	113693	129080	9.33 inches			0	0	0	0	0
ac-ft	10903	9560	351	20815			4717	4717	19452	24169	30381	58247	100645	183593	225510	256030	MAX	56	47	0	0	0	0	0
																	MIN	34	27	0	0	0	0	0

Water storage elevation ± to fill curve:	**6.91**
Water storage in ac-ft ± to fill curve:	**6802**
Percentage of full reservoir:	**80.6%**

SNOTEL Summary for Water Year 2012

Updated: January 31, 2012

SECO W/Y pc: 36.3" sno depth/water content 0

SDMO W/Y pc: 49.8" sno depth/water content 0

Minimum Required Discharges

Dec-Sept: 10 cfs Oct-Nov: 20 cfs

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

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

SCOGGINS DAM -- RESERVOIR OPERATIONS
February 2012

Source: Tualatin Valley Irrigation District

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 CONT (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL (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	86	157	5	248	293.26	42417	-569	-287	585	298	498	1040	2210	4020	4995	6040	0.08	49	39	0	0	0	0	0
2	69	134	3	206	292.94	42093	-324	-163	410	247	421	875	2050	3770	4730	5590	0.00	49	33	0	0	0	0	0
3	59	118	2	179	292.58	41730	-363	-183	402	219	362	806	1790	3520	4239	5130	0.00	54	34	0	0	0	0	0
4	51	106	2	159	292.61	41760	30	15	167	182	302	668	1560	3250	3833	4670	0.00	55	36	0	0	0	0	0
5	46	96	2	144	292.61	41760	0	0	167	167	256	605	1260	2980	3418	4190	0.00	55	32	0	0	0	0	0
6	42	88	2	132	292.62	41770	10	5	167	172	224	559	1040	2650	2973	3720	0.00	55	34	0	0	0	0	0
7	39	82	2	123	292.64	41791	21	11	126	137	197	485	879	2250	2499	3240	0.00	56	38	0	0	0	0	0
8	38	81	2	121	292.71	41861	70	35	126	161	182	448	757	1780	1964	2680	0.21	52	40	0	0	0	0	0
9	47	95	2	144	292.81	41962	101	51	127	178	216	468	740	1540	1634	2260	0.60	47	41	0	0	0	0	0
10	40	87	2	129	292.94	42093	131	66	103	169	223	464	774	1510	1584	2080	0.03	52	43	0	0	0	0	0
11	37	82	2	121	293.02	42174	81	41	103	144	201	435	729	1440	1514	2000	0.05	53	34	0	0	0	0	0
12	35	78	2	115	293.09	42245	71	36	102	138	179	405	669	1320	1393	1870	0.00	49	35	0	0	0	0	0
13	36	78	2	116	293.18	42336	91	46	103	149	182	406	652	1230	1288	1740	0.23	46	37	0	0	0	0	0
14	34	75	2	111	293.30	42457	121	61	72	133	158	338	594	1200	1254	1660	0.05	45	38	0	0	0	0	0
15	32	72	2	106	293.42	42579	122	62	72	134	160	334	604	1150	1193	1620	0.05	45	36	0	0	0	0	0
16	28	69	5	102	293.52	42680	101	51	72	123	146	337	579	1110	1159	1550	0.00	45	34	0	0	0	0	0
17	28	69	5	102	293.64	42802	122	62	72	134	146	346	578	1090	1132	1520	0.11	43	37	0	0	0	0	0
18	42	88	5	135	293.78	42945	143	72	72	144	212	365	599	1140	1163	1560	0.30	51	39	0	0	0	0	0
19	51	103	5	159	294.03	43200	255	129	72	201	334	468	803	1400	1395	1670	0.24	46	34	0	0	0	0	0
20	49	101	5	155	294.27	43445	245	124	73	197	283	456	845	1600	1620	1930	0.21	45	35	0	0	0	0	0
21	46	99	5	150	294.49	43670	225	113	72	185	280	469	842	1700	1741	2200	0.02	49	38	0	0	0	0	0
22	86	149	10	245	294.74	43927	257	130	73	203	421	521	851	na	1752	2240	0.48	56	48	0	0	0	0	0
23	64	134	10	208	295.12	44318	391	197	73	270	523	618	1010	1780	1833	2250	0.03	52	33	0	0	0	0	0
24	53	118	9	180	295.43	44639	321	162	73	235	396	608	1040	1820	1891	2320	0.01	74	36	0	0	0	0	0
25	64	134	10	208	295.79	45012	373	188	73	261	465	600	1070	1890	1962	2480	0.51	47	37	0	0	0	0	0
26	61	129	10	200	296.22	45460	448	226	73	299	417	621	1210	2170	2278	2690	0.40	43	35	0	0	0	0	0
27	53	116	9	178	296.52	45773	313	158	73	231	356	602	1220	2230	2369	2870	0.01	43	29	0	0	0	0	0
28	49	106	8	163	296.77	46035	262	132	73	205	300	567	1130	2200	2346	2860	0.00	46	30	0	0	0	0	0
29	53	109	10	172	297.16	46444	409	206	74	280	368	598	1150	2240	2397	3030	0.91	41	33	0	0	0	0	0
TOTALS																								
cfs	1418	2953	140	4511				1743	3850	5593	8408	15512	29235	55980	63549	79660	4.53 inches			0	0	0	0	0
ac-ft	2813	5857	278	8948			3458	3458	7636	11095	16677	30768	57988	111036	126049	158006	MAX	74	48	0	0	0	0	0
																	MIN	41	29	0	0	0	0	0

Water storage elevation ± to fill curve:	**-1.43**
Water storage in ac-ft ± to fill curve:	**-1514**
Percentage of full reservoir:	**87.1%**

SNOTEL Summary for Water Year 2012

Updated: February 14, 2012

SECO W/Y pc:	37.9"	sno depth/water content	0
SDMO W/Y pc:	51.7"	sno depth/water content	1.0"/0.1"

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

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

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

SCOGGINS DAM -- RESERVOIR OPERATIONS
March 2012

Source: Tualatin Valley Irrigation District

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 CONT (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL (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	48	103	5	156	297.36	46856	412	208	74	282	422	668	1320	2500	2714	3450	0.88	40	32	1	0	0	0	0
2	46	99	5	150	297.83	47152	296	149	74	223	366	668	1380	2610	2857	3520	0.01	45	32	1	0	0	0	0
3	51	99	7	157	298.01	47438	286	144	74	218	338	639	1340	2610	2888	3520	0.00	46	37	1	0	0	0	0
4	57	109	9	175	298.37	47725	287	145	75	220	358	625	1370	2570	2817	3430	0.00	56	32	1	0	0	0	0
5	63	114	12	189	298.62	47992	267	135	75	210	343	608	1220	2520	2714	3330	0.00	58	34	1	0	0	0	0
6	82	155	13	250	299.11	48576	584	294	75	369	464	645	1280	2540	2766	3370	0.33	46	30	1	0	0	0	0
7	64	134	10	208	299.44	48871	295	149	76	225	370	625	1290	2480	2684	3250	0.03	47	28	1	0	0	0	0
8	61	120	8	189	299.60	49043	172	87	153	240	306	629	1210	2430	2613	3130	0.00	52	28	1	0	0	0	0
9	51	111	7	169	299.66	49108	65	33	153	186	273	608	1130	2350	2516	3020	0.00	61	31	1	0	0	0	0
10	49	114	7	170	299.51	48946	-162	-82	304	222	363	661	1080	2210	2376	2930	0.00	58	35	1	0	0	0	0
11	59	136	8	203	299.32	48742	-204	-103	304	201	352	679	1090	2100	2342	2870	0.15	52	39	1	0	0	0	0
12	63	138	9	210	299.25	48667	-75	-38	304	266	375	718	1190	2070	2203	2750	0.29	46	38	1	0	0	0	0
13	177	208	20	405	299.57	49011	344	173	333	506	637	849	1520	2500	2791	3810	1.19	46	34	1	0	0	0	0
14	119	176	14	309	299.72	49172	161	81	334	415	506	881	1890	2930	3306	4170	0.33	42	32	1	0	0	0	0
15		810		810	300.46	49973	801	404	492	896	1095	1280	2240	3160	3683	5020	2.40	50	38	1	0	0	0	0
16	435	502		937	302.05	51713	1740	877	567	1444	1119	2360	3160	3800	4532	5890	0.33	54	41	1	0	0	0	0
17	291	317		608	301.11	50682	-1031	-520	1388	868	953	2190	3180	5010	5350	6050	0.10	49	38	1	0	0	0	0
18	164	231		395	299.42	48849	-1833	-924	1517	593	7698	1930	3030	6060	7203	6490	0.02	48	32	1	0	0	0	0
19	117	180		297	297.77	47300	-1549	-781	1217	436	607	1560	2850	6000	8365	7190	0.00	48	29	1	0	0	0	0
20	110	170		280	296.83	46098	-1202	-606	936	330	558	1300	2710	5510	7939	7670	0.16	46	33	1	0	0	0	0
21	97	153		250	296.73	45993	-105	-53	320	267	531	930	2520	5160	7074	8000	0.20	48	36	1	0	0	0	0
22	83	140		223	297.08	46360	367	185	157	342	493	792	2260	4950	6430	7780	0.54	38	32	1	0	0	0	0
23	76	129	6	211	297.32	46613	253	128	157	285	439	854	1950	4650	6055	7418	0.02	45	33	1	0	0	0	0
24	69	120		189	297.47	46771	158	80	158	238	389	801	1720	4280	5463	6910	0.00	54	35	1	0	0	0	0
25	60	109		169	297.66	46972	201	101	156	257	358	752	1560	3980	4983	6340	0.00	63	41	1	0	0	0	0
26	56	111	4	171	297.79	47110	138	70	156	226	363	718	1400	3610	4470	5690	0.11	44	39	1	0	0	0	0
27	79	116		195	297.94	47269	159	80	157	237	371	710	1275	3300	3966	5060	0.27	54	37	1	0	0	0	0
28	94	151		245	298.16	47502	233	117	158	275	577	773	1290	3539	3839	4480	0.49	51	43	1	0	0	0	0
29	278	307	20	605	298.49	47853	351	177	294	471	877	983	1450	2860	3223	4050	1.03	49	44	1	0	0	0	0
30	750	1020		1770	300.65	50180	2327	1173	371	1544	1191	2960	2310	3240	3943	5590	1.86	53	47	1	0	0	0	0
31	390	536		926	301.54	51152	972	490	658	1148	1125	3160	3280	3830	4550	5660	0.58	49	38	1	0	0	0	0
TOTALS																								
cfs	4139	6918	164	11221				2374	11267	13641	24217	33556	56495	107359	128655	151838	11.32 inches			31	0	0	0	0
ac-ft	8210	13722	325	22257			4708	4708	22348	27056	48034	66558	112058	212947	255187	301171	MAX	63	47	61	0	0	0	0
																	MIN	38	28					

Water storage elevation ± to fill curve:	**-0.09**
Water storage in ac-ft ± to fill curve:	**-96**
Percentage of full reservoir:	**95.9%**

SNOTEL Summary for Water Year 2012

Updated: March 31, 2012

SECO W/Y pc:	57.5"	sno depth/water content	0
SDMO W/Y pc:	77.2"	sno depth/water content	18"/7.5"

Minimum Required Discharges

Dec-Sept: 10 cfs Oct-Nov: 20 cfs

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	61	
remaining are provisional and subject	CWS	0	12618
to daily changes as the WS elevation	LO	0	500
rises and falls. These numbers are for	MUNI	0	13500
planning purposes only	Other	0	

SCOGGINS DAM -- RESERVOIR OPERATIONS
April 2012

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

Source: Tualatin Valley Irrigation District

	INFLOW				HENRY HAGG LAKE						TUALATIN RIVER						WEATHER			WATER DELIVERIES				
DAY	SCHO (cfs) [1]	SCLO (cfs) [2]	TANO (cfs) [3]	TOT INFLO (cfs) [4]	W.S. ELEV (ft) [5]	STOR CONT (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL (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	261	387	0	648	301.23	50813	-339	-171	950	779	1029	2800	3150	5260	5597	6040	0.27	51	38	1	0	0	0	0
2	205	324	0	529	300.64	50169	-644	-325	921	596	921	2460	2990	5960	7456	6650	0.29	48	39	1	0	0	0	0
3	121	269	0	390	300.70	50234	65	33	483	516	775	1790	2820	5870	8210	7250	0.10	61	41	1	0	0	0	0
4	125	221	0	346	300.92	50474	240	121	284	405	645	1270	2580	5470	7974	7770	0.03	50	34	1	0	0	0	0
5	104	187	0	291	301.20	50780	306	154	159	313	550	968	2330	5100	6984	7750	0.08	47	37	2	0	0	0	0
6	91	167	8	266	301.42	51021	241	122	154	276	477	865	2000	4690	6192	7390	0.14	48	31	2	0	0	0	0
7	79	149	7	235	301.62	51240	219	110	154	264	419	797	1720	4260	5467	6860	0.00	48	30	2	0	0	0	0
8	65	136	6	207	301.80	51438	198	100	153	253	365	738	1520	3890	4934	6220	0.00	61	33	2	0	0	0	0
9	60	127	5	192	301.92	51559	121	61	153	214	331	683	1310	3540	4378	5540	0.00	69	40	2	0	0	0	0
10	56	120	5	181	302.09	51757	198	100	118	218	303	602	1140	3200	3822	4860	0.00	64	44	2	0	0	0	0
11	50	114	5	169	302.32	52011	254	128	80	208	282	555	992	2880	3304	4240	0.13	63	48	2	0	0	0	0
12	49	113	5	167	302.47	52147	136	69	119	188	273	579	925	2640	2965	3810	0.10	54	42	2	0	0	0	0
13	44	108	5	157	302.59	52310	163	82	124	206	257	561	866	2340	2613	3370	0.33	54	38	2	0	0	0	0
14	41	103	5	149	302.68	52410	100	50	124	174	233	528	792	1930	2144	2890	0.01	61	36	2	0	0	0	0
15	38	93	5	136	302.75	52488	78	39	123	162	207	492	736	1650	1780	2370	0.00	64	36	2	0	0	0	0
16	46	121	4	171	302.85	52599	111	56	124	180	230	487	693	1470	1564	2100	0.44	62	39	2	0	0	0	0
17	38	108	4	150	302.65	52377	-222	-112	280	168	246	645	778	1520	1584	1990	0.01	54	34	2	0	0	0	0
18	40	113	4	157	302.63	52354	-23	-12	190	178	227	na	736	1480	1558	2000	0.09	51	39	2	0	0	0	0
19	36	103	4	143	302.67	52399	45	23	146	169	201	na	685	1400	1636	1910	0.01	56	39	2	0	0	0	0
20	41	108	4	153	302.73	52465	66	33	146	179	239	na	663	1410	1700	2020	0.30	56	43	2	0	0	0	0
21	37	104	4	145	302.87	52621	156	79	95	174	230	423	627	1320	1636	1950	0.00	57	47	2	0	0	0	0
22	36	101	3	140	303.01	52776	155	78	95	173	198	385	581	1200	1498	1800	0.00	72	46	3	0	0	0	0
23	33	98	3	134	303.13	52910	134	68	95	163	172	352	523	1110	1389	1660	0.00	80	50	3	0	0	0	0
24	30	90	3	123	303.18	52966	56	28	122	150	151	357	507	1030	1292	1520	0.00	82	52	3	0	0	0	0
25	30	87	3	120	303.19	52977	11	6	122	128	140	336	479	953	1202	1400	0.00	62	53	4	0	0	0	0
26	32	90	3	125	303.23	53021	44	22	122	144	157	353	492	926	1162	1420	0.38	62	45	4	0	0	0	0
27	31	87	3	121	303.25	53044	23	12	122	134	162	346	475	1040	1274	1420	0.11	53	39	3	0	0	0	0
28	30	61	3	94	303.32	53123	79	40	98	138	143	298	464	924	1171	1380	0.09	55	42	2	0	0	0	0
29	29	59	3	91	303.42	53235	112	56	77	133	133	252	412	853	1085	1260	0.00	61	47	2	0	0	0	0
30	30	60	3	93	303.53	53356	121	61	80	141	132	260	398	801	1017	1240	0.08	65	48	2	0	0	0	0
TOTALS																	2.99 inches							
cfs	1908	4008	107	6023				1111	6013	7124	9828	20182	34384	76117	94588	108080	MAX	82	53	64	0	0	0	0
ac-ft	3785	7950	212	11947			2204	2204	11927	14131	19494	40031	68201	150978	187615	214377	MIN	47	30	127	0	0	0	0

Water storage elevation ± to fill curve: 0.07
Water storage in ac-ft ± to fill curve: 77
Percentage of full reservoir: 100.1%

SNOTEL Summary for Water Year 2012
Updated: April 30, 2012
SECO W/Y pc: 61.4" sno depth/water content 0
SDMO W/Y pc: 83.1" sno depth/water content 0

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

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	188	
remaining are provisional and subject	CWS	0	12618
to daily changes as the WS elevation	LO	0	500
rises and falls. These numbers are for	MUNI	0	13500
planning purposes only	Other	0	

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

SCOGGINS DAM -- RESERVOIR OPERATIONS
May 2012

Source: Tualatin Valley Irrigation District

	INFLOW				HENRY HAGG LAKE						TUALATIN RIVER						WEATHER			WATER DELIVERIES				
DAY	SCHO (cfs) [1]	SCLO (cfs) [2]	TANO (cfs) [3]	TOT INFLO (cfs) [4]	W.S. ELEV (ft) [5]	STOR CONT (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL (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	29	58	3	90	303.42	53233	-123	-62	179	117	143	401	508	852	1062	1190	0.07	55	37	0	0	0	0	0
2	27	56	3	86	303.28	53077	-156	-79	194	115	150	413	531	886	1097	1210	0.10	53	35	0	0	0	0	0
3	72	114	6	192	303.40	53211	134	68	122	190	233	368	472	935	1139	1380	0.90	54	45	0	0	0	0	0
4	66	114	6	186	303.38	53189	-22	-11	279	268	418	564	885	1440	1676	1720	0.23	56	41	0	0	0	0	0
5	51	98	5	154	303.36	53166	-23	-12	234	222	319	555	907	1620	1929	2150	0.04	54	36	0	0	0	0	0
6	44	88	4	136	303.33	53133	-33	-17	199	182	249	502	842	1530	1853	2140	0.00	53	35	0	0	0	0	0
7	36	79	3	118	303.41	53222	89	45	146	191	201	415	692	1380	1850	1980	0.00	68	40	0	0	0	0	0
8	35	72	3	110	303.50	53323	101	51	122	173	170	349	594	1210	1488	1960	0.00	77	45	0	0	0	0	0
9	31	67	3	101	303.44	53256	-67	-34	171	137	149	365	556	1090	1339	1550	0.00	73	36	0	0	0	0	0
10	29	63	3	95	303.44	53256	0	0	122	122	134	293	468	996	1240	1410	0.00	58	32	0	0	0	0	1
11	27	59	3	89	303.52	53345	89	45	79	124	123	225	392	869	1106	1280	0.00			0	0	0	0	1
12	26	55	3	84	303.59	53423	78	39	88	127	113	235	375	760	975	1140	0.00	72	41	0	0	0	0	1
13	24	53	3	80	303.57	53401	-22	-11	130	119	102	269	367	687	894	1040	0.00	81	44	0	0	0	0	1
14	23	50	2	75	303.54	53367	-34	-17	137	120	93	248	347	658	854	962	0.00	87	49	0	0	0	0	1
15	21	48	2	71	303.49	53311	-56	-28	130	102	86	239	316	599	798	905	0.00	83	45	0	0	0	0	1
16	20	46	2	68	303.44	53256	-55	-28	116	88	81	216	293	533	746	845	0.00	80	43	0	0	0	0	1
17	19	45	2	66	303.42	53233	-23	-12	82	70	76	184	270	510	693	782	0.00	73	35	0	0	0	0	1
18	19	45	2	66	303.41	53222	-11	-6	67	61	73	164	236	458	639	720	0.00	66	34	0	0	0	0	1
19	18	42	2	62	303.40	53211	-11	-6	65	59	71	160	221	413	595	667	0.00	64	38	0	0	0	0	1
20	18	42	2	62	303.42	53233	22	11	67	78	67	na	234	401	571	632	0.02	68	49	0	0	0	0	1
21	23	44	2	69	303.45	53267	34	17	68	85	72	164	242	439	608	646	0.30	61	51	0	0	0	0	1
22	19	44	2	65	303.46	53278	11	6	101	107	81	206	321	598	772	822	0.37	63	47	0	0	0	0	1
23	23	54	2	79	303.49	53311	33	17	100	117	126	260	396	671	864	1010	0.43	57	46	0	0	0	0	1
24	20	47	2	69	303.49	53311	0	0	100	100	97	226	328	672	879	1020	0.08	59	46	0	0	0	0	1
25	20	42	2	64	303.50	53323	12	6	101	107	107	239	371	690	902	1140	0.40	55	42	0	0	0	0	0
26	18	39	2	59	303.49	53311	-12	-6	101	95	87	214	305	702	na	1090	0.00	71	49	0	0	0	0	0
27	17	38	2	57	303.46	53278	-33	-17	101	84	80	205	300	582	na	1140	0.00	66	44	0	0	0	0	1
28	17	37	2	56	303.44	53256	-22	-11	81	70	74	181	261	543	na	936	0.00	61	49	0	0	0	0	0
29	16	36	2	54	303.44	53256	0	0	58	58	68	158	244	468	na	805	0.00	63	42	0	0	0	0	1
30	16	35	2	53	303.48	53300	44	22	47	69	63	139	219	420	na	716	0.00	66	48	0	0	0	0	0
31	15	34	2	51	303.51	53334	34	17	44	61	58	132	187	369	604	646	0.00	73	53	0	0	0	0	1
TOTALS																								
cfs	839	1744	84	2667				-11.1	3631	3620	3964	8289	12680	23981	27173	35634	2.94 inches			0	0	0	0	18
ac-ft	1664	3459	167	5290			-22	-22	7202	7180	7863	16441	25151	47566	53898	70680	MAX	87	53	0	0	0	0	36
																	MIN	53	32					

Water storage elevation ± to fill curve: 0.01
Water storage in ac-ft ± to fill curve: 11
Percentage of full reservoir: 100.0%

SNOTEL Summary for Water Year 2012
Uptdated: May 31, 2012
SECO W/Y pc: 64.4" sno depth/water content 0
SDMO W/Y pc: 88.5" sno depth/water content 0

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

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	188	
remaining are provisional and subject	CWS	0	12618
to daily changes as the WS elevation	LO	0	500
rises and falls. These numbers are for	MUNI	0	13500
planning purposes only	Other	36	

SCOGGINS DAM -- RESERVOIR OPERATIONS
June 2012

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

Source: Tualatin Valley Irrigation District

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 CONT (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL (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	15	34	2	51	303.54	53367	33	17	60	77	57	145	197	336	na	595	0.00	72	58	0	0	0	0	2.5
2	15	34	2	51	303.53	53356	-11	-6	74	68	55	149	206	335	na	573	0.06	72	52	0	0	0	0	1.5
3	14	33	2	49	303.48	53300	-56	-28	74	46	51	142	213	358	na	557	2.00	64	43	0	0	0	0	2.5
4	14	34	2	50	303.46	53278	-22	-11	74	63	52	143	188	347	na	578	0.11	61	49	0	0	0	0	1.5
5	16	33	2	51	303.47	53289	11	6	63	69	74	169	229	605	na	893	0.43	59	44	0	0	0	0	1
6	14	30	2	46	303.45	53267	-22	-11	62	51	54	158	227	631	871	981	0.00	59	38	0	0	0	0	0
7	19	36	2	57	303.48	53300	33	17	52	69	52	137	206	443	660	887	0.34	64	48	0	0	0	0	1
8	17	36	2	55	303.48	53300	0	0	73	73	68	183	290	537	726	839	0.14	61	45	0	0	0	0	2
9	15	35	2	52	303.47	53289	-11	-6	78	72	63	173	264	602	789	899	0.02	57	35	0	0	0	0	2
10	14	33	2	49	303.44	53256	-33	-17	64	47	57	148	230	498	714	863	0.00	61	39	0	0	0	0	2
11	13	32	2	47	303.48	53300	44	22	50	72	52	131	209	408	605	737	0.00	71	45	0	0	0	0	2
12	14	33	2	49	303.53	53356	56	28	50	78	53	125	155	344	530	646	0.21	74	55	0	0	0	0	2
13	12	31	2	45	303.48	53300	-56	-28	65	37	55	137	182	341	513	552	0.01	66	46	0	0	0	0	2
14	12	29	2	43	303.45	53267	-33	-17	49	32	48	119	134	346	517	552	0.00	64	42	0	0	0	0	2
15	12	28	2	42	303.45	53267	0	0	44	44	64	108	115	287	458	527	0.00	67	44	0	0	0	0	2
16	11	27	2	40	303.47	53289	22	11	42	53	60	102	101	242	408	464	0.00	78	53	0	0	0	0	2
17	11	27	2	40	303.48	53300	11	6	42	48	56	97	90	226	383	405	0.00	83	62	0	0	0	0	2
18	11	27	2	40	303.47	53289	-11	-6	42	36	57	95	95	216	367	384	0.00	68	52	0	0	0	0	2
19	11	24	2	37	303.44	53256	-33	-17	42	25	57	96	92	208	356	368	0.00	62	51	0	0	0	0	2
20	10	24	2	36	303.44	53256	0	0	38	38	61	96	122	209	356	360	0.09	60	43	0	0	0	0	2
21	11	23	2	36	303.47	53289	33	17	36	53	54	91	78	246	392	364	0.00	79	51	0	0	0	0	2
22	10	27	2	39	303.44	53256	-33	-17	56	39	50	107	71	192	352	376	0.00	80	55	0	0	0	0	3
23	13	32	2	47	303.40	53211	-45	-23	79	56	67	129	120	201	349	364	0.17	64	51	0	0	0	44	3
24	12	29	2	43	303.36	53166	-45	-23	78	55	60	129	165	330	473	445	0.21	61	50	0	0	0	45	3
25	11	28	2	41	303.30	53099	-67	-34	78	44	56	125	149	351	540	537	0.04	66	49	0	0	0	45	3
26	11	26	2	39	303.23	53021	-78	-39	78	39	72	137	137	301	479	542	0.00	64	52	0	0	0	36	3
27	10	27	2	39	303.21	52999	-22	-11	55	44	67	116	128	292	460	484	0.09	65	42	0	0	0	18	3
28	10	17	2	29	303.18	52966	-33	-17	55	38	65	113	117	247	413	454	0.00	77	48	0	0	0	18	3
29	10	17	2	29	303.16	52943	-23	-12	50	38	66	109	108	214	372	401	0.01	71	57	0	0	0	18	3
30	9	17	2	28	303.14	52932	-11	-6	49	43	67	109	110	198	355	368	0.05	73	59	0	0	0	18	2
TOTALS																	3.98 inches							
cfs	377	863	60	1300				-203	1752	1549	1770	3818	4728	10091	12438	16995	MAX	83	62	0	0	0	242	64
ac-ft	748	1712	119	2579			-402	-402	3475	3073	3511	7573	9378	20015	24671	33710	MIN	57	35	0	0	0	480	127

Water storage elevation ± to fill curve: **-0.36**
Water storage in ac-ft ± to fill curve: **-391**
Percentage of full reservoir: **99.3%**

SNOTEL Summary for Water Year 2012
Uptdated: June 30, 2012
SECO W/Y pc: 66.9" sno depth/water content 0
SDMO W/Y pc: 92.1" sno depth/water content 0

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

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	188	
remaining are provisional and subject	CWS	0	12618
to daily changes as the WS elevation	LO	0	500
rises and falls. These numbers are for	MUNI	480	13020
planning purposes only.	Other	163	

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

SCOGGINS DAM -- RESERVOIR OPERATIONS
July 2012

Source: Tualatin Valley Irrigation District

	INFLOW				HENRY HAGG LAKE						TUALATIN RIVER						WEATHER			WATER DELIVERIES				
DAY	SCHO (cfs) [1]	SCLO (cfs) [2]	TANO (cfs) [3]	TOT INFLO (cfs) [4]	W.S. ELEV (ft) [5]	STOR CONT (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL (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	9	17	2	28	303.14	52921	-11	-6	49	43	69	114	124	208	359	410	0.23	69	57	0	0	0	18	2
2	9	16	2	27	303.10	52876	-45	-23	49	26	65	109	119	321	480	441	0.00	68	55	0	0	0	18	2
3	9	16	2	27	303.07	52843	-33	-17	49	32	62	106	107	233	400	459	0.01	69	54	0	0	0	18	2
4	9	16	2	27	303.00	52765	-78	-39	75	36	63	126	117	195	356	388	0.00	66	42	23	0	0	24	2
5	8	15	2	25	302.93	52687	-78	-39	74	35	59	121	111	199	350	344	0.00	73	47	22	0	0	24	2
6	8	14	2	24	302.83	52576	-111	-56	112	56	57	150	117	182	333	340	0.00	81	50	61	0	0	24	3
7	7	13	2	22	302.62	52343	-233	-117	166	49	55	199	146	178	328	317	0.00	82	52	76	20	0	45	3
8	7	13	2	22	302.42	52122	-221	-111	175	64	54	198	154	198	345	310	0.00	88	55	85	20	0	45	3
9	7	12	2	21	302.21	51890	-232	-117	173	56	52	194	142	194	345	317	0.00	91	53	84	20	0	45	3
10	7	12	2	21	301.99	51647	-243	-123	164	41	58	190	123	167	323	321	0.00	85	48	82	20	0	38	3
11	7	12	2	21	301.77	51405	-242	-122	168	46	56	194	105	163	231	296	0.00	85	53	80	20	0	44	3
12	7	11	2	20	301.54	51152	-253	-128	179	51	56	204	126	144	221	272	0.00	87	55	89	35	0	32	3
13	7	11	2	20	301.30	50889	-263	-133	177	44	55	202	123	153	231	265	0.00	84	49	87	35	0	32	3
14	6	11	2	19	301.05	50616	-273	-138	177	39	54	198	132	151	227	268	0.00	82	55	88	35	0	32	3
15	6	9	2	17	300.85	50398	-218	-110	170	60	53	190	123	162	233	268	0.00	84	57	83	35	0	32	3
16	6	6	2	14	300.60	50126	-272	-137	168	31	56	192	127	163	237	278	0.00	69	52	84	35	0	32	3
17	6	7	2	15	300.36	49865	-261	-132	166	34	68	200	111	160	237	289	0.00	80	56	78	35	0	35	3
18	6	7	2	15	300.15	49637	-228	-115	164	49	68	203	111	151	225	272	tr	77	61	79	35	0	32	3
19	6	8	2	16	299.93	49399	-238	-120	156	36	70	198	132	157	228	265	0.00	69	60	82	35	0	20	3
20	6	7	2	15	299.74	49194	-205	-103	145	42	67	187	127	164	239	272	0.00	80	58	84	35	0	8	3
21	6	7	2	15	299.54	48978	-216	-109	143	34	68	184	127	165	242	285	0.01	69	56	82	35	0	8	3
22	6	7	2	15	299.36	48785	-193	-97	143	46	64	181	126	158	236	278	0.00	79	52	82	35	0	8	3
23	6	7	2	15	299.14	48548	-237	-119	143	24	66	179	127	165	238	275	0.00	68	45	82	35	0	8	3
24	6	6	2	14	298.95	48345	-203	-102	135	33	65	171	97	157	236	278	0.00	69	51	69	35	0	14	3
25	6	6	2	14	298.77	48152	-193	-97	142	45	63	178	96	137	218	265	0.00	81	53	76	35	0	14	3
26	6	6	2	14	298.58	47949	-203	-102	149	47	62	179	84	127	206	242	0.00	87	57	78	35	0	19	3
27	5	8	1	14	298.35	47704	-245	-124	166	42	61	201	74	125	203	236	0.00	84	56	84	35	0	30	3
28	5	9	1	15	298.10	47438	-266	-134	170	36	62	202	107	123	204	227	0.00	73	56	77	45	0	30	3
29	5	9	1	15	297.86	47184	-254	-128	170	42	61	203	108	138	213	227	0.00	79	54	77	45	0	30	3
30	5	9	1	15	297.62	46930	-254	-128	170	42	61	201	130	157	224	239	0.00	76	51	77	45	0	30	3
31	5	9	1	15	297.39	46687	-243	-123	152	29	61	181	96	154	227	252	0.00	72	52	69	45	0	20	3
TOTALS																	0.25 inches							
cfs	204	316	57	577				-3149	4439	1290	1891	5535	3649	5249	8375	9196	MAX	91	61	2120	840	0	809	88
ac-ft	405	627	113	1144			-6245	-6245	8805	2560	3751	10979	7238	10411	16612	18240	MIN	66	42	4205	1666	0	1605	174.5

Water storage elevation ± to fill curve:	**-6.11**
Water storage in ac-ft ± to fill curve:	**-6636**
Percentage of full reservoir:	**87.6%**

SNOTEL Summary for Water Year 2012

Updated: July 31, 2012

SECO W/Y pc:	67.1"	sno depth/water content	0
SDMO W/Y pc:	92.4"	sno depth/water content	0

Minimum Required Discharges

Dec-Sept: 10 cfs Oct-Nov: 20 cfs

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	4393	
remaining are provisional and subject	CWS	1666	10952
to daily changes as the WS elevation	LO	0	500
rises and falls. These numbers are for	MUNI	2085	11415
planning purposes only	Other	337	

SCOGGINS DAM -- RESERVOIR OPERATIONS
August 2012

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

Source: Tualatin Valley Irrigation District

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 CONT (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL (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	5	9	1	15	297.16	46444	-243	-123	162	39	59	191	105	126	208	252	0.00	78	50	81	45	3	15	3
2	5	8	1	14	296.92	46192	-252	-127	164	37	58	191	90	137	208	236	0.00	78	50	84	45	3	15	3
3	5	8	1	14	296.67	45930	-262	-132	178	46	57	205	93	96	203	227	0.00	76	53	83	45	3	30	3
4	4	8	1	14	296.37	45637	-293	-148	189	41	56	212	86	112	198	218	0.00	89	54	87	45	3	37	3
5	4	7	1	12	296.12	45355	-282	-142	197	55	54	232	83	104	190	210	0.00	98	57	97	45	3	37	3
6	4	7	1	12	295.80	45022	-333	-168	209	41	53	232	99	118	197	204	0.00	92	61	109	45	3	37	3
7	4	7	1	12	295.48	44691	-331	-167	208	41	53	230	98	117	198	213	0.00	90	55	108	45	3	37	3
8	4	7	1	12	295.17	44370	-321	-162	199	37	53	219	107	121	200	213	0.00	79	58	96	55	3	30	3
9	4	8	1	13	294.85	44040	-330	-166	194	28	53	215	108	125	204	215	0.00	72	50	90	55	3	30	3
10	4	7	1	12	294.55	43732	-308	-155	189	34	54	209	101	121	203	224	0.00	79	51	86	55	3	30	3
11	4	7	1	12	294.26	43435	-297	-150	188	38	53	207	92	116	199	227	0.00	80	51	85	55	3	30	3
12	4	7	1	12	293.96	43128	-307	-155	188	33	53	207	101	114	195	218	0.00	87	55	85	55	3	30	3
13	4	6	1	11	293.70	42863	-265	-134	188	54	53	206	96	115	199	218	0.00	95	55	86	55	3	30	3
14	4	6	1	11	293.36	42518	-345	-174	207	33	53	228	76	98	188	213	0.00	92	52	85	55	3	50	3
15	4	6	1	11	292.96	42113	-405	-204	240	36	52	265	97	89	176	201	0.00	89	55	108	65	3	50	3
16	3	6	1	10	292.58	41730	-383	-193	249	56	66	285	109	109	188	188	0.00	95	59	118	65	3	50	3
17	3	6	1	10	292.18	41329	-401	-202	256	54	66	294	151	133	206	199	0.00	96	59	125	75	3	40	3
18	3	6	1	10	291.77	40919	-410	-207	231	24	65	264	138	145	223	227	0.00	99	59	115	65	3	35	3
19	3	7	1	11	291.39	40450	-469	-236	227	-9	68	267	147	149	221	242	0.00	81	59	110	65	3	35	3
20	3	6	1	10	290.98	40133	-317	-160	226	66	65	266	157	154	232	249	0.00	78	52	110	65	3	35	3
21	3	6	1	10	290.67	39827	-306	-154	194	40	67	228	117	165	238	255	0.00	81	54	88	65	3	25	3
22	3	6	1	10	290.35	39511	-316	-159	181	22	66	215	116	129	210	262	0.00	76	48	85	55	3	25	3
23	3	6	1	10	290.06	39226	-285	-144	173	29	67	206	108	124	203	233	0.00	74	46	77	55	3	25	3
24	3	6	1	10	289.78	38952	-274	-138	163	25	67	198	123	117	198	224	0.00	69	44	80	55	3	12	3
25	3	6	1	10	289.52	38678	-274	-138	162	24	67	197	102	117	201	224	0.00	76	45	74	60	3	12	3
26	3	6	1	10	289.24	38424	-254	-128	162	34	67	197	105	115	196	224	0.00	82	49	74	60	3	12	3
27	3	7	1	11	288.95	38142	-282	-142	162	20	68	198	120	124	203	224	0.02	81	45	72	60	3	12	4
28	3	7	1	11	288.68	37880	-262	-132	172	40	67	208	116	129	210	233	0.00	74	49	74	60	3	20	4
29	3	6	1	10	288.37	37581	-299	-151	190	39	67	224	117	118	200	236	0.00	73	50	78	60	3	35	4
30	3	7	1	11	288.06	37282	-299	-151	189	38	68	225	116	131	206	230	0.00	73	47	76	60	3	35	4
31	3	6	1	10	287.75	36984	-298	-150	189	39	66	223	140	121	200	233	0.00	77	46	77	60	3	35	4
TOTALS																	0.02 inches							
cfs	111	208	31	351				-4892	6026	1134	1881	6944	3414	3789	6301	6972	MAX	99	61	2803	1750	93	931	98
ac-ft	220	413	61	696			-9703	-9703	11953	2249	3731	13773	6772	7515	12498	13829	MIN	69	44	5560	3471	184	1847	194

Water storage elevation ± to fill curve:	**-15.75**
Water storage in ac-ft ± to fill curve:	**-16339**
Percentage of full reservoir:	**69.4%**

SNOTEL Summary for Water Year 2012

Uptdated: August 31, 2012

SECO W/Y pc:	67.4"	sno depth/water content	0
SDMO W/Y pc:	92.4"	sno depth/water content	0

Minimum Required Discharges

Dec-Sept: 10 cfs Oct-Nov: 20 cfs

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	9953	
remaining are provisional and subject	CWS	5137	7481
to daily changes as the WS elevation	LO	184	316
rises and falls. These numbers are for	MUNI	3931	9569
planning purposes only	Other	532	

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

SCOGGINS DAM -- RESERVOIR OPERATIONS
September 2012

Source: Tualatin Valley Irrigation District

	INFLOW				HENRY HAGG LAKE						TUALATIN RIVER						WEATHER			WATER DELIVERIES				
DAY	SCHO (cfs) [1]	SCLO (cfs) [2]	TANO (cfs) [3]	TOT INFLO (cfs) [4]	W.S. ELEV (ft) [5]	STOR CONT (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL (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	3	6	1	10	287.45	36696	-288	-145	175	30	87	228	111	128	210	230	0.00	76	42	78	50	3	30	4
2	3	6	1	10	287.15	36419	-277	-140	173	33	82	224	135	123	200	230	0.00	75	43	76	50	3	30	4
3	3	6	1	10	286.87	36142	-277	-140	173	33	82	225	129	132	211	233	0.00	77	47	76	50	3	30	4
4	3	5	1	9	286.58	35867	-275	-139	173	34	83	226	121	127	208	239	0.00	78	50	77	50	3	30	4
5	3	5	1	9	286.32	35620	-247	-125	163	38	82	215	103	118	201	233	0.00	84	50	73	50	3	24	4
6	3	4	1	8	286.04	35356	-264	-133	168	35	82	219	107	109	192	227	0.00	87	51	79	50	3	24	4
7	3	4	1	8	285.73	35064	-292	-147	189	42	81	242	106	104	188	210	0.00	87	53	79	60	3	35	4
8	2	4	1	7	285.42	34772	-292	-147	189	42	81	214	112	110	190	204	0.00	92	53	80	63	3	32	4
9	2	4	1	7	285.05	34454	-318	-160	189	29	82	241	147	114	193	210	0.00	79	51	80	65	3	30	4
10	3	4	1	8	284.73	34127	-327	-165	189	24	85	244	146	141	215	224	0.00	65	53	79	65	3	30	4
11	3	4	1	8	284.43	33848	-279	-141	168	27	86	224	133	144	222	242	0.00	68	41	63	65	3	25	4
12	3	4	1	8	284.15	33589	-259	-131	159	28	84	213	115	128	212	246	0.00	70	45	64	55	3	25	4
13	2	4	1	7	283.88	33339	-250	-126	159	33	82	211	115	113	198	233	0.00	81	49	65	62	3	18	4
14	2	4	1	7	283.60	33081	-258	-130	170	40	85	223	112	108	192	215	0.00	88	48	61	70	3	25	4
15	2	3	1	6	283.30	32805	-276	-139	181	42	69	223	121	111	191	224	0.00	87	48	62	70	3	36	4
16	2	3	1	6	282.97	32503	-302	-152	185	33	66	221	134	112	193	213	0.00	83	42	62	70	3	40	4
17	2	3	1	6	282.66	32210	-293	-148	185	37	69	223	152	129	204	224	0.00	83	45	62	70	3	40	4
18	2	3	1	6	282.32	31928	-282	-142	185	43	68	223	135	134	214	233	0.00	90	48	62	70	3	40	4
19	2	3	1	6	282.04	31656	-272	-137	174	37	68	212	107	119	203	239	0.00	89	47	51	70	3	40	4
20	2	4	1	7	281.75	31393	-263	-133	166	33	66	199	99	106	190	233	0.00	75	51	50	70	3	32	4
21	3	4	1	8	281.44	31114	-279	-141	173	32	67	210	115	106	189	233	0.03	70	51	52	75	3	32	3
22	3	5	1	9	281.14	30844	-270	-136	161	25	69	200	133	127	203	233	0.01	63	44	46	75	3	25	3
23	3	4	1	8	280.88	30611	-233	-117	160	43	67	198	135	129	212	252	0.00	72	45	46	75	3	26	3
24	3	4	1	8	280.60	30361	-250	-126	161	35	66	197	140	145	218	262	0.00	74	46	47	75	3	25	3
25	3	4	1	8	280.34	30129	-232	-117	153	36	67	189	129	146	225	272	0.00	74	43	46	75	3	18	3
26	3	3	1	7	280.08	29898	-231	-116	148	32	50	169	119	128	210	268	0.00	73	42	37	75	3	23	3
27	3	3	1	7	279.80	29650	-248	-125	166	41	50	185	126	115	200	258	0.00	74	45	53	75	3	25	3
28	2	3	1	6	279.32	29227	-423	-213	166	-47	49	182	115	122	199	246	0.00	85	46	49	75	3	30	3
29	2	3	1	6	279.05	28990	-237	-119	166	47	49	184	111	114	198	249	0.00	83	51	44	75	3	35	3
30	2	3	1	6	278.42	28710	-280	-141	166	25	49	183	118	110	194	242	0.00	74	41	44	75	3	35	3
TOTALS																	0.04 inches							
cfs	77	119	30	226				-4171	5133	962	2153	6347	3681	3652	6075	7057	MAX	92	53	1843	1975	90	890	110
ac-ft	153	236	60	448			-8274	-8274	10181	1907	4270	12589	7301	7244	12050	13998	MIN	63	41	3656	3917	179	1765	218

Water storage elevation ± to fill curve:	**-25.08**
Water storage in ac-ft ± to fill curve:	**-24613**
Percentage of full reservoir:	**53.8%**

SNOTEL Summary for Water Year 2012

Uptdated: September 30, 2012

SECO W/Y pc:	67.6"	sno depth/water content	0
SDMO W/Y pc:	92.8"	sno depth/water content	0

Minimum Required Discharges

Dec-Sept: 10 cfs Oct-Nov: 20 cfs

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	13609	
remaining are provisional and subject	CWS	9055	3563
to daily changes as the WS elevation	LO	363	137
rises and falls. These numbers are for	MUNI	5697	7803
planning purposes only	Other	750	

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

SCOGGINS DAM -- RESERVOIR OPERATIONS
October 2012

Source: Tualatin Valley Irrigation District

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 CONT (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL (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	3	1	6	278.42	28440	-270	-136	166	30	49	183	131	121	200	239	0.00	76	43	44	75	3	35	3
2	2	2	1	5	278.17	28222	-218	-110	148	38	49	164	98	121	205	242	0.00	84	45	36	75	3	26	3
3	2	3	1	6	277.89	27980	-242	-122	161	39	49	187	106	98	187	236	0.00	70	46	48	75	3	26	3
4	2	3	1	6	277.54	27678	-302	-152	178	26	52	204	122	106	188	215	0.00	69	54	55	75	3	36	3
5	2	3	1	6	277.22	27402	-276	-139	172	33	52	197	117	111	195	215	0.00	72	46	49	75	3	36	3
6	2	3	1	6	276.91	27132	-270	-136	162	26	55	191	102	103	193	214	0.00	72	45	44	65	3	41	3
7	2	3	1	6	276.62	26884	-248	-125	162	37	55	191	110	88	182	215	0.00	74	45	44	65	3	41	3
8	2	3	0	5	276.32	26634	-250	-126	162	36	55	190	122	98	186	207	0.00	78	37	45	65	3	41	3
9	2	3	0	5	276.02	26380	-254	-128	162	34	56	191	116	106	192	213	0.00	72	38	45	65	3	41	3
10	2	4	0	6	275.75	26152	-228	-115	149	34	57	179	118	103	191	218	0.00	69	40	39	65	3	33	3
11	2	4	0	6	275.49	25933	-219	-110	140	30	57	170	130	115	197	227	0.00	70	40	43	65	3	20	3
12	2	4	0	6	275.30	25773	-160	-81	124	43	58	155	115	131	213	242	0.00	68	42	38	55	3	20	2
13	6	8	1	15	275.16	25658	-115	-58	104	46	78	160	120	310	366	542	0.72	55	48	9	55	3	20	2
14	3	5	1	9	275.04	25555	-103	-52	69	17	62	117	117	251	373	492	0.00	63	52	7	28	3	20	2
15	8	14	1	23	275.05	25564	9	5	44	49	107	118	77	259	317	578	0.54	64	53	3	5	3	20	2
16	9	16	1	26	275.08	25589	25	13	49	62	165	215	157	391	487	716	0.52	63	52	3	5	3	15	2
17	5	8	1	14	275.02	25539	-50	-25	52	27	76	131	163	365	461	625	0.00	62	40	10	5	3	10	2
18	3	6	1	10	274.94	25472	-67	-34	52	18	53	107	114	219	332	478	0.00	62	39	10	0	3	16	2
19	4	6	1	11	274.88	25422	-50	-25	52	27	50	101	69	146	239	364	0.01	68	41	10	0	3	24	2
20	7	9	1	17	274.78	25338	-84	-42	63	21	64	124	90	162	237	376	0.23	57	43	3	20	3	18	2
21	14	16	2	32	274.73	25297	-41	-21	63	42	91	142	123	252	317	376	0.52	54	40	3	5	3	18	2
22	10	14	2	26	274.68	25255	-42	-21	63	42	76	142	168	267	353	410	0.36	52	43	3	11	3	18	2
23	9	14	1	24	274.63	25213	-42	-21	47	26	116	160	179	351	440	507	0.34	51	42	3	0	3	18	2
24	9	16	2	27	274.60	25188	-25	-13	43	30	99	143	163	327	426	522	0.28	49	43	3	0	0	13	2
25	9	14	1	24	274.56	25155	-33	-17	50	33	115	161	174	290	394	589	0.40	50	39	17	0	0	8	1
26	8	11	1	20	274.52	25122	-33	-17	40	23	85	136	157	273	368	473	0.00	50	40	11	0	0	8	1
27	5	10	1	16	274.48	25089	-33	-17	47	30	75	134	133	208	309	418	0.07	55	43	5	0	0	13	1
28	27	28	2	57	274.59	25180	91	46	47	93	278	290	183	329	401	527	0.60	59	47	3	0	0	13	1
29	60	99	7	166	274.94	25472	292	147	47	194	713	407	355	752	798	924	1.17	59	54	3	0	0	13	1
30	44	60	7	111	275.19	25681	209	105	65	170	356	444	589	1020	1097	1100	0.37	65	54	3	0	0	5	1
31	65	87	8	160	275.47	25916	235	118	112	230	501	450	699	1140	1267	1350	0.82	61	56	3	0	0	0	1
TOTALS																								
cfs	329	479	49	857				-1409	2995	1586	3804	5884	5217	8613	11311	14050	6.95 inches			642	954	69	666	66
ac-ft	653	950	97	1700			-2794	-2794	5941	3147	7545	11671	10348	17084	22435	27868	MAX	84	56	1273	1892	137	1321	131
																	MIN	49	37					

Water storage elevation ± to fill curve:	**-28.03**
Water storage in ac-ft ± to fill curve:	**-27407**
Percentage of full reservoir:	**48.6%**

SNOTEL Summary for Water Year 2013

Updated: October 31, 2012

SECO W/Y pc:	10.8"	sno depth/water content	0
SDMO W/Y pc:	13.4"	sno depth/water content	0

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

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	14882	
remaining are provisional and subject	CWS	10947	1671
to daily changes as the WS elevation	LO	500	0
rises and falls. These numbers are for	MUNI	7018	6482
planning purposes only	Other	881	

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

SCOGGINS DAM -- RESERVOIR OPERATIONS
November 2012

Source: Tualatin Valley Irrigation District

	INFLOW				HENRY HAGG LAKE						TUALATIN RIVER						WEATHER			WATER DELIVERIES				
DAY	SCHO (cfs) [1]	SCLO (cfs) [2]	TANO (cfs) [3]	TOT INFLO (cfs) [4]	W.S. ELEV (ft) [5]	STOR CONT (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL (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	112	149	8	269	275.96	26329	413	208	113	321	711	509	699	1140	1368	1430	0.97	57	52	3	0	0	0	0
2	60	91	7	158	276.37	26676	347	175	112	287	480	536	865	1380	1500	1490	0.06	61	51	3	0	0	0	0
3	50	81	6	137	276.55	26830	154	78	112	190	316	427	716	1270	1430	1560	0.37	56	51	3	0	0	0	0
4	40	64	5	109	276.66	26923	93	47	112	159	255	354	612	1110	1265	1380	0.03	60	53	3	0	0	0	0
5	32	53	5	90	276.72	26972	49	25	112	137	199	283	495	918	1062	1200	0.01	67	56	3	0	0	0	0
6	32	46	5	83	276.74	26992	20	10	112	122	158	232	399	740	872	1020	0.00	62	47	3	0	0	0	0
7	21	39	5	65	276.68	26940	-52	-26	112	86	132	201	358	606	732	857	0.01	57	40	3	0	0	0	0
8	23	36	5	64	276.61	26881	-59	-30	112	82	115	178	314	524	642	737	0.00	57	35	3	0	0	0	0
9	18	32	5	55	276.48	26770	-111	-56	112	56	103	166	285	462	574	662	0.00	46	32	2	0	0	0	1
10	16	29	4	49	276.34	26651	-119	-60	112	52	93	153	263	416	524	605	0.00	41	31	2	0	0	0	1
11	15	27	4	46	276.21	26541	-110	-55	112	57	87	143	246	378	479	552	0.00	41	32	2	0	0	0	1
12	76	114	9	199	276.30	26617	76	38	113	151	192	188	271	433	504	646	1.04	47	39	2	0	0	0	1
13	44	74	9	127	276.50	26787	170	86	112	198	323	377	633	794	846	748	0.01	51	47	2	0	0	0	1
14	35	59	7	101	276.59	26864	77	39	112	151	199	276	510	889	1004	968	0.01	51	44	2	0	0	0	1
15	33	49	5	87	276.60	26872	8	4	112	116	157	225	415	725	859	968	0.00	50	37	2	0	0	0	1
16	31	44	4	79	276.72	26975	103	52	52	104	133	154	326	593	720	834	0.00	54	39	2	0	0	0	1
17	23	39	4	66	276.75	27000	25	13	52	65	123	141	283	489	611	737	0.09	47	41	2	0	0	0	1
18	27	48	4	79	276.82	27060	60	30	52	82	133	144	274	678	795	912	0.34	50	43	2	0	0	0	1
19	673	729	45	1447	278.11	28170	1110	560	55	615	1267	521	702	1130	1242	1520	2.50	52	44	2	0	0	0	1
20	268	387	10	665	281.97	31565	3395	1712	55	1767	1247	2000	2130	2830	3285	4340	1.56	54	48	2	0	0	0	1
21	169	272	8	449	283.60	33081	1516	764	55	819	1133	1310	3070	3260	3957	4640	0.88	54	43	2	0	0	0	1
22	77	192	8	277	284.60	34006	925	466	197	663	945	1110	2850	3700	4393	4570	0.21	49	36	2	0	0	0	1
23	96	138	7	241	285.15	34520	514	259	196	455	723	878	2610	4020	4775	4810	0.03	48	38	2	0	0	0	0
24	91	199	8	298	286.00	35318	798	402	197	599	1075	895	2450	4310	5148	5850	1.13	49	42	2	0	0	0	0
25	77	147	8	232	286.40	35696	378	191	302	493	803	956	2410	4370	5341	5660	0.02	50	34	2	0	0	0	0
26	72	116	7	195	286.58	35867	171	86	299	385	611	828	2300	4170	5203	5600	0.00	48	37	2	0	0	0	0
27	65	93	7	165	286.61	35895	28	14	298	312	484	748	2050	3940	4946	5380	0.00	52	34	2	0	0	0	0
28	60	78	6	144	286.51	35800	-95	-48	352	304	395	697	1740	3650	4593	5060	0.01	48	34	2	0	0	0	0
29	52	69	5	126	286.24	35545	-255	-129	369	240	332	661	1500	3340	4080	4660	0.12	47	40	2	0	0	0	0
30	79	101	5	185	286.09	35403	-142	-72	369	297	438	652	1350	3070	3788	4330	0.55	53	43	2	0	0	0	0
TOTALS																								
cfs	2467	3595	225	6287				4783	4582	9365	13362	15943	33126	55335	66538	73726	9.95 inches			68	0	0	0	14
ac-ft	4893	7131	446	12470			9487	9487	9088	18576	26504	31623	65705	109757	131978	146236	MAX	67	56	135	0	0	0	28
																	MIN	41	31					

Water storage elevation ± to fill curve: 2.59
Water storage in ac-ft ± to fill curve: 2414
Percentage of full reservoir: 66.4%

SNOTEL Summary for Water Year 2013
Updated: November 30, 2012
SECO W/Y pc: 27.3 sno depth/water content 0
SDMO W/Y pc: 32.9 sno depth/water content 0

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

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	15017	
remaining are provisional and subject	CWS	10947	1671
to daily changes as the WS elevation	LO	500	0
rises and falls. These numbers are for	MUNI	7018	6482
planning purposes only	Other	908	

SCOGGINS DAM -- RESERVOIR OPERATIONS
December 2012

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

Source: Tualatin Valley Irrigation District

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 CONT (ac-ft) [6]	CHNG STOR (ac-ft) [7]	CHNG STOR (cfs) [8]	REL (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	215	263	7	485	286.86	36133	730	368	376	744	1131	826	1610	3060	3791	4460	1.36	55	45	0	0	0	0	0
2	255	301	7	563	287.84	37070	937	472	381	853	1137	1140	2250	3250	4064	4930	0.96	51	41	0	0	0	0	0
3	224	275	7	506	288.75	37948	878	443	381	824	1099	1320	2600	3460	4315	4950	0.54	49	41	0	0	0	0	0
4	311	408	10	729	290.21	39374	1426	719	198	917	1225	1360	2830	3720	4500	5450	0.85	54	46	0	0	0	0	0
5	172	252	7	431	291.65	40799	1425	718	107	825	1089	1450	2960		5232	6110	0.14	54	37	0	0	0	0	0
6	121	178	5	304	292.22	41369	570	287	323	610	889	1190	2840	4940	5949	6040	0.01	48	36	0	0	0	0	0
7	77	147	5	229	292.10	41248	-121	-61	535	474	763	1100	2650	4900	6198	6230	0.12	48	39	0	0	0	0	0
8	74	123	4	201	291.62	40769	-479	-241	676	435	707	1080	2500	4690	6027	6350	0.13	48	38	0	0	0	0	0
9	59	104	4	167	290.93	40084	-685	-345	647	302	591	1010	2350	4400	5667	6220	0.07	45	38	0	0	0	0	0
10	49	91	4	144	290.24	39403	-681	-343	618	275	507	918	2190	4140	5285	5900	0.03	46	40	0	0	0	0	0
11	48	81	3	132	289.31	38493	-910	-459	670	211	439	895	2020	3860	4915	5490	0.00	49	43	0	0	0	0	0
12	47	78	3	128	288.49	37697	-796	-401	627	226	436	862	1880	3600	4550	5130	0.17	45	38	0	0	0	0	0
13	45	69	3	117	287.47	36715	-982	-495	663	168	381	851	1760	3550	4184	4660	0.00	46	38	0	0	0	0	0
14	43	67	3	113	286.41	35706	-1009	-509	658	149	367	841	1660	3110	3822	4280	0.18	41	38	0	0	0	0	0
15	42	61	3	106	285.43	34782	-924	-466	585	119	314	809	1590	2920	3541	3900	0.03	43	36	0	0	0	0	0
16	44	68	3	115	285.01	34389	-393	-198	384	186	351	723	1540	2800	3377	3760	0.72	39	33	0	0	0	0	0
17	319	359	10	688	285.84	35167	778	392	133	525	1175	775	1740	2980	3590	4520	1.46	50	39	0	0	0	0	0
18	132	180	7	319	287.00	36266	1099	554	134	688	983	1080	2340	3250	4016	4590	0.21	42	33	0	0	0	0	0
19	121	140	5	266	287.76	36993	727	367	134	501	805	1260	2500	3370	4163	4670	0.49	38	33	0	0	0	0	0
20	299	317	10	626	289.12	38308	1315	663	108	771	1165	1620	2570	3750	4490	5220	1.73	45	37	0	0	0	0	0
21	169	189	7	365	290.51	39669	1361	686	107	793	965	1870	2920	4470	5200	6010	0.29	39	34	0	0	0	0	0
22	169	189	7	365	291.49	40640	971	490	107	597	935	1380	2810	5070	6131	6130	0.46	44	37	0	0	0	0	0
23	177	199	7	383	292.15	41299	659	332	347	679	943	1540	2670	5210	6370	6460	0.46	44	40	0	0	0	0	0
24	167	176	6	349	292.70	41851	552	278	353	631	869	1550	2650	5260	6640	7030	0.37	41	37	0	0	0	0	0
25	136	161	5	302	293.09	42245	394	199	360	559	831	1340	2590	5190	7151	7100	0.50	43	34	0	0	0	0	0
26	136	161	5	302	293.51	42670	425	214	364	578	809	1430	2580	5250	7443	7490	0.38	40	34	0	0	0	0	0
27	121	145	5	271	293.80	42965	295	149	371	520	735	1300	2560	5180	7296	7280	0.03	45	33	0	0	0	0	0
28	97	132	4	233	293.57	42731	-234	-118	563	445	637	1340	2480	4980	6782	7120	0.07	40	34	0	0	0	0	0
29	88	114	3	205	292.92	42073	-658	-332	696	364	559	1400	2370	4730	6299	6870	0.02	43	33	0	0	0	0	0
30	58	99	3	160	292.15	41299	-774	-390	667	277	487	1280	2290	4430	5817	6580	0.00	38	32	0	0	0	0	0
31	49	88	3	140	291.32	40471	-828	-417	640	223	425	1190	2150	4180	5230	6050	0.00	44	30	0	0	0	0	0
TOTALS																								
cfs	4064	5215	165	9444				2555	12913	15468	23749	36730	72450	123700	162035	176980	11.78 inches			0	0	0	0	0
ac-ft	8061	10344	327	18732			5068	5068	25613	30681	47106	72854	143705	245359	321396	351040	MAX	55	46	0	0	0	0	0
																	MIN	38	30	0	0	0	0	0

Water storage elevation ± to fill curve:	**7.82**
Water storage in ac-ft ± to fill curve:	**7482**
Percentage of full reservoir:	**75.9%**

SNOTEL Summary for Water Year 2013

Updated: December 31, 2012

SECO W/Y pc:	45.6"	sno depth/water content	0
SDMO W/Y pc:	53.6"	sno depth/water content	0

Minimum Required Discharges

Dec-Sept: 10 cfs Oct-Nov: 20 cfs

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	15017	
remaining are provisional and subject	CWS	10947	1671
to daily changes as the WS elevation	LO	500	0
rises and falls. These numbers are for	MUNI	7018	6482
planning purposes only	Other	908	

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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 2012

[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 TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN			CWS		MUNICIPAL	
	feet	ac-ft	ac-ft	in.	ºF	ºF	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	1599.9	5975	600	0.64	28	44	7.3	0.0	0	0	0	0	0	0
4	1600.3	6075	100	0.03	38	44	7.3	0.0	0	0	0	0	0	0
5									0	0	0	0	0	0
6	1601.0	6250	175	0.91	30	45	7.3	0.0	0	0	0	0	0	0
7									0	0	0	0	0	0
8									0	0	0	0	0	0
9	1601.6	6400	150	0.21	31	41	7.3	0.0	0	0	0	0	0	0
10									0	0	0	0	0	0
11	1602.0	6500	100	0.00	30	44	7.3	0.0	0	0	0	0	0	0
12									0	0	0	0	0	0
13	1602.4	6600	100	0.17	29	38	1.7	0.0	0	0	0	0	0	0
14									0	0	0	0	0	0
15									0	0	0	0	0	0
16									0	0	0	0	0	0
17	1603.3	6825	225	0.00	25	39	5.1	0.0	0	0	0	0	0	0
18									0	0	0	0	0	0
19	1604.7	7233	408	3.16	32	42	13.0	0.0	0	0	0	0	0	0
20	1606.5	7833	600	0.62	35	41	8.4	0.0	0	0	0	0	0	0
21									0	0	0	0	0	0
22									0	0	0	0	0	0
23	1610.7	9175	1342	3.20	28	42	7.3	0.0	0	0	0	0	0	0
24									0	0	0	0	0	0
25	1613.4	9850	675	2.27	29	44	9.5	0.0	0	0	0	0	0	0
26									0	0	0	0	0	0
27	1615.2	10400	550	0.47	26	42	7.3	0.0	0	0	0	0	0	0
28									0	0	0	0	0	0
29									0	0	0	0	0	0
30	1617.1	11033	633	1.26	28	44	6.2	0.0	0	0	0	0	0	0
31									0	0	0	0	0	0
Monthly Totals			5658	12.94						0		0		0
Year to Date Totals			5658	12.94						0		0		0

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF FEBRUARY 2012

[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 TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN			CWS		MUNICIPAL	
	feet	ac-ft	ac-ft	in.	ºF	ºF	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1	1618.0	11333	300	0.25	36	40	6.2	0.0	0	0	0	0	0	0
2									0	0	0	0	0	0
3	1618.7	11566	233	0.02	31	42	5.1	0.0	0	0	0	0	0	0
4									0	0	0	0	0	0
5	1619.5	11833	267	0.00	33	46	5.1	0.0	0	0	0	0	0	0
6									0	0	0	0	0	0
7	1620.0	12000	167	0.46	36	44	0.5	0.0	0	0	0	0	0	0
8									0	0	0	0	0	0
9									0	0	0	0	0	0
10	1620.6	12225	225	0.91	37	44	2.3	0.0	0	0	0	0	0	0
11									0	0	0	0	0	0
12									0	0	0	0	0	0
13	1621.3	12489	264	0.34	33	41	2.3	0.0	0	0	0	0	0	0
14									0	0	0	0	0	0
15	1621.7	12638	149	0.45	30	37	3.4	0.0	0	0	0	0	0	0
16									0	0	0	0	0	0
17	1622.1	12788	150	0.27	32	40	3.4	0.0	0	0	0	0	0	0
18									0	0	0	0	0	0
19									0	0	0	0	0	0
20									0	0	0	0	0	0
21	1623.5	13313	525	1.85	32	43	4.0	0.0	0	0	0	0	0	0
22	1624.0	13500	187	1.21	39	44	5.1	0.0	0	0	0	0	0	0
23									0	0	0	0	0	0
24	1625.0	13875	375	0.22	31	40	4.0	0.0	0	0	0	0	0	0
25									0	0	0	0	0	0
26									0	0	0	0	0	0
27	1626.2	14325	450	1.80	25	44	5.1	0.0	0	0	0	0	0	0
28									0	0	0	0	0	0
29	1626.9	14588	263	0.80	26	43	5.1	0.0	0	0	0	0	0	0
Monthly Totals			3555	8.58						0		0		0
Year to Date Totals			9213	21.52						0		0		0

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF MARCH 2012

[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 TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN			CWS		MUNICIPAL	
	feet	ac-ft	ac-ft	in.	°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									0	0	0	0	0	0
2	1627.3	14738	150	0.64	28	37	5.1	0.0	0	0	0	0	0	0
3									0	0	0	0	0	0
4									0	0	0	0	0	0
5	1628.0	15000	262	0.31	31	39	7.3	0.0	0	0	0	0	0	0
6									0	0	0	0	0	0
7	1628.8	15300	300	0.63	24	37	6.2	0.0	0	0	0	0	0	0
8									0	0	0	0	0	0
9	1629.4	15525	225	0.00	29	44	6.2	0.0	0	0	0	0	0	0
10									0	0	0	0	0	0
11									0	0	0	0	0	0
12	1630.4	15900	375	2.10	31	34	8.4	0.0	0	0	0	0	0	0
13									0	0	0	0	0	0
14	1631.6	16350	450	2.47	34	44	2.3	0.0	0	0	0	0	0	0
15									0	0	0	0	0	0
16	1634.5	17438	1088	4.04	32	42	4.0	0.0	0	0	0	0	0	0
17									0	0	0	0	0	0
18									0	0	0	0	0	0
19	1636.5	18250	812	0.65	27	36	2.3	0.0	0	0	0	0	0	0
20									0	0	0	0	0	0
21	1637.4	18700	450	1.18	29	37	1.7	0.0	0	0	0	0	0	0
22									0	0	0	0	0	0
23	1638.2	19080	380	0.41	31	36	1.7	0.0	0	0	0	0	0	0
24									0	0	0	0	0	0
25									0	0	0	0	0	0
26	1639.0	19400	320	0.33	31	48	1.7	0.0	0	0	0	0	0	0
27									0	0	0	0	0	0
28	1639.9	19760	360	1.88	34	42	2.8	0.0	0	0	0	0	0	0
29									0	0	0	0	0	0
30	1641.3	20000	240	5.77	37	44	395.0	0.0	0	0	0	0	0	0
31									0	0	0	0	0	0
Monthly Totals			5412	20.41						0		0		0
Year to Date Totals			14625	41.93						0		0		0

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF APRIL 2012

[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 TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN			CWS		MUNICIPAL	
	feet	ac-ft	ac-ft	in.	ºF	ºF	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									0	0	0	0	0	0
2	1640.9	20000	0	1.96	32	40	142.0	0.0	0	0	0	0	0	0
3									0	0	0	0	0	0
4	1640.8	20000	0	0.39	32	44	95.2	0.0	0	0	0	0	0	0
5									0	0	0	0	0	0
6	1640.0	20000	0	0.38	30	39	64.0	0.0	0	0	0	0	0	0
7									0	0	0	0	0	0
8									0	0	0	0	0	0
9	1640.7	20000	0	0.18	30	55	55.5	0.0	0	0	0	0	0	0
10									0	0	0	0	0	0
11	1640.7	20000	0	0.04	40	54	47.0	0.0	0	0	0	0	0	0
12									0	0	0	0	0	0
13	1640.7	20000	0	0.56	38	56	47.0	0.0	0	0	0	0	0	0
14									0	0	0	0	0	0
15									0	0	0	0	0	0
16	1640.8	20000	0	0.94	33	51	55.5	0.0	0	0	0	0	0	0
17									0	0	0	0	0	0
18	1640.7	20000	0	0.55	32	43	47.0	0.0	0	0	0	0	0	0
19									0	0	0	0	0	0
20	1640.7	20000	0	0.62	35	48	47.0	0.0	0	0	0	0	0	0
21									0	0	0	0	0	0
22									0	0	0	0	0	0
23	1640.7	20000	0	0.00	42	64	41.0	0.0	0	0	0	0	0	0
24									0	0	0	0	0	0
25	1640.7	20000	0	0.09	45	68	35.0	0.0	0	0	0	0	0	0
26									0	0	0	0	0	0
27	1640.7	20000	0	1.16	34	52	47.0	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	0.48	40	52	41.0	0.0	0	0	0	0	0	0
Monthly Totals			0	7.35						0		0		0
Year to Date Totals			14625	49.28						0		0		0

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF MAY 2012

[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 TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN			CWS		MUNICIPAL	
	feet	ac-ft	ac-ft	in.	°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	0.92	34	44	41.0	0.0	0	0	0	0	0	0
3									0	0	0	0	0	0
4	1640.8	20000	0	2.08	36	44	79.6	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	0.13	35	56	41.0	0.0	0	0	0	0	0	0
8									0	0	0	0	0	0
9	1640.7	20000	0	0.00	37	63	35.0	0.0	0	0	0	0	0	0
10									0	0	0	0	0	0
11	1640.6	20000	0	0.00	31	50	35.0	0.0	0	0	0	0	0	0
12									0	0	0	0	0	0
13									0	0	0	0	0	0
14	1640.6	20000	0	0.00	44	73	31.3	0.0	0	0	0	0	0	0
15									0	0	0	0	0	0
16	1640.6	20000	0	0.00	44	73	27.6	0.0	0	0	0	0	0	0
17									0	0	0	0	0	0
18	1640.6	20000	0	0.00			23.9	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	0.70	39	58	35.0	0.0	0	0	0	0	0	0
22									0	0	0	0	0	0
23	1640.6	20000	0	1.35	40	51	41.0	0.0	0	0	0	0	0	0
24									0	0	0	0	0	0
25	1640.6	20000	0	0.35	40	49	35.0	0.0	0	0	0	0	0	0
26									0	0	0	0	0	0
27									0	0	0	0	0	0
28									0	0	0	0	0	0
29	1640.6	20000	0	0.02	36	56	23.9	0.0	0	0	0	0	0	0
30	1640.6	20000	0	0.00	42	57	20.2	0.0	0	0	0	0	0	0
31									0	0	0	0	0	0
Monthly Totals			0	5.55						0		0		0
Year to Date Totals			14625	54.83						0		0		0

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF JUNE 2012

[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 TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN			CWS		MUNICIPAL	
	feet	ac-ft	ac-ft	in.	ºF	ºF	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1	1640.6	20000.0	0	0.00	52	61	20.2	0.0	0	0	0	0	0	0
2									0	0	0	0	0	0
3									0	0	0	0	0	0
4	1640.6	20000.0	0	0.28	40	61	20.2	0.0	0	0	0	0	0	0
5									0	0	0	0	0	0
6	1640.6	20000.0	0	0.46	36	52	20.2	0.0	0	0	0	0	0	0
7									0	0	0	0	0	0
8	1640.6	20000.0	0	0.96	40	50	31.3	0.0	0	0	0	0	0	0
9									0	0	0	0	0	0
10									0	0	0	0	0	0
11	1640.6	20000.0	0	0.25	35	56	16.5	0.0	0	0	0	0	0	0
12									0	0	0	0	0	0
13	1640.6	20000.0	0	0.16	45	63	16.5	0.0	0	0	0	0	0	0
14									0	0	0	0	0	0
15	1640.6	20000.0	0	0.00	36	59	14.8	0.0	0	0	0	0	0	0
16									0	0	0	0	0	0
17									0	0	0	0	0	0
18	1640.6	20000.0	0	0.19	44	69	14.8	0.0	0	0	0	0	0	0
19									0	0	0	0	0	0
20	1640.6	20000.0	0	0.08	42	56	13.0	0.0	0	0	0	0	0	0
21									0	0	0	0	0	0
22	1640.6	20000.0	0	0.02	47	66	11.3	0.0	0	0	0	0	0	0
23									0	0	0	0	0	0
24									0	0	0	0	0	0
25	1649.6	20000.0	0	0.73	44	66	13.0	0.0	0	0	0	0	0	0
26									8	16	0	0	15	30
27	1640.5	20000.0	0	0.02	42	63	8.4	0.0	8	16	0	0	15	30
28									8	16	0	0	15	30
29	1640.3	19920.0	-80	0.03	46	61	8.4	15.0	8	16	0	0	15	30
30									8	16	0	0	15	30
Monthly Totals			-80	3.18						79		0		149
Year to Date Totals			14545	58.01						79		0		149

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF JULY 2012

[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 TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN			CWS		MUNICIPAL	
	feet	ac-ft	ac-ft	in.	°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									8	16	0	0	15	30
2	1640.2	19880	-40	0.15	49	59	8.4	14.7	8	16	0	0	15	30
3									8	16	0	0	15	30
4									8	16	0	0	15	30
5	1639.9	19760	-120	0.21	40	60	8.4	14.7	8	16	0	0	15	30
6	1639.9	19760	0	0.00	48	64	8.4	15.0	8	16	0	0	15	30
7									8	16	0	0	15	30
8									8	16	0	0	15	30
9	1639.6	19640	-120	0.00	50	74	8.4	20.0	8	16	0	0	15	30
10									8	16	0	0	20	40
11	1639.4	19560	-80	0.00	49	71	8.4	20.3	8	16	0	0	20	40
12									8	16	0	0	20	40
13	1639.1	19440	-120	0.00	52	74	7.3	20.3	8	16	0	0	20	40
14									8	16	0	0	20	40
15									8	16	0	0	20	40
16	1638.7	19280	-160	0.01	52	70	8.4	30.0	8	16	0	0	20	40
17									8	16	0	0	30	60
18	1638.4	19160	-120	0.02	52	64	8.4	30.0	8	16	0	0	30	60
19									8	16	0	0	30	60
20	1638.0	19000	-160	0.00	54	67	8.4	30.0	8	16	0	0	30	60
21									8	16	0	0	30	60
22									8	16	0	0	30	60
23	1637.5	18750	-250	0.00	44	65	8.4	30.0	8	16	0	0	30	60
24									8	16	0	0	30	60
25	1637.1	18550	-200	0.01	45	67	8.4	30.0	8	16	0	0	30	60
26									8	16	0	0	30	60
27	1636.7	18350	-200	0.00	50	70	8.4	30.0	8	16	0	0	30	60
28									8	16	0	0	30	60
29									8	16	0	0	30	60
30	1636.2	18100	-250	0.00	47	66	8.4	30.0	8	16	0	0	30	60
31									8	16	0	0	30	60
Monthly Totals			-1820	0.40						492		0		1438
Year to Date Totals			12725	58.41						571		0		1587

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF AUGUST 2012

[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 TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN			CWS		MUNICIPAL	
	feet	ac-ft	ac-ft	in.	ºF	ºF	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1	1635.7	17888	-212	0.00	48	64	8.4	30.0	8	16	0	0	30	60
2									8	16	0	0	30	60
3	1635.4	17775	-113	0.00	47	65	8.4	30.0	8	16	0	0	30	60
4									8	16	0	0	30	60
5									8	16	0	0	30	60
6	1634.8	17550	-225	0.00	56	80	8.4	30.0	8	16	0	0	30	60
7									8	16	0	0	30	60
8	1634.4	17400	-150	0.00	52	80	8.4	30.0	8	16	0	0	30	60
9									8	16	0	0	30	60
10	1634.0	17250	-150	0.00	48	67	8.4	30.0	8	16	0	0	30	60
11									8	16	0	0	30	60
12									8	16	0	0	30	60
13	1633.4	17025	-225	0.00	49	80	8.4	30.0	8	16	0	0	30	60
14									8	16	0	0	30	60
15	1633.0	16875	-150	0.00	53	77	8.4	40.1	8	16	0	0	30	60
16	1632.7	16763	-112	0.00	58	76	8.4	40.1	8	16	0	0	40	79
17									8	16	0	0	40	79
18									8	16	0	0	40	79
19									8	16	0	0	40	79
20	1631.7	16388	-375	0.00	51	80	8.4	40.1	8	16	0	0	40	79
21									8	16	0	0	40	79
22	1631.1	16163	-225	0.00	49	76	8.4	40.1	8	16	0	0	40	79
23									8	16	0	0	40	79
24	1630.6	15975	-188	0.00	42	64	8.4	40.1	8	16	0	0	40	79
25									8	16	0	0	40	79
26											0	0	40	79
27	1629.7	15638	-337	0.01	44	68	8.4	40.1	8	16	0	0	40	79
28									8	16	0	0	40	79
29	1629.2	15450	-188	0.00	46	60	8.4	40.1	8	16	0	0	40	79
30	1628.9	15338	-112	0.00	45	63	8.4	40.1	8	16	0	0	40	79
31	1628.6	15225	-113	0.00	45	66	8.4	40.1	8	16	0	0	40	79
Monthly Totals			-2875	0.01						492		0		2163
Year to Date Totals			9850	58.42						1063		0		3750

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF SEPTEMBER 2012

[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 TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN			CWS		MUNICIPAL	
	feet	ac-ft	ac-ft	in.	°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									8	16	14	28	40	79
2									8	16	14	28	40	79
3									8	16	14	28	40	79
4	1627.1	14663	-562	0.00	42	70	8.4	40.1	8	16	14	28	40	79
5	1626.8	14450	-213	0.00	41	71	8.4	40.1	8	16	14	28	40	79
6									8	16	14	28	40	79
7	1626.0	14250	-200	0.00	39	74	8.4	40.1	8	16	14	28	40	79
8									8	16	14	28	40	79
9									8	16	14	28	40	79
10	1624.9	13838	-412	0.08	46	75	8.4	40.1	8	16	14	28	40	79
11									8	16	14	28	40	79
12	1624.1	13538	-300	0.00	38	60	8.4	40.1	8	16	14	28	40	79
13									8	16	14	28	40	79
14	1623.4	13275	-263	0.00	36	75	8.4	30.0	8	16	14	28	40	79
15									8	16	14	28	30	60
16									8	16	14	28	30	60
17	1622.4	12900	-375	0.00	40	78	8.4	30.0	8	16	14	28	30	60
18									8	16	14	28	30	60
19	1621.7	12638	-262	0.00	46	73	8.4	30.0	8	16	14	28	30	60
20									8	16	14	28	30	60
21	1621.1	12413	-225	0.05	46	64	8.4	30.0	8	16	14	28	30	60
22									8	16	14	28	30	60
23									8	16	14	28	30	60
24	1620.1	12038	-375	0.04	42	60	8.4	30.0	8	16	14	28	30	60
25	1619.7	11900	-138	0.00	44	59	8.4	18.0	8	16	14	28	30	60
26									8	16	14	28	18	36
27									8	16	14	28	18	36
28	1619.0	11666	-234	0.00	42	57	8.4	18.0	8	16	14	28	18	36
29									8	16	14	28	18	36
30									8	16	14	28	18	36
Monthly Totals			-3559	0.17						476		833		1944
Year to Date Totals			6291	59.59						1540		833		5694

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF OCTOBER 2012

[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 TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN			CWS		MUNICIPAL	
	feet	ac-ft	ac-ft	in.	ºF	ºF	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1	1618.2	11400	9781	0.00	42	66	8.4	18.0	8	16	14	28	18	36
2									8	16	14	28	18	36
3	1617.7	11233	-167	0.00	44	72	8.4	18.0	8	16	14	28	18	36
4									8	16	14	28	18	36
5	1617.2	11066	-167	0.00	43	70	8.4	18.0	8	16	14	28	18	36
6									8	16	14	28	18	36
7									8	16	14	28	18	36
8	1616.4	10800	-266	0.00	38	61	8.4	18.0	8	16	14	28	18	36
9									8	16	14	28	18	36
10	1615.8	10600	-200	0.00	41	62	8.4	18.0	8	16	14	28	18	36
11									8	16	14	28	18	36
12	1615.3	10433	-167	0.22	41	57	8.4	18.0	8	16	14	28	18	36
13									8	16	14	28	18	36
14									8	16	14	28	18	36
15	1614.7	10233	-200	1.72	52	54	8.4	18.0	8	16	14	28	18	36
16									8	16	14	28	18	36
17	1614.5	10166	-67	2.00	43	59	8.4	10.0	8	16	14	28	18	36
18									8	16	14	28	10	20
19	1614.1	10033	-133	0.20	39	55	8.4	10.0	8	16	14	28	10	20
20									8	16	14	28	10	20
21									8	16	14	28	10	20
22	1613.7	9925	-108	1.95	46	52	8.4	10.0	8	16	14	28	10	20
23									8	16	14	28	10	20
24	1613.6	9900	-25	1.34	35	40	8.4	10.0	8	16	14	28	10	20
25									8	16	14	28	10	20
26	1613.4	9850	-50	0.73	34	44	8.4	10.0	8	16	14	28	10	20
27									8	16	14	28	10	20
28									8	16	14	28	10	20
29	1613.7	9925	75	3.62	41	51	9.5	10.0	8	16	14	28	10	20
30									8	16	14	28	10	20
31	1614.3	10100	175	2.48	52	62	9.5	0.0	8	16	0	0	0	0
Monthly Totals			8481	14.26						492		833		865
Year to Date Totals			14772	73.85						2032		1667		6559

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF NOVEMBER 2012

[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 TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN			CWS		MUNICIPAL	
	feet	ac-ft	ac-ft	in.	°F	°F	cfs	cfs	cfs	ac-ft	cfs	ac-ft	cfs	ac-ft
1									8	16	0	0	0	0
2	1615.6	10533	433	2.14	45	50	9.5	0.0	8	16	0	0	0	0
3									8	16	0	0	0	0
4									8	16	0	0	0	0
5	1616.3	10766	233	0.67	54	64	8.4	0.0	8	16	0	0	0	0
6									8	16	0	0	0	0
7	1616.5	10833	67	0.10	40	53	8.4	0.0	8	16	0	0	0	0
8									8	16	0	0	0	0
9	1616.6	10866	33	0.05	31	43	8.4	0.0	8	16	0	0	0	0
10									8	16	0	0	0	0
11									8	16	0	0	0	0
12									8	16	0	0	0	0
13	1617.3	11100	234	1.88	28	45	8.4	0.0	8	16	0	0	0	0
14	1617.5	11166	66	0.03	38	44	8.4	0.0	8	16	0	0	0	0
15	1617.6	11200	34	0.02	37	46	8.4	0.0	8	16	0	0	0	0
16									8	16	0	0	0	0
17									8	16	0	0	0	0
18									8	16	0	0	0	0
19									8	16	0	0	0	0
20	1621.8	12675	1475	8.76	46	50	13.0	0.0	8	16	0	0	0	0
21	1623.0	13125	450	1.29	35	44	11.3	0.0	8	16	0	0	0	0
22									8	16	0	0	0	0
23									8	16	0	0	0	0
24									8	16	0	0	0	0
25									8	16	0	0	0	0
26	1625.7	14138	1013	1.91	30	46	9.5	0.0	8	16	0	0	0	0
27									8	16	0	0	0	0
28	1626.2	14325	187	0.05	33	41	9.5	0.0	8	16	0	0	0	0
29									8	16	0	0	0	0
30	1626.7	14513	188	1.71	37	44	9.5	0.0	8	16	0	0	0	0
Monthly Totals			4413	18.61					8	476		0		0
Year to Date Totals			19185	91.46						2508		1667		6559

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF DECEMBER 2012

[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 TRASK—ODFW		STORAGE RELEASED TO TUALATIN			
					Min	Max	TRASK	TUALATIN			CWS		MUNICIPAL	
	feet	ac-ft	ac-ft	in.	ºF	ºF	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	1629.3	15489	976	4.85	42	44	13.0	0.0	8	16	0	0	0	0
4									8	16	0	0	0	0
5	1631.3	16238	749	2.55	44	45	13.0	0.0	8	16	0	0	0	0
6									8	16	0	0	0	0
7	1632.5	16688	450	0.85	39	48	11.3	0.0	8	16	0	0	0	0
8									8	16	0	0	0	0
9									8	16	0	0	0	0
10	1633.6	17100	412	0.66	43	46	6.2	0.0	4	8	0	0	0	0
11									4	8	0	0	0	0
12	1634.1	17288	188	0.67	42	46	5.1	0.0	4	8	0	0	0	0
13									4	8	0	0	0	0
14	1634.6	17475	187	0.27	38	48	2.8	0.0	0	0	0	0	0	0
15									0	0	0	0	0	0
16									0	0	0	0	0	0
17	1636.5	18250	775	3.85	32	43	3.4	0.0	0	0	0	0	0	0
18									0	0	0	0	0	0
19	1637.6	18800	550	0.83*	31	40	2.3	0.0	0	0	0	0	0	0
20									0	0	0	0	0	0
21	1638.9	19360	560	1.11*	31	32	2.3	0.0	0	0	0	0	0	0
22									0	0	0	0	0	0
23									0	0	0	0	0	0
24	1640.6	20000	640	2.09	31	34	3.4	0.0	0	0	0	0	0	0
25									0	0	0	0	0	0
26	1640.8	20000	0	1.23	32	44	95.2	0.0	0	0	0	0	0	0
27									0	0	0	0	0	0
28	1640.8	20000	0	0.56	31	43	79.6	0.0	0	0	0	0	0	0
29									0	0	0	0	0	0
30									0	0	0	0	0	0
31	1640.8	20000	0	0.08	32	34	55.5	0.0	0	0	0	0	0	0
Monthly Totals			5487	19.60						175		0		0
Year to Date Totals			24672	111.06						2682		1667		6559

*Rainfall values for the 19th and 21st were snow and not melted before reporting—values shown are snow depthdivided by 9

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Appendix E

Municipal Water Use Allocations
Monthly Records

MONTHLY SUMMARIES OF MUNICIPAL ALLOCATIONS

MONTH	PAGE
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 2012

Source: Joint Water Commission

DAY	TOTAL MUNICIPAL USE	MUNICIPAL USE BY RESERVOIR		BREAKDOWN OF MUNCIPAL 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)	(cfs)
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0
23	44	0	44	-5	18	0	1	-7	25	13
24	45	0	45	-6	27	0	0	-4	18	10
25	45	0	45	-4	27	0	1	-2	17	6
26	51	15	36	4	18	0	1	4	17	6
27	33	15	18	8	11	0	1	4	6	3
28	33	15	18	6	10	0	1	5	7	3
29	33	15	18	5	10	0	0	4	8	5
30	33	15	18	5	10	0	1	4	8	5
Monthly Totals										
cfs	317	75	242	14	130	1	5	8	106	53
ac-ft		149	480	27	259	2	11	15	211	104
Year-to-Date Totals										
cfs	317	75	242	14	130	1	5	8	106	53
ac-ft	629	149	480	27	259	2	11	15	211	104

*When regulation begins before staff can reach Barney Reservoir to begin releases from stored water, TVWD's stored water balance in Barney is charged and Hillsboro's and Beaverton's is credited.

MUNICIPAL ALLOCATIONS FOR THE MONTH OF JULY 2012

Source: Joint Water Commission

DAY	TOTAL MUNICIPAL USE	MUNICIPAL USE BY RESERVOIR		BREAKDOWN OF MUNCIPAL 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)	(cfs)
1	33	15	18	4	8	0	0	5	10	6
2	33	15	18	6	9	1	2	4	7	4
3	33	15	18	5	8	2	2	5	8	3
4	39	15	24	9	17	1	1	3	6	3
5	39	15	24	7	13	1	1	5	10	3
6	39	15	24	5	14	1	2	3	9	7
7	60	15	45	1	22	0	3	1	20	13
8	60	15	45	2	25	0	3	1	17	12
9	60	15	45	2	26	0	3	1	16	11
10	58	20	38	5	23	1	3	3	12	12
11	64	20	44	3	26	0	3	1	15	16
12	52	20	32	3	17	1	3	2	12	14
13	52	20	32	3	16	1	3	2	13	15
14	52	20	32	5	20	1	3	2	10	12
15	52	20	32	4	19	1	2	3	11	13
16	52	20	32	6	20	0	1	3	11	10
17	65	30	35	7	15	2	4	7	16	14
18	62	30	32	9	16	1	2	8	14	12
19	50	30	20	11	10	2	2	10	9	7
20	38	30	8	15	4	2	1	9	3	4
21	38	30	8	13	4	2	1	9	3	6
22	38	30	8	13	4	2	1	10	3	6
23	38	30	8	14	4	1	0	9	3	5
24	44	30	14	16	9	1	1	8	4	5
25	44	30	14	15	9	2	1	7	4	5
26	49	30	19	12	10	2	2	8	7	7
27	60	30	30	11	17	2	3	7	11	9
28	60	30	30	12	17	2	3	7	10	9
29	60	30	30	11	16	2	2	8	11	10
30	60	30	30	9	15	2	3	8	13	11
31	50	30	20	9	9	2	2	9	9	10
Monthly Totals										
cfs	1534	725	809	246	441	36	63	171	305	272
ac-ft	3043	1438	1605	487	875	72	126	339	604	540
Year-to-Date Totals										
cfs	1851	800	1051	259	571	37	69	178	411	325
ac-ft	3671	1,587	2085	514	1134	74	136	354	815	645

MUNICIPAL ALLOCATIONS FOR THE MONTH OF AUGUST 2012

Source: Joint Water Commission

DAY	TOTAL MUNICIPAL USE	MUNICIPAL USE BY RESERVOIR		BREAKDOWN OF MUNCIPAL 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)	(cfs)
1	45	30	15	13	8	2	2	8	5	7
2	45	30	15	12	8	2	2	7	5	8
3	60	30	30	9	18	2	3	5	9	14
4	67	30	37	7	22	1	3	4	12	18
5	67	30	37	6	21	1	3	4	12	19
6	67	30	37	6	21	1	4	4	12	19
7	67	30	37	4	18	1	5	3	14	21
8	60	30	30	6	15	1	3	4	11	19
9	60	30	30	5	14	1	4	4	12	19
10	60	30	30	8	17	1	3	5	10	16
11	60	30	30	9	18	1	3	4	9	15
12	60	30	30	8	17	1	3	4	10	16
13	60	30	30	8	17	1	3	4	10	16
14	80	30	50	6	30	1	5	3	15	20
15	80	30	50	5	29	1	6	2	15	22
16	90	40	50	9	29	2	6	5	16	25
17	80	40	40	8	21	2	5	6	14	24
18	75	40	35	10	19	2	4	6	13	22
19	75	40	35	14	22	2	3	7	10	17
20	75	40	35	11	20	2	3	7	12	20
21	65	40	25	16	15	2	2	8	7	14
22	65	40	25	16	14	3	3	9	8	12
23	65	40	25	18	15	3	2	10	8	10
24	52	40	12	16	6	3	1	11	4	9
25	52	40	12	15	6	3	1	11	4	12
26	52	40	12	16	7	3	1	10	4	11
27	52	40	12	19	8	3	1	9	3	9
28	60	40	20	19	13	2	2	8	6	11
29	75	40	35	13	20	2	3	8	11	17
30	75	40	35	14	20	3	4	8	11	15
31	75	40	35	14	19	3	4	9	12	15
Monthly Totals										
cfs	2021	1090	931	340	529	60	96	196	306	494
ac-ft	4009	2162	1847	675	1050	119	190	389	607	980
Year-to-Date Totals										
cfs	3872	1890	1982	600	1101	97	165	374	717	819
ac-ft	7680	3749	3931	1,189	,183	193	327	743	1421	1624

MUNICIPAL ALLOCATIONS FOR THE MONTH OF SEPTEMBER 2012

Source: Joint Water Commission

DAY	TOTAL MUNICIPAL USE	MUNICIPAL USE BY RESERVOIR		BREAKDOWN OF MUNCIPAL 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)	(cfs)
1	70	40	30	8	15	2	4	6	11	23
2	70	40	30	11	17	2	3	6	10	20
3	70	40	30	13	18	2	3	6	9	19
4	70	40	30	12	18	2	3	6	9	20
5	64	40	24	13	14	2	2	7	7	18
6	64	40	24	12	14	2	3	7	8	19
7	75	40	35	8	19	2	4	5	12	24
8	72	40	32	8	16	2	3	6	12	24
9	70	40	30	10	17	2	3	6	10	22
10	70	40	30	11	17	2	3	6	9	20
11	65	40	25	12	14	3	3	7	8	18
12	65	40	25	13	15	2	3	7	8	18
13	58	40	18	13	10	3	2	7	6	17
14	65	40	25	11	14	2	3	7	8	20
15	66	30	36	4	19	1	4	3	13	21
16	70	30	40	3	20	1	5	2	15	24
17	70	30	40	6	24	1	4	3	12	21
18	70	30	40	6	25	1	4	3	12	20
19	70	30	40	5	23	1	4	3	12	21
20	62	30	32	6	18	1	4	3	10	19
21	62	30	32	7	17	2	4	5	11	17
22	55	30	25	10	14	2	3	5	8	13
23	55	30	25	10	14	2	3	5	8	13
24	55	30	25	8	13	2	3	6	9	15
25	48	30	18	7	8	2	3	6	7	14
26	41	18	23	5	14	1	3	3	7	9
27	43	18	25	6	16	1	3	2	6	9
28	48	18	30	5	19	1	3	2	7	10
29	53	18	35	4	22	1	4	2	9	12
30	53	18	35	3	22	0	3	2	10	12
Monthly Totals										
cfs	1869	980	889	252	505	50	98	145	286	533
ac-ft	3707	1944	1763	500	1001	99	195	288	567	1057
Year-to-Date Totals										
cfs	5741	2870	2871	852	1605	147	263	520	1003	1352
ac-ft	11387	5693	5695	1689	3184	292	522	1031	1989	2681

MUNICIPAL ALLOCATIONS FOR THE MONTH OF OCTOBER 2012

Source: Joint Water Commission

DAY	TOTAL MUNICIPAL USE	MUNICIPAL USE BY RESERVOIR		BREAKDOWN OF MUNCIPAL 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)	(cfs)
1	53	18	35	3	21	1	4	2	10	13
2	44	18	26	1	13	0	3	1	10	16
3	44	18	26	0	12	0	4	0	11	18
4	54	18	36	1	21	0	4	0	11	17
5	54	18	36	1	22	0	3	1	11	16
6	59	18	41	1	25	0	4	0	12	17
7	59	18	41	1	25	0	4	0	12	17
8	59	18	41	-1	23	0	4	-1	14	20
9	59	18	41	-2	22	0	5	-1	14	21
10	51	18	33	0	15	0	5	0	14	18
11	38	18	20	4	10	1	3	3	7	10
12	38	18	20	6	11	1	3	3	6	7
13	38	18	20	6	11	1	2	4	7	7
14	38	18	20	6	11	1	2	4	7	7
15	38	18	20	6	10	2	3	4	7	6
16	33	18	15	6	6	2	2	6	7	3
17	28	18	10	10	6	2	1	5	3	2
18	26	10	16	5	10	1	1	2	4	2
19	34	10	24	5	15	1	2	2	7	2
20	28	10	18	5	11	1	1	2	5	2
21	28	10	18	4	11	1	1	2	6	2
22	28	10	18	4	9	1	2	3	7	3
23	28	10	18	3	10	0	2	2	7	5
24	23	10	13	2	7	0	1	2	6	5
25	18	10	8	2	3	0	1	3	4	5
26	18	10	8	4	5	0	1	2	3	4
27	23	10	13	3	8	1	1	2	4	4
28	23	10	13	3	7	1	2	2	4	4
29	23	10	13	3	6	1	2	2	5	3
30	15	10	5	2	1	2	1	4	3	2
31	0	0	0	0	0	0	0	0	0	0
Monthly Totals										
cfs	1102	436	666	95	367	21	74	62	225	258
ac-ft	2186	865	1321	188	728	41	147	124	446	512
Year-to-Date Totals										
cfs	6843	3306	3537	947	1,973	168	337	582	1227	1610
ac-ft	13573	6557	7016	1877	3,912	333	669	1154	2434	3193

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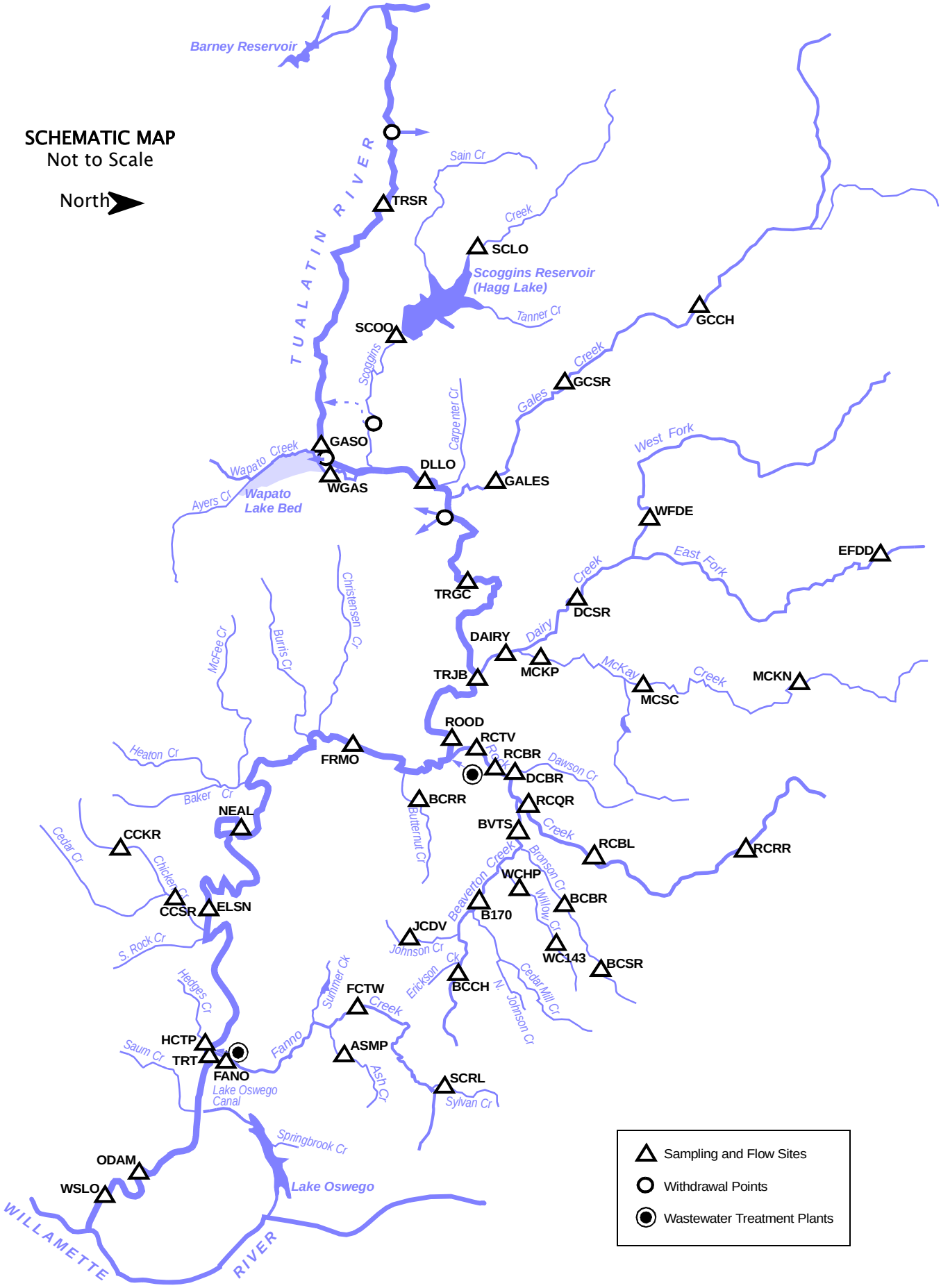
Appendix F

Stream Temperature Records

STREAM TEMPERATURE SITES — LOCATIONS



STREAM TEMPERATURE SITES — ALPHABETICAL LISTING BY SITE CODE

SITE CODE	SITE NAME	RIVER MILE	STATION ID	PAGE
ASMP	Ash Creek at Metzger Park at Metzger, Oregon	1.25	14206933	F-44
B170	Beaverton Creek at 170th Ave, Beaverton, Oregon	4.9	—	F-27
BCBR	Bronson Creek at Bronson Road near Orenco, Oregon	2.1	14206423	F-31
BCCH	Beaverton Creek at Cedar Hills Blvd at Beaverton, Oregon	7.45	14206360	F-25
BCRR	Butternut Creek at Rosa Road near Farmington, Oregon	1.0	14206483	F-36
BCSR	Bronson Creek at Saltzman Road near Orenco, Oregon	5.1	14206419	F-30
BVTS	Beaverton Creek at NE Guston Court near Orenco, Oregon	1.2	14206435	F-32
CCKR	Chicken Creek at Kruger Road	4.5	—	F-40
CCSR	Chicken Creek at Roy Rogers Road	2.3	14206750	F-41
DAIRY	Dairy Creek at Hwy 8 near Hillsboro, Oregon	2.06	14206200	F-19
DCBR	Dawson Creek at Brookwood Road near Hillsboro, Oregon	0.7	14206443	F-33
DCSR	Dairy Creek at Susbauer Road	6.02	—	F-15
DLLO	Tualatin River at Dilley, Oregon	58.8	14203500	F-9
EFDD	East Fork Dairy Creek near Dairy Creek Road near Mountaindale, Oregon	12.33	14205480	F-14
ELSN	Tualatin River at Elsner Road near Sherwood, Oregon	16.2	14206600	F-39
FANO	Fanno Creek at Durham Road near Tigard, Oregon	1.2	14206950	F-45
FCTW	Fanno Creek at Tuckerwood	7.3	14206927	F-43
FRMO	Tualatin River at Farmington, Oregon	33.3	14206500	F-37
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-9
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-46
JCDV	Johnson Creek at Davis Road	1.3	14206372	F-26
MCKN	McKay Creek at Northrup Road near North Plains, Oregon	15.5	14205980	F-16
MCKP	McKay Creek at Padgett Road	1.31	14206190	F-18
MCSC	McKay Creek at Scotch Church Road above Waible Ck near North Plains, Oregon	6.3	14206070	F-17
NEAL	Tualatin River at RM 24.5 near Scholls, Oregon	24.5	14206694	F-38
ODAM	Tualatin River at Oswego Dam near West Linn, Oregon	3.4	14207200	F-47
RCBL	Rock Creek below Bethany Lake	8.9	14206340	F-23
RCBR	Rock Creek at Brookwood Avenue, Hillsboro, Oregon	2.4	—	F-34
RCQR	Rock Creek at Quatama near Orenco, Oregon	4.9	14206347	F-24
RCRR	Rock Creek at Rock Creek Road near Bowers Junction, Oregon	15.8	14206305	F-22
RCTV	Rock Creek at Hwy 8 near Hillsboro, Oregon	1.2	14206450	F-35
ROOD	Tualatin River at Rood Bridge Road near Hillsboro, Oregon	38.4	14206295	F-21
SCLO	Scoggins Creek above Henry Hagg Lake near Gaston, Oregon	9.3	14202850	F-7
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-42
TRGC	Tualatin River at Golf Course Road near Cornelius, Oregon	51.5	14204800	ND*
TRJB	Tualatin River at Hwy 219 Bridge	44.4	14206241	F-20
TRSR	Tualatin River at South Road near Cherry Grove, Oregon	67.83	—	F-4
TRT	Tualatin River at Tualatin, Oregon	8.9	14206956	ND*
WC143	Willow Creek at 143rd Avenue near Beaverton, Oregon	3.5	14206410	F-28
WCHP	Willow Creek at Heritage Parkway near Beaverton, Oregon	0.75	14206413	F-29
WFDE	West Fork Dairy Creek at Evers Road	1.96	14205160	F-13
WGAS	Wapato Creek at Gaston Road at Gaston, Oregon	—	14202650	F-6
WSLO	Tualatin River at West Linn	1.75	14207500	F-48

* No data for 2012 due to instrument malfunction

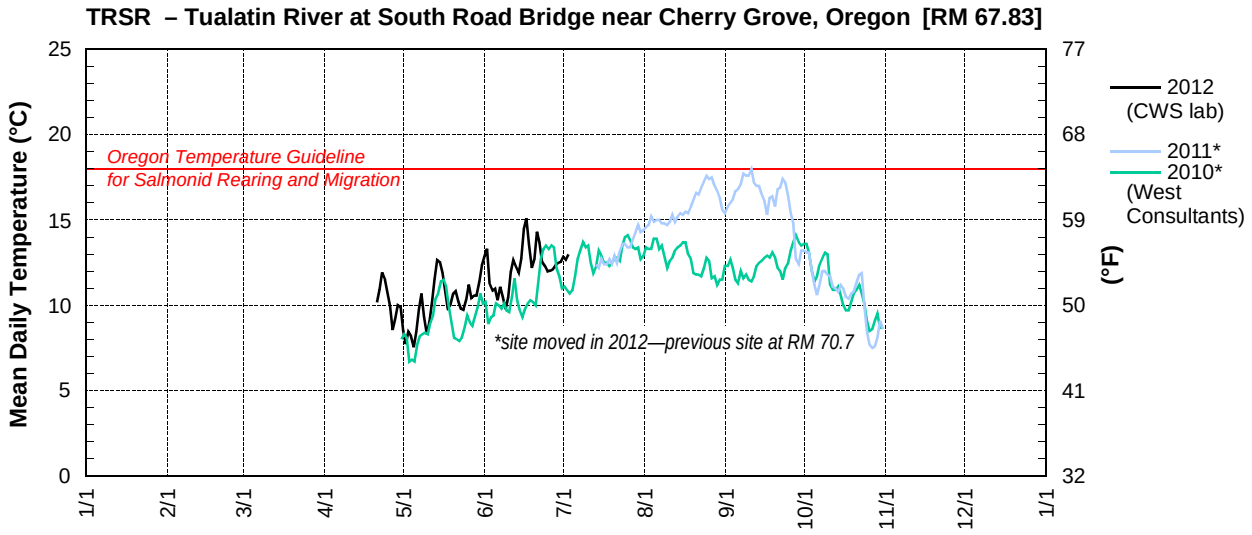
TRSR – TUALATIN RIVER AT SOUTH ROAD BRIDGE NEAR CHERRY GROVE, OREGON [RM 67.83]

Latitude: 45 26 37 Longitude: 123 14 24 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius†											
	JAN	FEB	MAR	APR*	MAY	JUN	JUL*	AUG	SEP	OCT	NOV	DEC
1					8.5	12.9	12.8					
2					7.7	13.3	12.7					
3					8.4	11.2	13.0					
4					8.2	10.9						
5					7.5	11.0						
6					8.5	10.3						
7					9.8	11.1						
8					10.7	10.5						
9					9.3	9.8						
10					8.3	10.5						
11					9.0	11.9						
12					10.2	12.6						
13					11.5	12.3						
14					12.6	11.9						
15					12.5	12.7						
16					11.9	14.5						
17					10.8	15.1						
18					9.8	13.6						
19					10.0	12.2						
20					10.7	12.7						
21					10.8	14.3						
22					10.2	13.7						
23					9.8	12.5						
24					9.7	12.3						
25					10.3	12.0						
26				9.9	11.2	12.0						
27				8.6	10.4	12.1						
28				9.2	10.6	12.3						
29		—		10.0	10.6	12.5						
30		—		9.9	11.4	12.6						
31		—		—	12.3	—			—		—	
MEAN					10.1	12.2						
MAX					12.6	15.1						
MIN					7.5	9.8						

†Pre--deployment instrument calibration checks within 0.2°C at 22°C; no post-calibration check in 2012

* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)



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

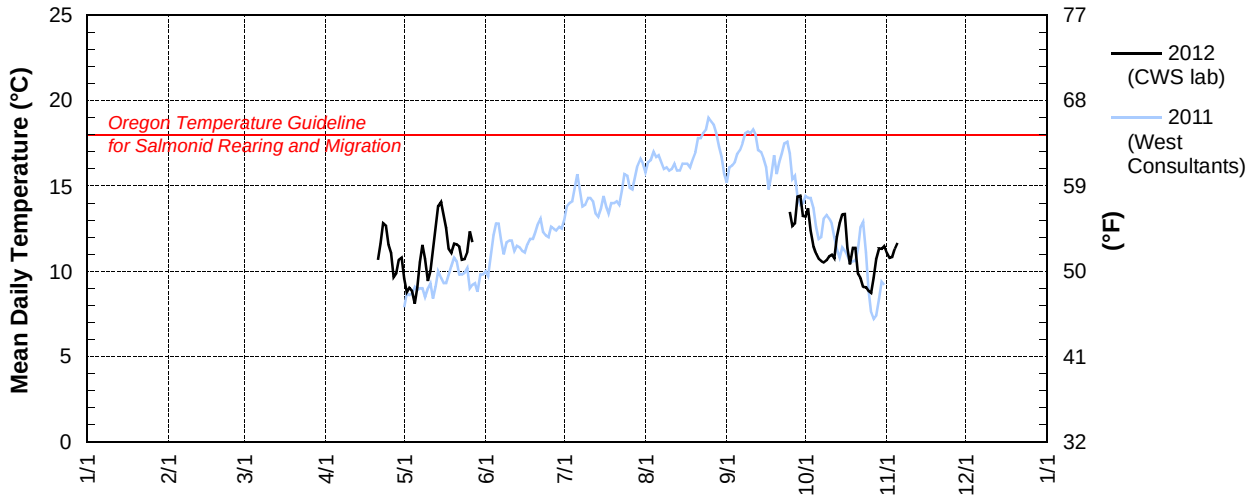
Latitude: 45 28 30 Longitude: 123 07 23 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius†											
	JAN	FEB	MAR	APR*	MAY*	JUN	JUL	AUG	SEP*	OCT	NOV*	DEC
1					9.6					13.2	11.1	
2					8.8					13.7	10.8	
3					9.0					12.4	10.8	
4					8.9					11.5	11.3	
5					8.1					11.0	11.7	
6					9.1					10.7		
7					10.5					10.6		
8					11.6					10.5		
9					10.7					10.7		
10					9.4					10.9		
11					10.0					11.0		
12					11.3					10.8		
13					12.6					12.0		
14					13.8					12.8		
15					14.1					13.3		
16					13.3					13.4		
17					12.5					11.4		
18					11.3					10.4		
19					11.1					11.4		
20					11.6					11.4		
21					11.6					9.8		
22					11.4					9.6		
23					10.7					9.1		
24					10.7					9.1		
25					11.1				13.5	8.8		
26				11.1	12.3				12.7	8.7		
27				9.7	11.7				12.8	9.6		
28				9.9					14.4	10.7		
29		—		10.7					14.4	11.3		
30		—		10.8					13.2	11.3		
31		—		—		—			—	11.5	—	
MEAN					11.0					11.0		
MAX					14.1					13.7		
MIN					8.1					8.7		

†No pre- or post-deployment instrument calibration checks in 2012; previous calibration check showed high bias of about 0.2°C at 22°C

* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)

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

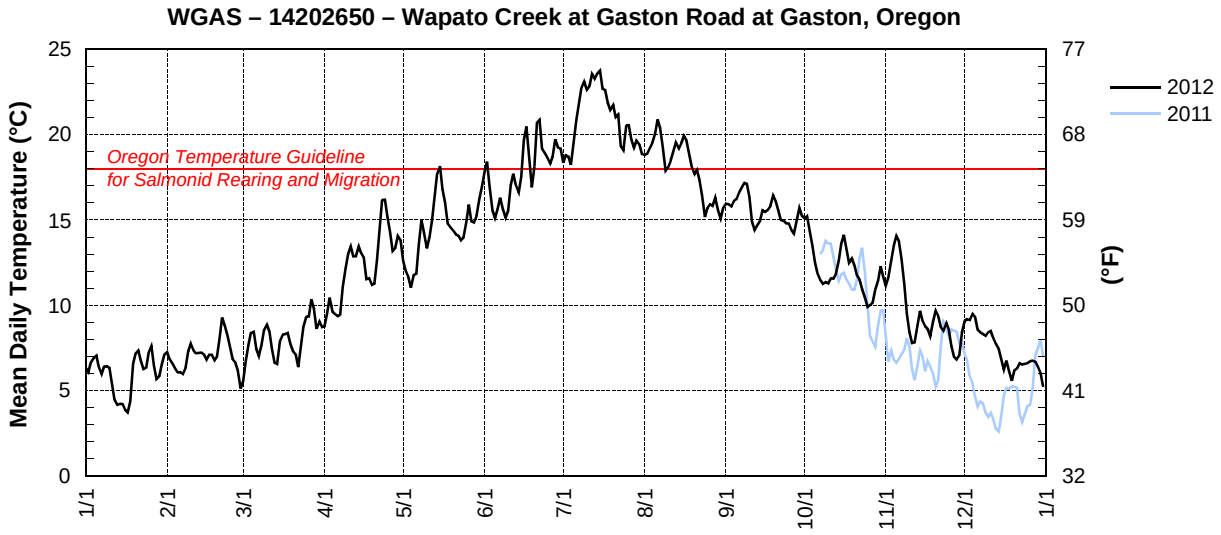


UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

STATION NUMBER 14202650 WAPATO CREEK AT GASTON ROAD AT GASTON, OR

LATITUDE: 452626 LONGITUDE: 1230730

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.3	7.3	5.6	8.8	12.6	17.8	18.4	18.8	15.9	15.1	11.2	9.0
2	6.1	6.8	6.7	9.5	12.0	18.4	18.8	18.9	15.9	15.2	11.6	9.2
3	6.7	6.6	7.6	10.4	11.7	17.0	18.7	19.2	15.8	14.4	12.6	9.1
4	6.9	6.3	8.4	9.6	11.0	15.6	18.2	19.5	16.1	13.5	13.4	9.5
5	7.1	6.1	8.5	9.5	11.8	15.1	19.6	20.0	16.2	12.5	14.1	9.3
6	6.4	6.1	7.5	9.4	11.8	15.7	20.8	20.9	16.6	11.8	13.8	8.6
7	6.0	6.0	7.0	9.4	13.6	16.3	21.8	20.4	16.9	11.5	12.8	8.4
8	6.4	6.4	7.7	11.1	15.0	15.7	22.8	19.3	17.2	11.3	11.2	8.3
9	6.4	7.3	8.6	12.2	14.3	15.1	23.1	17.9	17.1	11.4	9.5	8.2
10	6.4	7.7	8.9	13.0	13.3	15.5	22.6	18.1	16.3	11.3	8.4	8.4
11	5.4	7.4	8.5	13.5	14.0	17.0	22.8	18.5	14.9	11.6	7.8	8.5
12	4.5	7.2	7.4	12.9	15.0	17.7	23.5	19.0	14.4	11.6	7.8	8.1
13	4.2	7.2	6.6	12.9	16.4	17.0	23.3	19.5	14.7	11.8	8.8	7.7
14	4.2	7.2	6.6	13.5	17.7	16.6	23.6	19.2	15.0	12.6	9.7	7.4
15	4.2	7.1	7.9	13.0	18.2	17.5	23.8	19.5	15.6	13.6	9.1	6.8
16	3.9	6.8	8.3	12.8	16.8	19.6	22.7	19.9	15.5	14.1	8.8	6.2
17	3.7	7.1	8.3	11.5	16.0	20.5	22.6	19.7	15.6	13.4	8.6	6.8
18	4.3	7.1	8.4	11.6	14.8	18.9	21.9	18.9	15.8	12.5	8.2	6.2
19	6.6	6.8	7.8	11.2	14.6	16.9	21.4	18.1	16.4	12.8	9.1	5.6
20	7.2	7.0	7.3	11.3	14.4	18.1	21.8	17.7	16.1	12.4	9.7	6.2
21	7.3	8.0	7.1	12.6	14.2	20.7	21.0	17.9	15.6	11.7	9.4	6.3
22	6.8	9.3	6.4	14.5	14.1	20.9	21.2	17.3	15.0	11.5	8.7	6.6
23	6.3	8.8	7.6	16.1	13.8	19.2	19.3	16.5	15.0	11.0	8.5	6.5
24	6.4	8.2	8.7	16.2	14.0	18.9	19.1	15.2	14.8	10.4	9.0	6.6
25	7.3	7.5	9.3	15.1	14.8	18.6	20.5	15.7	14.8	9.9	8.6	6.6
26	7.6	6.8	9.3	14.3	15.9	18.3	20.6	15.9	14.4	10.0	7.6	6.7
27	6.5	6.7	10.4	13.2	15.0	18.7	19.7	15.8	14.2	10.1	7.0	6.8
28	5.7	6.2	9.8	13.3	14.9	19.7	19.3	16.3	14.9	10.9	6.8	6.7
29	5.8	5.1	8.6	14.0	15.2	19.3	19.7	15.6	15.7	11.4	7.1	6.4
30	6.6	—	9.1	13.8	16.2	19.2	19.4	15.1	15.2	12.3	8.4	6.0
31	7.1	—	8.7	—	16.9	—	18.9	15.7	—	11.7	—	5.2
MEAN	6.0	7.0	8.0	12.3	14.5	17.9	20.9	18.1	15.6	12.0	9.6	7.4
MAX	7.6	9.3	10.4	16.2	18.2	20.9	23.8	20.9	17.2	15.2	14.1	9.5
MIN	3.7	5.1	5.6	8.8	11.0	15.1	18.2	15.1	14.2	9.9	6.8	5.2



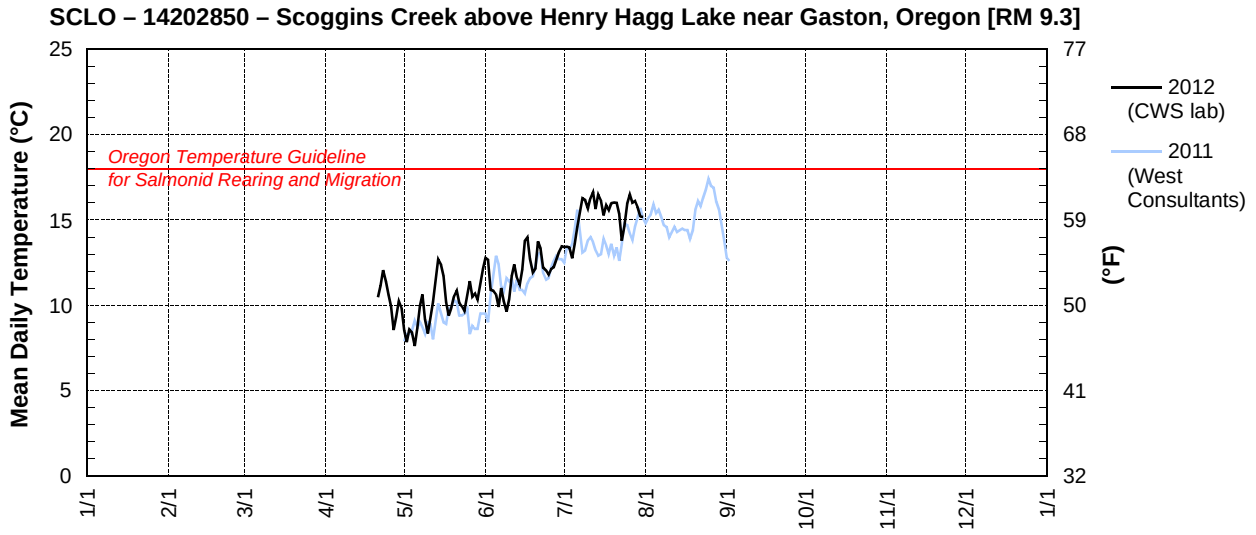
SCLO – 14202850 — SCOGGINS CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 9.3]

Latitude: 45 30 06 Longitude: 123 15 06 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius†											
	JAN	FEB	MAR	APR*	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					8.5	12.8	13.4					
2					7.8	12.7	13.4					
3					8.6	10.9	13.4					
4					8.4	10.8	12.8					
5					7.6	10.6	13.6					
6					8.7	9.9	14.6					
7					9.9	11.0	15.4					
8					10.6	10.2	16.3					
9					9.2	9.6	16.2					
10					8.3	10.3	15.7					
11					9.2	11.7	16.3					
12					10.2	12.4	16.7					
13					11.5	11.6	15.6					
14					12.7	11.2	16.5					
15					12.4	12.1	16.1					
16					11.7	13.8	15.3					
17					10.2	14.0	15.9					
18					9.4	12.7	15.6					
19					9.8	11.9	16.0					
20					10.6	12.2	16.0					
21					10.9	13.7	16.0					
22					10.1	13.3	15.3					
23					9.9	12.2	13.8					
24					9.7	12.0	14.6					
25					10.6	11.8	16.0					
26				9.9	11.4	12.1	16.5					
27				8.5	10.5	12.2	16.0					
28				9.3	10.7	12.7	16.1					
29		—		10.2	10.3	13.2	15.8					
30		—		9.8	11.3	13.4	15.2					
31		—		—	12.1	—	15.2		—		—	
MEAN					10.1	12.0	15.3					
MAX					12.7	14.0	16.7					
MIN					7.6	9.6	12.8					

†Predeployment instrument calibration checks in 2012 showed a negative bias of 0.3°C at 22°C; no post calibration check in 2012

* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)



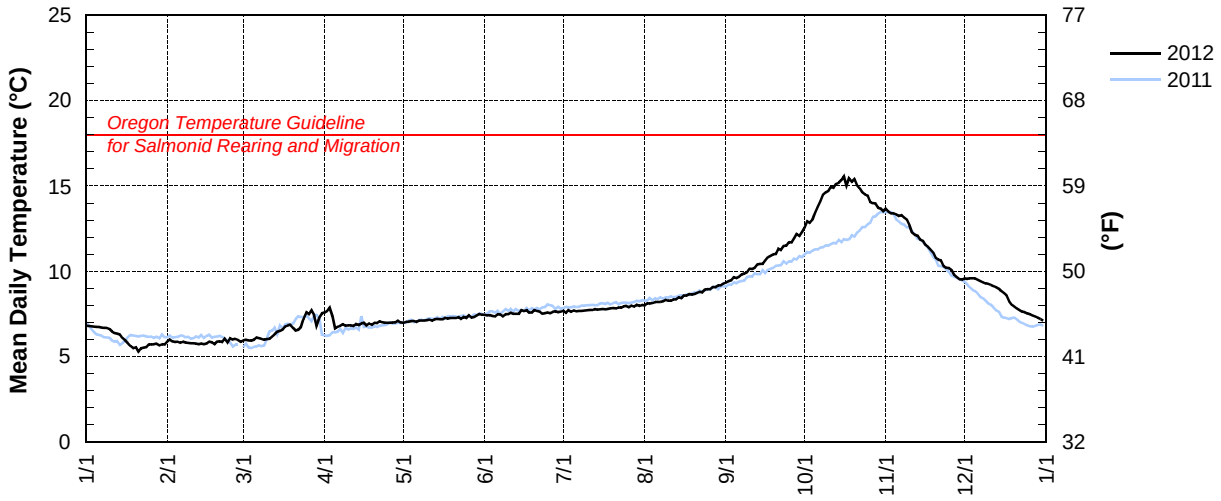
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

STATION NUMBER 14202980 SCOGGINS CK BLW HENRY HAGG LAKE, NR GASTON, OR

LATITUDE: 452810 LONGITUDE: 12311561

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.8	5.9	5.9	7.6	7.0	7.4	7.7	8.0	9.4	12.6	13.7	9.6
2	6.8	6.0	6.0	7.7	7.0	7.4	7.6	8.1	9.4	12.9	13.5	9.5
3	6.8	5.9	5.9	7.9	7.0	7.4	7.7	8.1	9.5	12.8	13.4	9.6
4	6.8	5.9	5.9	7.3	7.1	7.4	7.6	8.1	9.7	13.0	13.4	9.6
5	6.7	5.9	6.0	6.7	7.1	7.4	7.7	8.2	9.6	13.4	13.3	9.6
6	6.7	5.8	6.1	6.8	7.0	7.5	7.7	8.2	9.7	13.8	13.2	9.5
7	6.7	5.9	6.1	6.8	7.1	7.5	7.7	8.2	9.8	14.1	13.3	9.4
8	6.7	5.8	6.0	6.9	7.1	7.4	7.7	8.2	9.9	14.5	13.1	9.4
9	6.7	5.8	6.0	6.8	7.1	7.5	7.7	8.3	9.9	14.6	13.0	9.3
10	6.6	5.8	6.0	6.8	7.1	7.5	7.7	8.3	10.2	14.7	12.7	9.3
11	6.5	5.8	6.0	6.8	7.2	7.6	7.7	8.3	10.1	14.9	12.3	9.2
12	6.4	5.8	6.2	6.8	7.1	7.5	7.7	8.4	10.2	14.9	12.1	9.1
13	6.3	5.7	6.3	6.9	7.2	7.5	7.8	8.3	10.4	15.1	12.1	9.1
14	6.3	5.8	6.5	6.8	7.2	7.5	7.8	8.5	10.4	15.2	11.9	9.0
15	6.1	5.7	6.5	6.9	7.2	7.7	7.8	8.4	10.4	15.3	11.8	8.9
16	6.0	5.8	6.6	7.0	7.2	7.7	7.8	8.6	10.6	15.6	11.6	8.7
17	5.8	5.9	6.8	6.8	7.3	7.7	7.8	8.6	10.8	15.0	11.5	8.6
18	5.6	5.8	6.8	6.9	7.2	7.6	7.8	8.7	10.9	15.5	11.3	8.3
19	5.5	5.7	6.9	6.9	7.3	7.6	7.8	8.6	11.0	15.2	11.1	8.0
20	5.6	5.9	6.7	7.0	7.3	7.7	7.8	8.7	11.0	15.4	10.8	7.9
21	5.3	5.9	6.5	7.0	7.3	7.7	7.8	8.7	11.3	15.1	10.7	7.8
22	5.5	5.9	6.6	7.1	7.3	7.6	7.9	8.8	11.3	14.9	10.6	7.7
23	5.5	6.0	6.7	7.0	7.2	7.5	7.9	8.8	11.5	14.6	10.3	7.6
24	5.6	5.8	7.2	7.0	7.3	7.5	7.9	8.9	11.5	14.5	10.2	7.6
25	5.7	6.1	7.6	7.0	7.3	7.6	8.0	9.0	11.7	14.4	10.2	7.5
26	5.7	6.0	7.5	7.0	7.4	7.5	7.9	9.0	11.7	14.1	10.1	7.5
27	5.7	6.0	7.7	7.0	7.3	7.6	8.0	9.1	11.9	14.0	9.8	7.4
28	5.8	6.0	7.5	7.0	7.3	7.7	7.9	9.1	12.2	14.0	9.7	7.4
29	5.7	5.9	6.8	7.1	7.4	7.6	8.0	9.2	12.1	13.7	9.5	7.3
30	5.7	—	7.3	7.0	7.5	7.6	8.0	9.2	12.3	13.7	9.5	7.2
31	5.7	—	7.5	—	7.5	—	8.0	9.3	—	13.5	—	7.1
MEAN	6.1	5.9	6.6	7.0	7.2	7.6	7.8	8.6	10.7	14.4	11.7	8.5
MAX	6.8	6.1	7.7	7.9	7.5	7.7	8.0	9.3	12.3	15.6	13.7	9.6
MIN	5.3	5.7	5.9	6.7	7.0	7.4	7.6	8.0	9.4	12.6	9.5	7.1

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



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

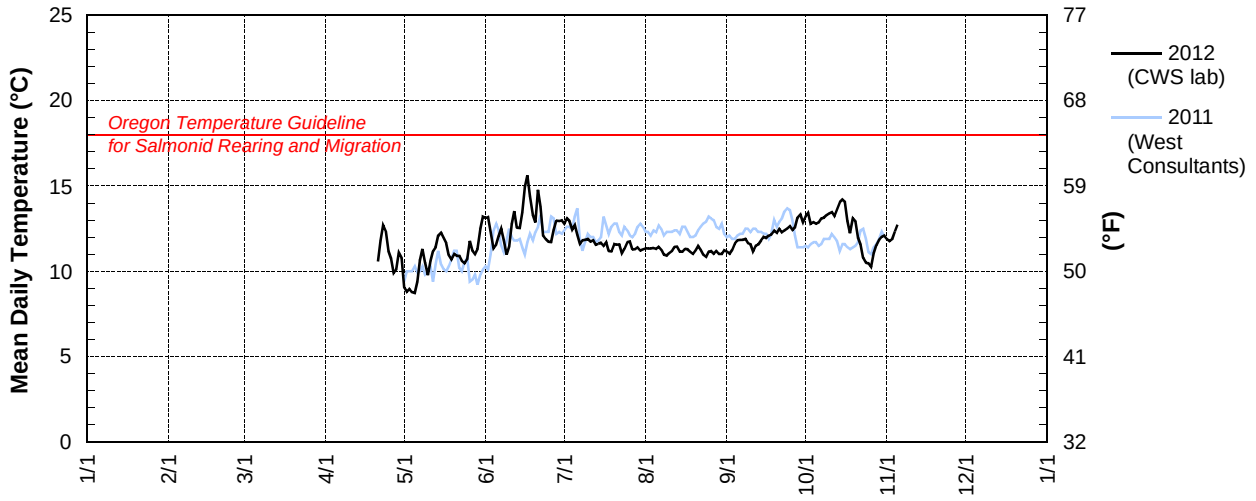
Latitude: 45 28 30 Longitude: 123 07 23 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius†											
	JAN	FEB	MAR	APR*	MAY	JUN	JUL	AUG	SEP	OCT	NOV*	DEC
1					9.0	13.1	12.8	11.3	11.2	13.2	11.9	
2					8.8	13.2	13.1	11.3	11.0	13.4	11.8	
3					9.0	12.3	13.0	11.3	11.3	12.8	11.9	
4					8.8	11.3	12.5	11.4	11.6	12.9	12.3	
5					8.7	11.6	12.7	11.3	11.8	12.8	12.7	
6					9.4	12.1	12.1	11.4	11.8	12.9		
7					10.6	12.5	11.6	11.3	11.8	13.1		
8					11.3	11.8	11.8	11.0	11.9	13.1		
9					10.5	11.0	11.8	10.9	11.6	13.3		
10					9.8	11.4	11.9	11.1	11.6	13.4		
11					10.6	12.7	11.7	11.2	11.2	13.5		
12					11.2	13.5	11.8	11.4	11.5	13.3		
13					11.4	12.6	11.6	11.4	11.6	13.6		
14					12.1	12.5	11.6	11.1	11.8	14.0		
15					12.2	13.4	11.7	11.1	12.0	14.2		
16					12.0	14.9	11.5	11.3	12.0	14.1		
17					11.6	15.6	11.7	11.3	12.1	12.9		
18					10.9	14.4	11.2	11.1	12.2	12.2		
19					10.7	13.3	11.2	11.0	12.4	13.1		
20					11.0	12.9	11.6	11.2	12.2	12.9		
21					10.9	14.8	11.6	11.5	12.5	12.0		
22					10.9	13.8	11.6	11.2	12.3	11.6		
23					10.6	12.1	11.1	11.0	12.4	10.8		
24					10.5	11.9	11.3	10.8	12.5	10.5		
25					10.7	11.7	11.7	11.1	12.6	10.5		
26				10.7	11.8	11.7	11.7	11.2	12.4	10.3		
27				9.9	11.2	12.4	11.3	11.0	12.6	11.0		
28				10.1	11.0	13.0	11.3	11.2	13.1	11.5		
29		—		11.1	11.3	12.9	11.4	11.0	13.3	11.8		
30		—		10.8	12.5	13.0	11.2	11.0	12.9	12.0		
31		—		—	13.2	—	11.3	11.2	—	12.1	—	
MEAN					10.8	12.8	11.8	11.2	12.0	12.5		
MAX					13.2	15.6	13.1	11.5	13.3	14.2		
MIN					8.7	11.0	11.1	10.8	11.0	10.3		

†Pre-deployment calibration check showed high bias of about 0.7°C at 22°C; no post-deployment check in 2012

*Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)

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]

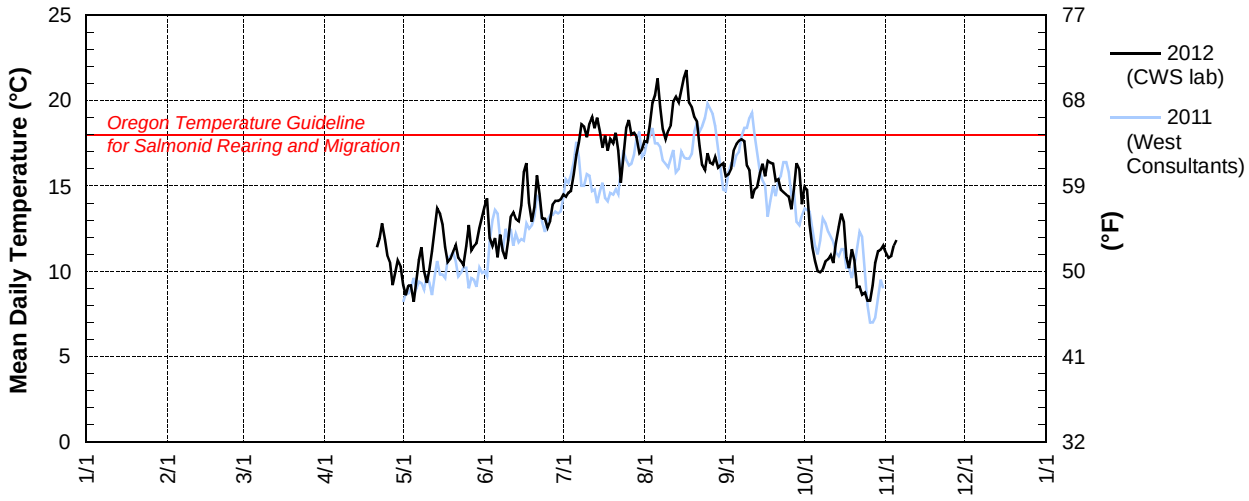
Latitude: 45 35 39 Longitude: 123 12 38 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius†											
	JAN	FEB	MAR	APR*	MAY	JUN	JUL	AUG	SEP	OCT	NOV*	DEC
1					9.2	13.8	14.5	17.6	15.6	15.0	11.1	
2					8.6	14.3	14.4	17.6	15.7	14.8	10.8	
3					9.2	12.0	14.6	18.5	16.0	12.7	10.9	
4					9.2	11.5	14.7	19.9	17.1	11.4	11.5	
5					8.2	12.0	15.7	20.3	17.5	10.6	11.8	
6					9.4	10.8	16.8	21.3	17.7	10.0		
7					10.7	12.2	17.5	19.7	17.7	9.9		
8					11.4	11.2	18.6	18.3	17.6	10.1		
9					10.0	10.7	18.5	17.7	16.2	10.6		
10					9.3	11.8	17.9	18.3	15.9	10.7		
11					10.1	13.2	18.7	18.6	14.3	11.0		
12					11.2	13.4	19.1	20.0	14.8	10.5		
13					12.5	13.1	18.4	20.2	14.9	11.7		
14					13.7	12.9	19.0	19.9	15.8	12.6		
15					13.4	13.9	18.2	20.6	16.3	13.4		
16					12.7	15.8	17.2	21.3	15.6	12.9		
17					11.4	16.3	17.9	21.8	16.5	10.8		
18					10.5	14.0	17.1	19.9	16.3	10.2		
19					10.7	12.9	17.8	19.6	16.3	11.3		
20					11.2	13.8	17.5	19.0	15.3	10.6		
21					11.5	15.6	18.1	18.8	15.4	9.1		
22					10.8	14.5	17.1	17.4	14.8	9.1		
23					10.6	13.1	15.2	16.2	14.6	8.6		
24					10.4	13.1	16.7	15.9	14.5	8.8		
25					11.5	12.6	18.4	16.9	14.4	8.3		
26				10.5	12.7	13.0	18.9	16.4	13.6	8.3		
27				9.2	11.2	13.9	18.0	16.3	14.8	9.2		
28				9.9	11.5	14.1	18.1	16.7	16.3	10.5		
29		—		10.6	11.7	14.1	17.9	16.1	16.0	11.2		
30		—		10.3	12.5	14.2	16.9	16.2	13.9	11.3		
31		—		—	13.2	—	17.1	16.3	—	11.5	—	
MEAN					11.0	13.3	17.3	18.5	15.7	10.9		
MAX					13.7	16.3	19.1	21.8	17.7	15.0		
MIN					8.2	10.7	14.4	15.9	13.6	8.3		

†Pre-deployment calibration check at 22°C is OK; no post-deployment check in 2012

*Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)

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



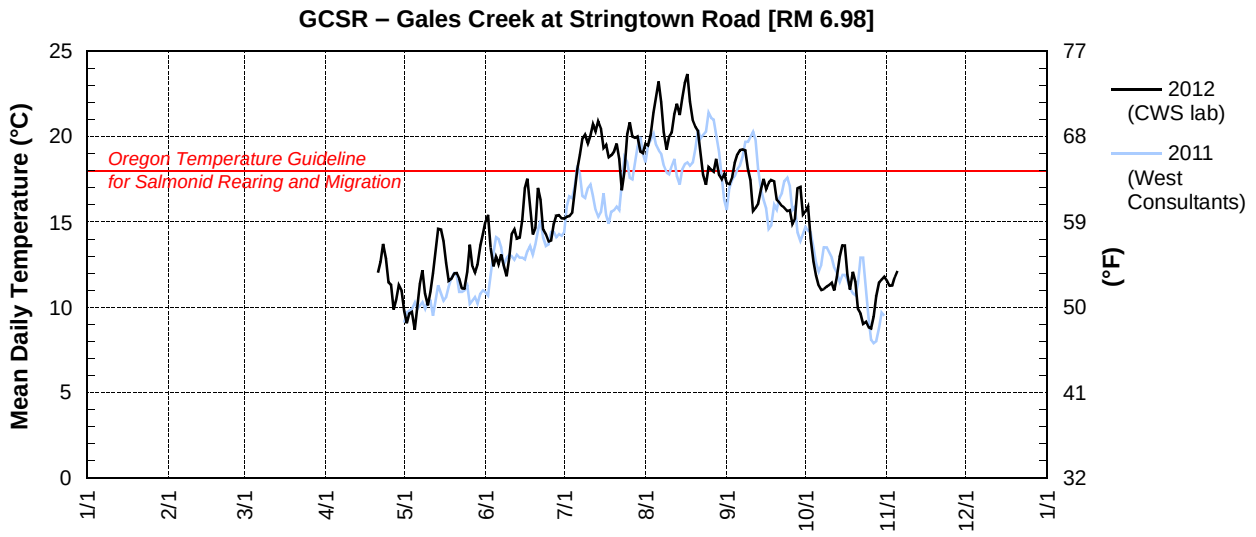
GCSR – GALES CREEK AT STRINGTOWN ROAD [RM 6.98]

Latitude: 45 32 26 Longitude: 123 10 09 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius†											
	JAN	FEB	MAR	APR*	MAY	JUN	JUL	AUG	SEP	OCT	NOV*	DEC
1					9.8	15.0	15.2	19.6	17.3	15.6	11.6	
2					9.1	15.4	15.3	19.5	17.2	15.9	11.3	
3					9.6	13.5	15.3	20.1	17.6	14.0	11.3	
4					9.7	12.4	15.5	21.4	18.5	12.7	11.8	
5					8.7	13.0	16.9	22.3	19.0	11.9	12.1	
6					9.9	12.5	18.1	23.2	19.2	11.3		
7					11.4	13.1	18.9	22.0	19.2	11.0		
8					12.2	12.5	19.9	20.3	19.2	11.1		
9					10.8	11.8	20.1	19.2	18.1	11.2		
10					10.1	12.9	19.6	20.0	17.4	11.3		
11					10.9	14.3	20.1	20.3	15.6	11.4		
12					12.0	14.6	20.7	21.3	15.8	11.0		
13					13.3	14.0	20.3	21.9	16.1	11.8		
14					14.6	14.1	20.9	21.3	16.9	13.0		
15					14.5	15.1	20.4	22.3	17.5	13.6		
16					13.9	17.0	19.3	23.1	16.9	13.6		
17					12.6	17.5	19.5	23.7	17.3	11.9		
18					11.6	16.1	18.8	22.1	17.5	11.0		
19					11.7	14.3	18.9	20.9	17.4	12.1		
20					12.0	14.7	19.1	20.6	16.3	11.5		
21					12.0	17.0	19.6	20.3	16.1	9.9		
22					11.7	16.3	18.7	19.1	15.9	9.6		
23					11.1	14.6	16.9	17.8	15.8	9.0		
24					11.1	14.3	17.9	17.2	15.6	9.2		
25					12.1	13.9	20.1	18.2	15.7	8.8		
26				11.3	13.7	13.9	20.8	18.1	14.9	8.8		
27				9.9	12.4	14.9	20.0	17.9	15.2	9.4		
28				10.5	12.0	15.4	19.9	18.7	17.0	10.6		
29		—		11.3	12.5	15.4	20.0	17.7	17.1	11.5		
30		—		11.0	13.6	15.2	19.1	17.5	15.4	11.6		
31		—		—	14.3	—	19.0	17.8	—	11.8	—	
MEAN					11.8	14.5	18.9	20.2	17.0	11.5		
MAX					14.6	17.5	20.9	23.7	19.2	15.9		
MIN					8.7	11.8	15.2	17.2	14.9	8.8		

†Pre-deployment calibration check showed low bias of about 0.5°C at 22°C; no post-deployment check in 2012

*Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)



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

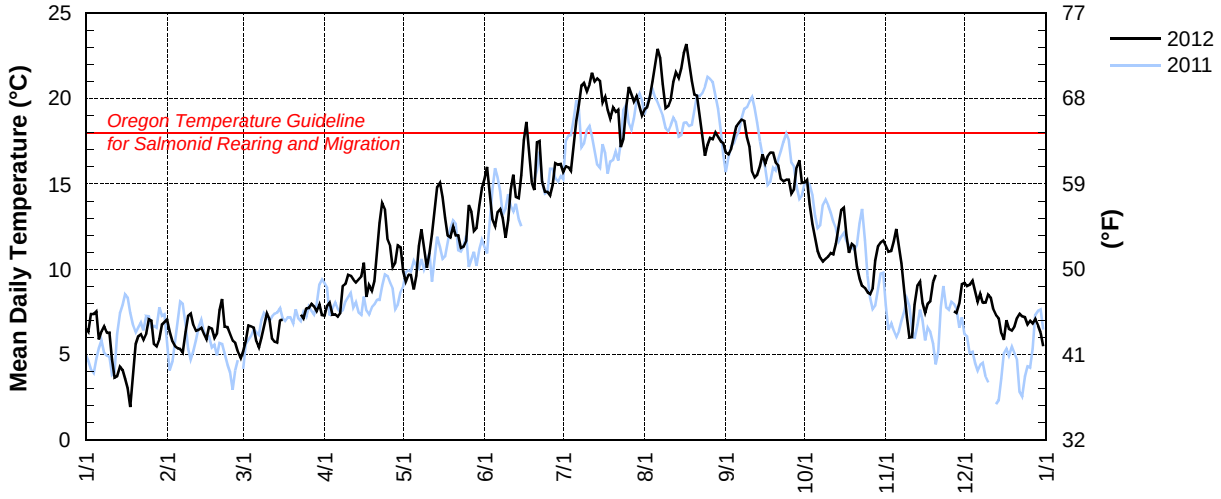
STATION NUMBER 453040123065201* GALES CREEK AT OLD HWY 47, FOREST GROVE, OR

LATITUDE: 453039.75 LONGITUDE: 1230652.0

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR*	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV*	DEC
1	6.6	7.1	5.2	7.3	9.9	15.3	15.7	19.4	16.9	15.1	11.4	9.2
2	6.3	6.4	5.8	7.8	9.3	16.0	16.0	19.5	16.7	15.3	11.0	9.0
3	7.4	5.8	6.7	8.1	9.6	14.5	16.0	20.0	17.1	13.9	11.1	9.1
4	7.4	5.5	6.7	7.4	9.7	12.9	15.7	21.0	17.7	12.7	11.6	9.3
5	7.5	5.4	6.6	7.4	8.9	12.5	17.3	22.0	18.4	11.9	12.4	8.7
6	5.9	5.3	5.8	7.2	9.6	13.4	18.7	22.9	18.6	11.1	11.4	8.1
7	6.3	5.1	5.4	7.4	11.3	13.5	19.6	22.4	18.8	10.7	10.4	8.5
8	6.7	6.3	6.0	9.0	12.4	13.0	20.7	20.9	18.7	10.5	8.8	8.0
9	6.3	7.3	6.7	9.2	11.3	11.9	20.9	19.5	17.8	10.6	7.2	8.0
10	6.3	7.4	7.4	9.7	10.1	12.8	20.5	19.6	17.2	10.7	6.0	8.5
11	4.7	6.8	7.1	9.7	10.9	14.7	20.8	19.9	15.7	11.0	6.0	8.4
12	3.7	6.4	6.0	9.4	12.0	15.6	21.5	20.9	15.4	10.9	7.9	7.7
13	3.7	6.4	5.8	9.2	13.5	14.3	21.0	21.6	15.5	11.5	9.0	7.3
14	4.3	6.6	5.7	9.4	14.8	14.1	21.2	21.2	16.0	12.5	9.3	7.1
15	4.1	6.2	7.0	9.6	15.1	15.5	21.1	21.8	16.7	13.5	8.0	6.3
16	3.6	5.9	7.0	10.4	14.3	17.5	19.8	22.7	16.2	13.6	7.4	5.9
17	3.0	6.6		8.4	13.1	18.6	20.1	23.2	16.6	12.1	8.0	7.0
18	2.0	6.5		9.0	12.0	17.0	19.4	22.3	16.8	11.0	8.1	6.5
19	4.0	6.0		8.8	11.8	15.1	18.8	21.1	16.8	11.5	9.2	6.4
20	5.6	6.2		9.3	12.5	14.6	19.5	20.2	16.3	11.4	9.7	6.6
21	6.1	7.6		10.9	12.0	17.4	19.2	20.2	16.1	10.2		7.1
22	6.2	8.3		12.7	12.0	17.6	19.4	19.0	15.3	9.5		7.4
23	5.9	6.7	7.3	13.9	11.3	15.2	17.2	17.9	15.2	9.0		7.2
24	6.2	6.6	7.1	13.5	11.4	14.5	17.6	16.7	15.2	8.9		7.2
25	7.1	6.2	7.7	11.8	11.6	14.6	19.5	17.3	15.3	8.7		6.8
26	7.0	5.8	7.7	11.4	13.8	14.3	20.7	17.7	14.5	8.6		7.0
27	5.6	5.7	8.0	10.2	13.4	14.9	20.3	17.6	14.7	8.9	7.5	6.8
28	5.5	5.2	7.8	10.4	12.2	16.2	19.8	18.0	16.0	10.5	7.4	7.1
29	5.9	4.8	7.5	11.4	12.4	16.1	20.2	17.7	16.4	11.3	8.0	6.7
30	6.7	—	8.0	11.3	13.7	16.2	19.6	17.5	15.1	11.6	9.1	6.3
31	6.9	—	7.3	—	14.8	—	19.0	17.4	—	11.7	—	5.5
MEAN	5.6	6.3	6.7	9.7	12.0	15.0	19.3	20.0	16.5	11.3		7.5
MAX	7.5	8.3	8.0	13.9	15.1	18.6	21.5	23.2	18.8	15.3		9.3
MIN	2.0	4.8	5.2	7.2	8.9	11.9	15.7	16.7	14.5	8.6		5.5

* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)

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



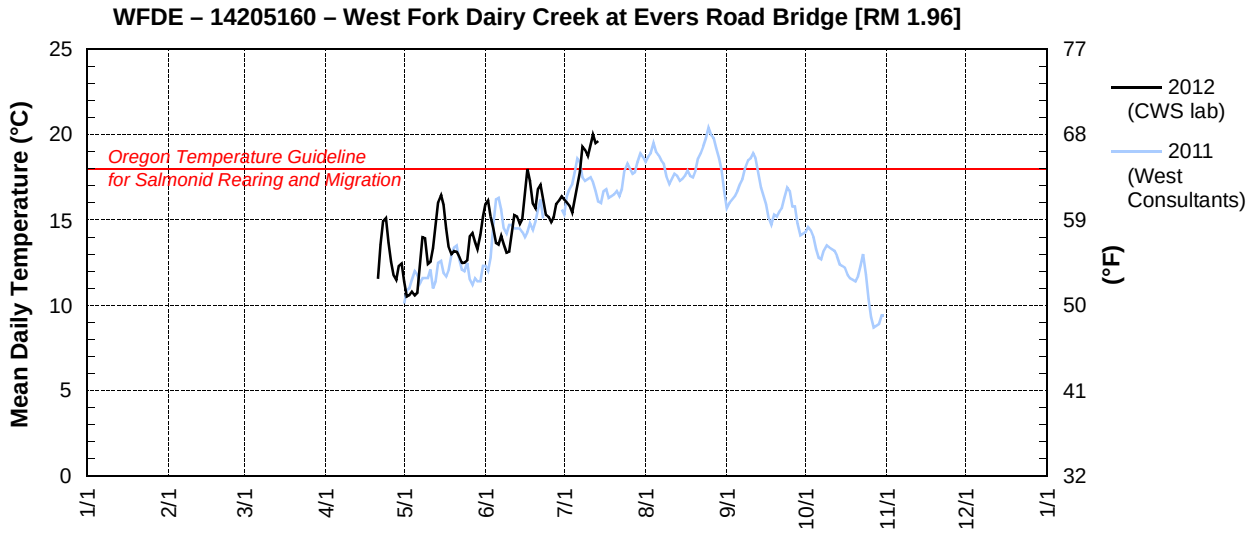
*USGS #453040123065201 is equivalent to OWRD #14204530.

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

Latitude: 45 34 34 Longitude: 123 05 34 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius†											
	JAN	FEB	MAR	APR*	MAY	JUN	JUL*	AUG	SEP	OCT	NOV	DEC
1					11.4	15.9	16.2					
2					10.5	16.1	16.0					
3					10.6	15.2	15.8					
4					10.8	14.5	15.4					
5					10.6	13.6	16.2					
6					10.7	13.6	17.0					
7					12.4	14.1	17.8					
8					14.0	13.6	19.3					
9					13.9	13.1	19.1					
10					12.4	13.1	18.7					
11					12.5	14.3	19.4					
12					13.4	15.3	20.0					
13					14.6	15.2	19.5					
14					16.1	14.8	19.6					
15					16.5	15.1						
16					15.9	16.6						
17					14.5	18.0						
18					13.4	17.3						
19					13.0	15.9						
20					13.2	15.7						
21					13.1	16.8						
22					12.8	17.1						
23					12.5	16.2						
24					12.5	15.3						
25					12.6	15.2						
26				12.6	14.0	14.9						
27				11.7	14.2	15.1						
28				11.5	13.7	15.9						
29		—		12.3	13.3	16.1						
30		—		12.4	14.1	16.4						
31		—		—	15.2	—					—	
MEAN					13.2	15.3						
MAX					16.5	18.0						
MIN					10.5	13.1						

†No pre- or post-deployment instrument calibration checks in 2012; pre-calibration check in 2011 showed a low bias of about 0.4°C at 0°C and 0.2°C at 22°C.
*Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)



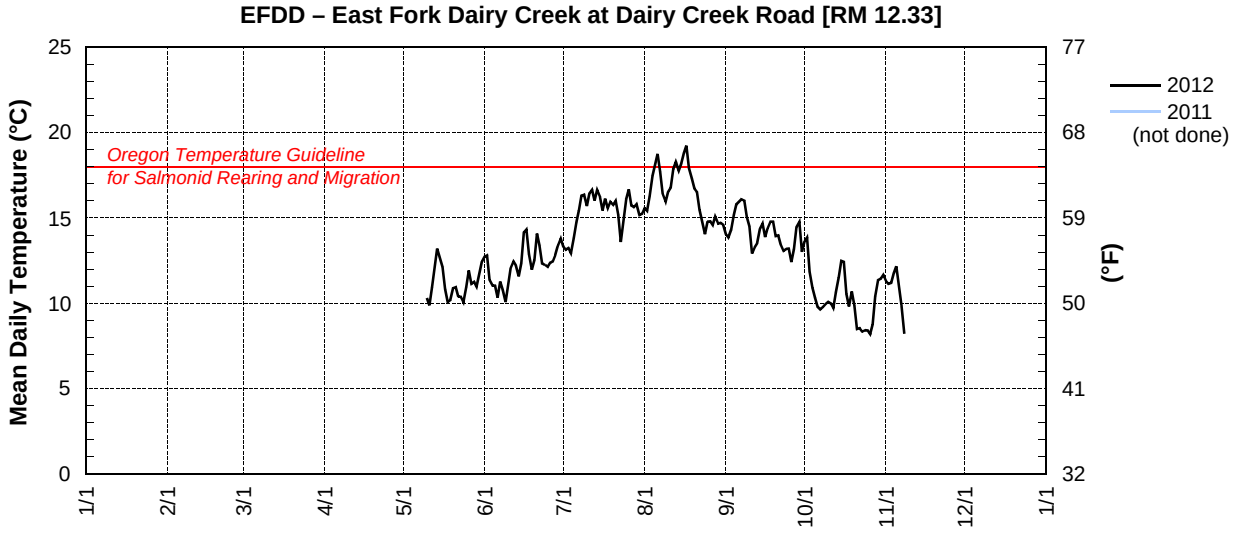
EFDD – EAST FORK DAIRY CREEK AT DAIRY CREEK ROAD NEAR MOUNTAINDALE, OR [RM 12.33]

Latitude: 45 40 32 Longitude: 123 03 54 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius†											
	JAN	FEB	MAR	APR	MAY*	JUN	JUL	AUG	SEP	OCT	NOV*	DEC
1						12.7	13.3	15.6	14.1	13.6	11.3	
2						12.8	13.2	15.4	13.9	13.9	11.1	
3						11.4	13.2	16.3	14.3	11.9	11.2	
4						11.0	12.9	17.5	15.2	10.9	11.8	
5						11.0	13.8	18.1	15.8	10.3	12.2	
6						10.3	14.7	18.8	15.9	9.8	11.1	
7						11.3	15.4	17.7	16.1	9.6	9.9	
8						10.8	16.3	16.4	16.0	9.8	8.2	
9						10.1	16.4	15.9	15.0	10.0		
10						11.1	15.7	16.5	14.5	10.1		
11						12.1	16.4	16.8	12.9	10.0		
12						12.5	16.7	17.9	13.3	9.7		
13						12.2	16.0	18.3	13.5	10.6		
14						11.6	16.6	17.8	14.4	11.5		
15					12.6	12.3	16.2	18.2	14.7	12.5		
16					12.1	14.2	15.4	18.8	13.9	12.4		
17					10.8	14.3	16.1	19.2	14.4	10.5		
18					10.1	12.9	15.6	17.9	14.8	9.8		
19					10.2	12.0	16.0	17.3	14.8	10.7		
20					10.9	12.5	15.8	16.7	13.9	9.9		
21					11.0	14.1	16.0	16.5	14.0	8.5		
22					10.4	13.4	15.2	15.5	13.4	8.5		
23					10.4	12.3	13.6	14.8	13.1	8.3		
24					10.0	12.2	14.8	14.1	13.2	8.4		
25					11.0	12.1	16.1	14.8	13.2	8.4		
26					11.9	12.4	16.7	14.8	12.4	8.2		
27					11.2	12.4	15.7	14.6	13.2	8.8		
28					11.3	12.8	15.6	15.1	14.5	10.4		
29		—			11.0	13.4	15.8	14.7	14.8	11.4		
30		—			11.7	13.8	15.2	14.7	13.0	11.4		
31		—		—	12.5	—	15.3	14.6	—	11.7	—	
MEAN						12.3	15.3	16.5	14.2	10.4		
MAX						14.3	16.7	19.2	16.1	13.9		
MIN						10.1	12.9	14.1	12.4	8.2		

†Pre-deployment calibration check showed low bias of about 0.5°C at 22°C; no post-deployment check in 2012

*Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)



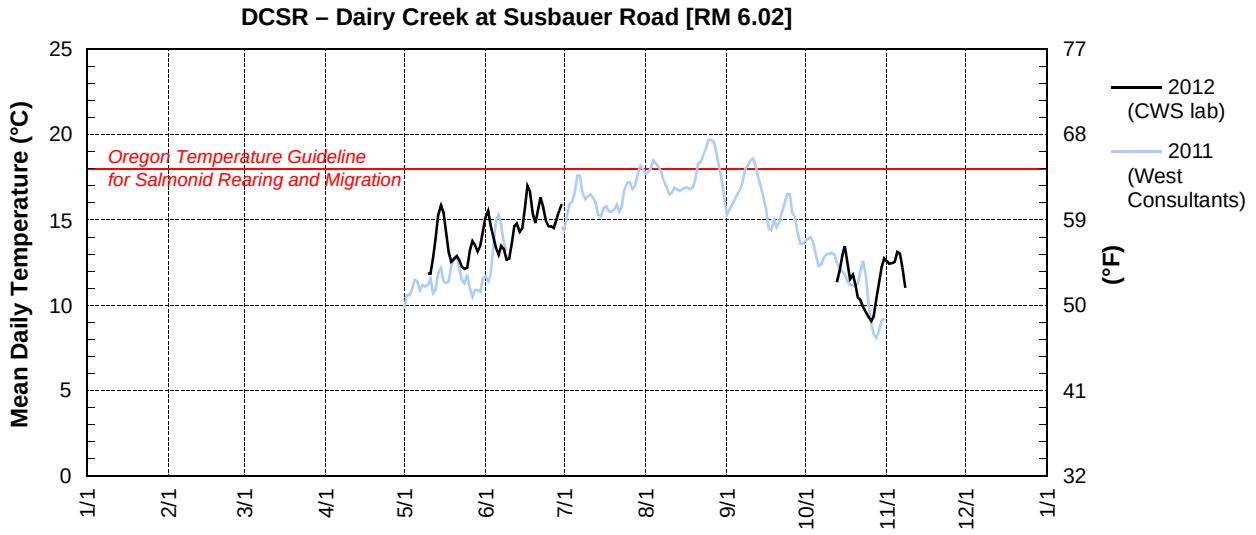
DCSR – DAIRY CREEK AT SUSBAUER ROAD [RM 6.02]

Latitude: 45 32 23 Longitude: 123 02 30 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY*	JUN	JUL	AUG	SEP	OCT*	NOV*	DEC
1						15.2					12.6	
2						15.6					12.4	
3						14.7					12.5	
4						14.0					12.5	
5						13.3					13.1	
6						13.0					13.0	
7						13.5					12.2	
8						13.3					11.0	
9						12.7						
10						12.7						
11						13.6						
12						14.6						
13						14.8				11.4		
14						14.3				12.0		
15					15.9	14.5				12.9		
16					15.4	15.7				13.5		
17					14.3	17.0				12.5		
18					13.1	16.7				11.6		
19					12.6	15.3				11.8		
20					12.7	14.8				11.2		
21					12.9	15.6				10.4		
22					12.6	16.3				10.3		
23					12.3	15.8				9.9		
24					12.1	14.9				9.6		
25					12.2	14.6				9.3		
26					13.2	14.6				9.1		
27					13.8	14.5				9.3		
28					13.5	15.0				10.3		
29		—			13.1	15.5				11.3		
30		—			13.5	15.9				12.2		
31		—		—	14.4	—			—	12.8	—	
MEAN						14.7						
MAX						17.0						
MIN						12.7						

†Pre-deployment calibration check at 22°C within 0.2°C; no post-deployment check in 2012

*Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)



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

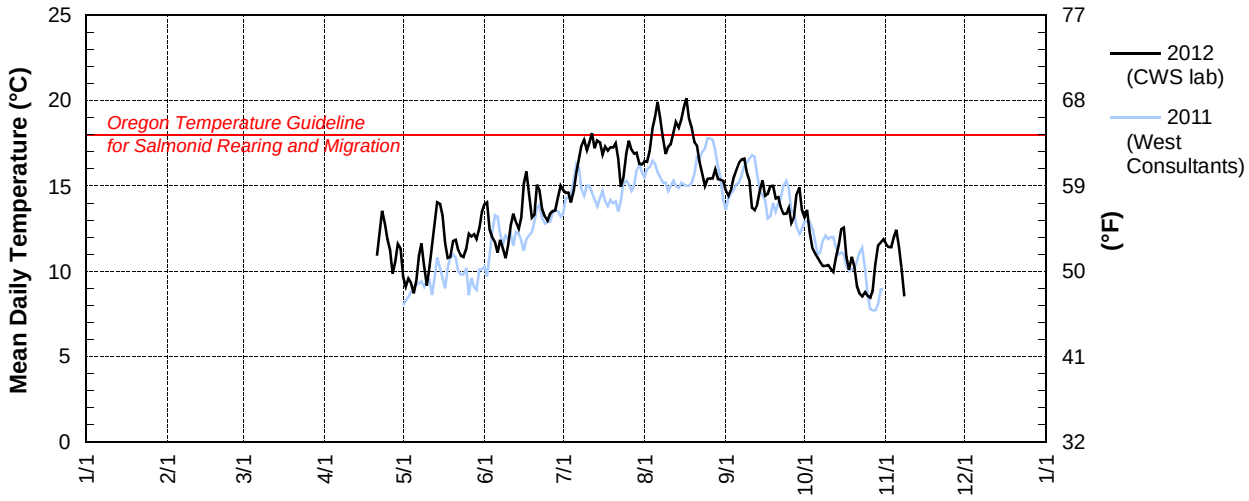
Latitude: 45 38 36 Longitude: 122 59 32 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius†											
	JAN	FEB	MAR	APR*	MAY	JUN	JUL	AUG	SEP	OCT	NOV*	DEC
1					9.7	13.9	14.8	16.5	14.7	13.2	11.6	
2					9.1	14.1	14.6	16.4	14.4	13.6	11.4	
3					9.6	12.4	14.6	17.0	14.8	12.3	11.4	
4					9.3	12.0	14.0	18.4	15.5	11.3	12.0	
5					8.7	11.7	14.7	19.1	16.0	11.0	12.4	
6					9.5	11.1	15.8	19.9	16.4	10.8	11.5	
7					10.9	11.8	16.6	19.0	16.6	10.5	10.2	
8					11.6	11.4	17.4	17.9	16.6	10.3	8.5	
9					10.4	10.8	17.7	16.9	15.8	10.3		
10					9.2	11.6	17.1	17.3	15.3	10.4		
11					10.2	12.7	17.6	17.4	13.7	10.1		
12					11.6	13.4	18.1	18.1	13.6	10.0		
13					12.8	12.9	17.2	18.7	13.9	10.8		
14					14.1	12.5	17.7	18.4	14.8	11.5		
15					13.9	13.1	17.5	18.9	15.3	12.5		
16					13.3	15.1	16.8	19.6	14.4	12.6		
17					11.7	15.9	17.3	20.1	14.5	10.8		
18					10.8	14.5	17.1	19.0	15.0	10.1		
19					10.8	13.1	17.3	18.4	15.0	10.8		
20					11.8	13.3	17.3	17.6	14.3	10.3		
21					11.9	15.1	17.5	17.4	14.4	9.1		
22					11.2	14.7	16.6	16.4	13.7	8.7		
23					10.9	13.7	15.0	15.8	13.3	8.5		
24					10.8	13.2	15.5	15.0	13.4	8.8		
25					11.3	13.0	16.9	15.4	13.8	8.6		
26				11.2	12.2	13.4	17.7	15.4	12.8	8.4		
27				9.9	12.0	13.5	17.1	15.4	13.2	8.9		
28				10.5	12.2	13.6	16.9	16.0	14.5	10.4		
29		—		11.6	11.9	14.4	16.9	15.4	14.9	11.5		
30		—		11.3	12.5	15.0	16.3	15.4	13.6	11.7		
31		—		—	13.5	—	16.3	15.3	—	11.9	—	
MEAN					11.3	13.2	16.6	17.3	14.6	10.6		
MAX					14.1	15.9	18.1	20.1	16.6	13.6		
MIN					8.7	10.8	14.0	15.0	12.8	8.4		

†Pre-deployment calibration check at 22°C within 0.2°C ; no post-deployment check in 2012

*Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)

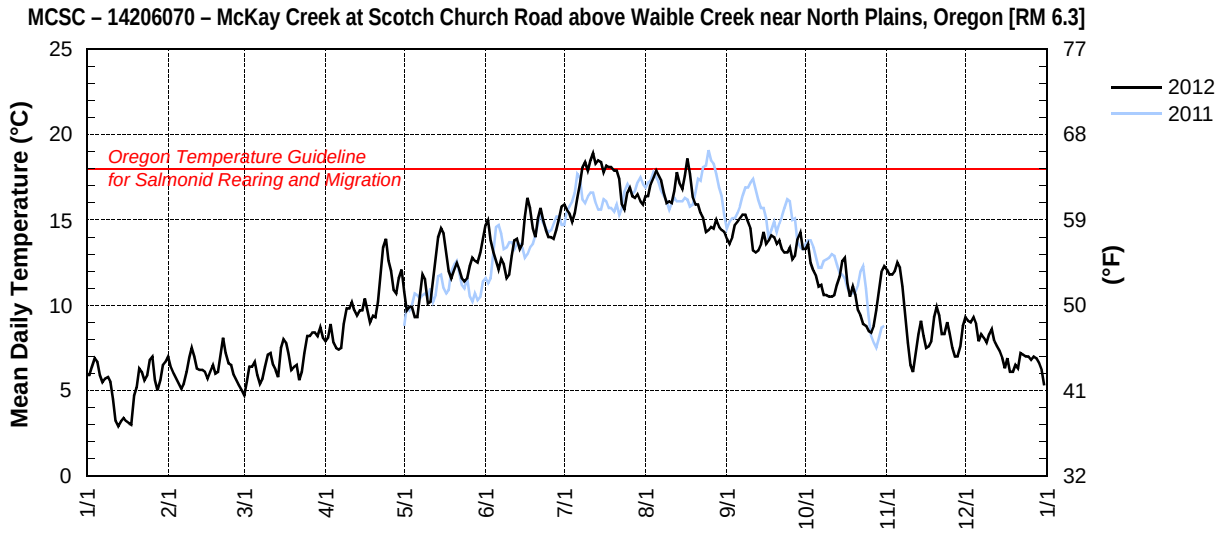
MCKN – 14205980 – McKay Creek at Northrup Road near North Plains, Oregon [RM 15.5]



MCSC – 14206070 – MCKAY CREEK AT SCOTCH CHURCH ROAD 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	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.9	7.0	4.7	7.9	10.8	14.7	15.9	16.4	13.9	13.3	12.1	9.3
2	5.9	6.4	5.5	8.1	9.7	15.0	15.6	16.4	13.6	13.6	11.8	9.1
3	6.4	6.0	6.4	8.9	9.9	13.8	15.4	17.1	14.0	12.5	11.8	9.0
4	6.9	5.7	6.4	7.8	9.9	13.1	14.9	17.5	14.7	12.0	12.0	9.3
5	6.7	5.4	6.7	7.5	9.3	12.6	15.4	17.9	14.9	11.7	12.5	8.9
6	5.9	5.1	5.9	7.4	9.3	12.1	16.3	17.6	15.1	11.1	12.2	7.9
7	5.5	5.4	5.4	7.5	10.6	12.7	17.1	17.3	15.3	11.2	11.1	8.3
8	5.7	6.1	5.7	8.9	11.8	12.4	18.1	16.6	15.3	10.6	9.4	8.1
9	5.8	6.9	6.4	9.8	11.5	11.6	18.4	16.0	14.9	10.6	7.8	7.8
10	5.5	7.5	7.1	9.8	10.1	11.8	17.9	16.1	14.5	10.5	6.5	8.3
11	4.5	7.0	7.2	10.2	10.2	12.9	18.5	16.0	13.2	10.5	6.1	8.6
12	3.2	6.3	6.5	9.7	11.4	13.8	18.9	16.7	13.1	10.6	7.1	7.9
13	2.9	6.2	6.2	9.4	12.8	13.9	18.3	17.8	13.2	11.2	8.3	7.6
14	3.2	6.2	5.8	9.7	14.0	13.3	18.5	17.1	13.6	11.7	9.1	7.3
15	3.4	6.1	7.5	9.7	14.5	13.6	18.4	16.8	14.3	12.6	8.2	6.9
16	3.2	5.7	8.0	10.4	14.2	15.2	17.8	17.6	13.6	12.8	7.5	6.3
17	3.1	6.1	7.8	9.7	13.1	16.3	18.2	18.6	13.8	11.3	7.6	6.9
18	3.0	6.5	7.1	9.0	12.0	15.7	18.1	17.7	14.1	10.5	7.9	6.1
19	4.7	6.0	6.2	9.4	11.6	14.5	18.1	16.3	14.0	11.1	9.3	6.1
20	5.2	6.1	6.4	9.3	12.1	14.0	17.9	15.9	13.6	10.6	9.9	6.5
21	6.3	7.1	6.5	10.2	12.5	15.1	17.9	15.9	13.8	9.7	9.4	6.3
22	6.1	8.1	5.6	11.8	12.1	15.7	17.4	15.4	13.3	9.4	8.3	7.2
23	5.6	7.2	6.1	13.4	11.6	15.0	15.9	15.1	13.1	8.9	8.3	7.1
24	5.9	6.6	7.2	13.9	11.4	14.4	15.6	14.3	13.1	8.8	9.0	7.0
25	6.8	6.5	8.2	12.6	11.6	14.0	16.6	14.4	13.4	8.5	8.3	7.0
26	7.0	5.9	8.2	12.0	12.3	14.0	16.9	14.6	12.7	8.4	7.5	6.8
27	5.6	5.6	8.4	10.9	12.8	13.9	16.4	14.5	12.9	8.8	7.0	7.0
28	5.0	5.3	8.4	10.7	12.6	14.4	16.3	15.0	13.9	9.7	7.0	6.9
29	5.6	5.0	8.2	11.6	12.5	15.1	16.5	14.6	14.3	11.0	7.6	6.6
30	6.5	—	8.7	12.1	13.1	15.8	16.1	14.4	13.3	12.0	8.8	6.2
31	6.7	—	8.1	—	13.9	—	15.9	14.3	—	12.3	—	5.3
MEAN	5.3	6.2	6.9	10.0	11.8	14.0	17.1	16.2	13.9	10.9	9.0	7.4
MAX	7.0	8.1	8.7	13.9	14.5	16.3	18.9	18.6	15.3	13.6	12.5	9.3
MIN	2.9	5.0	4.7	7.4	9.3	11.6	14.9	14.3	12.7	8.4	6.1	5.3

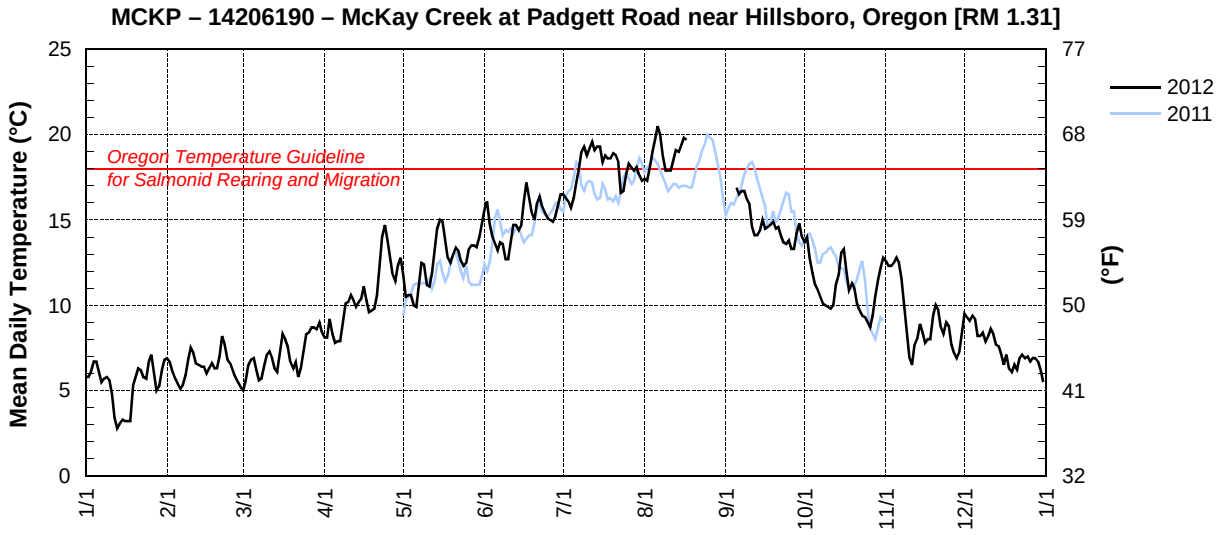


MCKP – 14206190 – MCKAY CREEK AT PADGETT ROAD NEAR HILLSBORO, OREGON [RM 1.31]

Latitude: 45 31 57 Longitude: 123 00 16 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG*	SEP*	OCT	NOV	DEC
1	5.8	6.9	5.0	8.1	11.8	15.6	16.5	17.4		13.7	12.6	9.5
2	5.8	6.7	5.6	8.1	10.5	16.1	16.3	17.3		14.0	12.3	9.3
3	6.1	6.1	6.5	9.2	10.6	14.8	16.1	18.0		12.8	12.3	9.1
4	6.7	5.7	6.8	8.3	10.6	14.0	15.7	19.0		11.9	12.5	9.4
5	6.7	5.4	6.9	7.8	10.0	13.6	16.3	19.7	16.9	11.2	12.8	9.2
6	6.1	5.1	6.2	7.9	9.9	13.2	17.2	20.5	16.5	10.9	12.5	8.2
7	5.5	5.3	5.6	7.9	11.1	13.7	18.0	20.0	16.7	10.5	11.6	8.2
8	5.7	5.9	5.7	8.9	12.5	13.6	19.0	18.8	16.7	10.1	9.9	8.4
9	5.8	6.8	6.4	10.1	12.4	12.7	19.3	17.9	16.2	10.0	8.3	7.9
10	5.6	7.5	7.1	10.2	11.2	12.7	18.8	17.9	15.9	9.9	6.9	8.2
11	4.8	7.2	7.3	10.6	11.1	13.7	19.2	17.9	14.6	9.8	6.5	8.6
12	3.4	6.6	6.9	10.3	11.9	14.7	19.6	18.5	14.1	10.0	7.7	8.3
13	2.8	6.5	6.3	9.9	13.2	14.7	19.1	19.1	14.1	11.2	8.1	7.7
14	3.1	6.4	6.1	10.2	14.5	14.4	19.3	19.0	14.4	11.8	8.9	7.6
15	3.3	6.4	7.3	10.4	15.0	14.7	19.3	19.4	15.0	13.1	8.4	7.1
16	3.2	6.0	8.3	11.1	14.9	16.1	18.4	19.8	14.5	13.3	7.8	6.5
17	3.2	6.3	8.0	10.3	13.9	17.2	18.8	19.7	14.6	12.0	8.0	7.1
18	3.2	6.6	7.6	9.6	12.8	16.4	18.6		14.7	10.9	8.0	6.3
19	5.3	6.3	6.7	9.7	12.5	15.4	18.6		14.9	11.3	9.4	6.1
20	5.8	6.3	6.3	9.8	13.0	15.0	18.9		14.5	11.0	10.0	6.5
21	6.3	7.0	6.7	10.6	13.4	16.0	18.8		14.6	10.1	9.7	6.2
22	6.2	8.2	5.8	12.3	13.2	16.4	18.4		14.1	9.7	8.7	6.9
23	5.8	7.7	6.3	14.0	12.6	15.8	16.6		13.7	9.4	8.3	7.1
24	5.7	6.8	7.2	14.7	12.3	15.4	16.7		13.6	9.3	9.0	6.9
25	6.7	6.6	8.3	13.8	12.5	15.1	17.7		13.8	9.0	8.8	7.0
26	7.1	6.2	8.4	12.8	13.3	15.0	18.3		13.3	8.7	7.7	6.7
27	6.0	5.8	8.7	11.8	13.5	14.9	18.1		13.3	9.4	7.2	6.9
28	5.0	5.5	8.7	11.4	13.5	15.2	17.9		14.2	10.5	6.9	6.9
29	5.3	5.2	8.6	12.3	13.4	15.9	18.1		14.8	11.5	7.3	6.7
30	6.2	—	9.0	12.8	14.0	16.5	17.6		14.0	12.2	8.4	6.2
31	6.8	—	8.4	—	14.8	—	17.3		—	12.8	—	5.5
MEAN	5.3	6.4	7.1	10.5	12.6	15.0	18.0		14.8**	11.0	9.2	7.5
MAX	7.1	8.2	9.0	14.7	15.0	17.2	19.6		16.9**	14.0	12.8	9.5
MIN	2.8	5.1	5.0	7.8	9.9	12.7	15.7		13.3**	8.7	6.5	5.5

* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month); **Mean daily value based on incomplete record



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

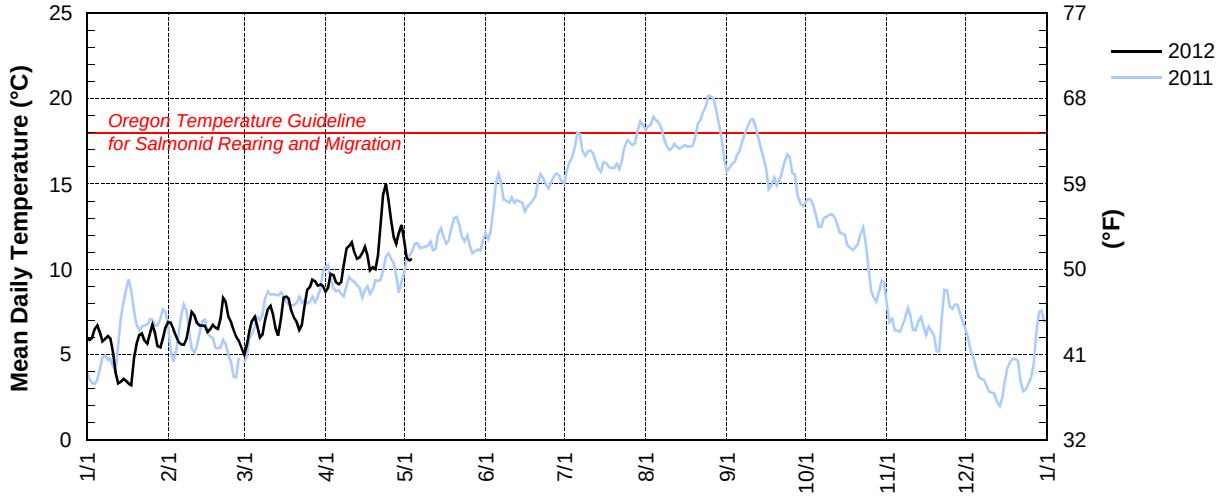
STATION NUMBER 453113123003501* DAIRY CREEK AT HWY 8, HILLSBORO, OR

LATITUDE: 453113.40 LONGITUDE: 1230035.31

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY*	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.0	6.9	5.0	8.7	11.7							
2	5.9	6.9	5.5	8.9	10.7							
3	6.0	6.5	6.3	9.7	10.5							
4	6.5	6.1	7.0	9.7	10.6							
5	6.7	5.7	7.2	9.2								
6	6.3	5.6	6.7	9.1								
7	5.8	5.6	6.0	9.2								
8	5.9	6.0	6.2	10.2								
9	6.1	6.8	7.0	11.2								
10	5.9	7.5	7.7	11.4								
11	5.2	7.3	7.9	11.6								
12	4.0	6.9	7.4	11.0								
13	3.3	6.7	6.6	10.6								
14	3.4	6.7	6.1	10.7								
15	3.6	6.7	7.1	11.0								
16	3.5	6.3	8.3	11.3								
17	3.3	6.5	8.4	10.9								
18	3.2	6.8	8.3	10.0								
19	4.8	6.6	7.6	10.1								
20	5.6	6.5	7.1	10.0								
21	6.1	7.1	6.9	10.8								
22	6.2	8.3	6.5	12.6								
23	5.9	8.1	6.7	14.3								
24	5.6	7.2	7.8	15.0								
25	6.2	6.9	8.8	14.1								
26	6.7	6.4	9.0	12.9								
27	6.3	6.0	9.4	11.9								
28	5.5	5.8	9.3	11.5								
29	5.4	5.4	9.0	12.1								
30	5.9	—	9.1	12.6								
31	6.6	—	9.0	—		—			—		—	
MEAN	5.4	6.6	7.4	11.1								
MAX	6.7	8.3	9.4	15.0								
MIN	3.2	5.4	5.0	8.7								

* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month); site discontinued 5/5/2012

DAIRY – 453113123003501* – Dairy Creek at Hwy 8 near Hillsboro, Oregon [RM 2.06]



*USGS #453113123003501 is equivalent to OWRD #14206200.

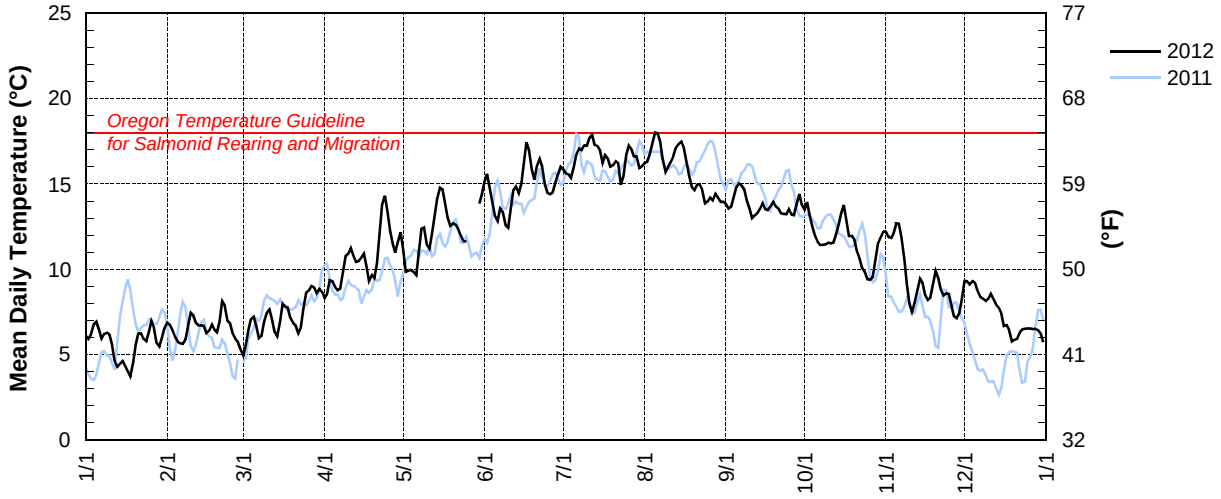
TRJB – 14206241 – TUALATIN RIVER AT HWY 219 BRIDGE [RM 44.4]

Latitude: 45 30 01 Longitude: 122 59 24 Source Agency: Jackson Bottom Wetland Education Center

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY*	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.1	6.9	4.9	8.3	11.1	15.1	15.8	16.2	13.8	13.5	12.2	9.3
2	5.9	6.8	5.6	8.6	9.9	15.6	15.6	16.3	13.6	13.9	11.9	9.3
3	6.2	6.4	6.4	9.3	9.9	14.8	15.6	16.7	13.7	13.2	11.8	9.1
4	6.8	6.0	7.1	9.3	10.0	14.0	15.3	17.4	14.2	12.5	12.1	9.3
5	6.9	5.8	7.2	9.0	9.9	13.1	16.0	18.0	14.8	12.0	12.7	9.2
6	6.5	5.7	6.7	8.8	9.7	12.8	16.8	18.0	15.0	11.6	12.7	8.7
7	6.0	5.6	6.0	8.9	11.1	13.6	17.1	17.5	14.9	11.4	11.9	8.4
8	6.2	5.9	6.1	9.8	12.4	13.4	17.0	16.4	14.7	11.4	10.6	8.3
9	6.3	6.7	6.9	10.8	12.5	12.6	17.3	15.7	14.0	11.5	9.1	8.1
10	6.2	7.4	7.5	10.9	11.4	12.4	17.2	16.0	13.6	11.6	8.0	8.3
11	5.6	7.3	7.7	11.3	11.2	13.5	17.7	16.3	13.0	11.5	7.5	8.6
12	4.6	6.9	7.1	10.8	12.1	14.6	17.9	16.6	13.1	11.6	8.0	8.3
13	4.3	6.7	6.3	10.4	13.1	14.9	17.3	17.1	13.3	12.0	8.8	8.0
14	4.5	6.7	6.1	10.5	14.1	14.5	17.2	17.4	13.6	12.6	9.4	7.8
15	4.6	6.7	6.9	10.7	14.8	15.0	17.0	17.5	13.9	13.3	9.2	7.4
16	4.3	6.3	8.0	10.9	14.7	16.2	16.3	17.1	13.5	13.8	8.5	6.7
17	4.0	6.4	7.8	10.2	13.8	17.4	16.7	16.3	13.5	12.9	8.2	6.7
18	3.7	6.8	7.8	9.3	13.0	17.0	16.5	15.5	13.7	12.0	8.3	6.5
19	4.5	6.5	7.2	9.7	12.6	15.8	16.0	14.8	13.9	11.9	9.1	5.8
20	5.6	6.3	6.9	9.5	12.7	15.2	16.1	14.6	13.7	11.7	9.9	5.9
21	6.2	6.9	6.7	10.4	12.6	16.1	16.3	14.9	13.6	11.0	9.5	5.9
22	6.2	8.1	6.3	12.2	12.3	16.5	16.2	15.0	13.3	10.6	8.8	6.3
23	5.9	7.9	6.6	13.8	12.0	16.0	14.9	14.7	13.2	10.1	8.5	6.5
24	5.8	7.0	7.7	14.3	11.7	14.9	15.4	13.9	13.2	9.8	8.6	6.5
25	6.3	6.8	8.7	13.4	11.6	14.5	16.7	14.0	13.5	9.4	8.6	6.5
26	7.0	6.2	8.8	12.3		14.4	17.3	14.2	13.2	9.4	7.9	6.5
27	6.6	5.9	9.0	11.5		14.5	17.1	14.0	13.2	9.5	7.2	6.5
28	5.7	5.8	9.0	11.0		15.0	16.6	14.4	13.8	10.5	7.1	6.5
29	5.5	5.3	8.6	11.6		15.6	16.6	14.2	14.4	11.6	7.4	6.4
30	6.0	—	8.9	12.2	13.8	16.0	16.0	13.9	13.8	11.9	8.3	6.2
31	6.6	—	8.7	—	14.4	—	16.0	14.0	—	12.2	—	5.7
MEAN	5.7	6.5	7.2	10.6	12.2	14.8	16.5	15.8	13.8	11.7	9.4	7.4
MAX	7.0	8.1	9.0	14.3	14.8	17.4	17.9	18.0	15.0	13.9	12.7	9.3
MIN	3.7	5.3	4.9	8.3	9.7	12.4	14.9	13.9	13.0	9.4	7.1	5.7

* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)

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



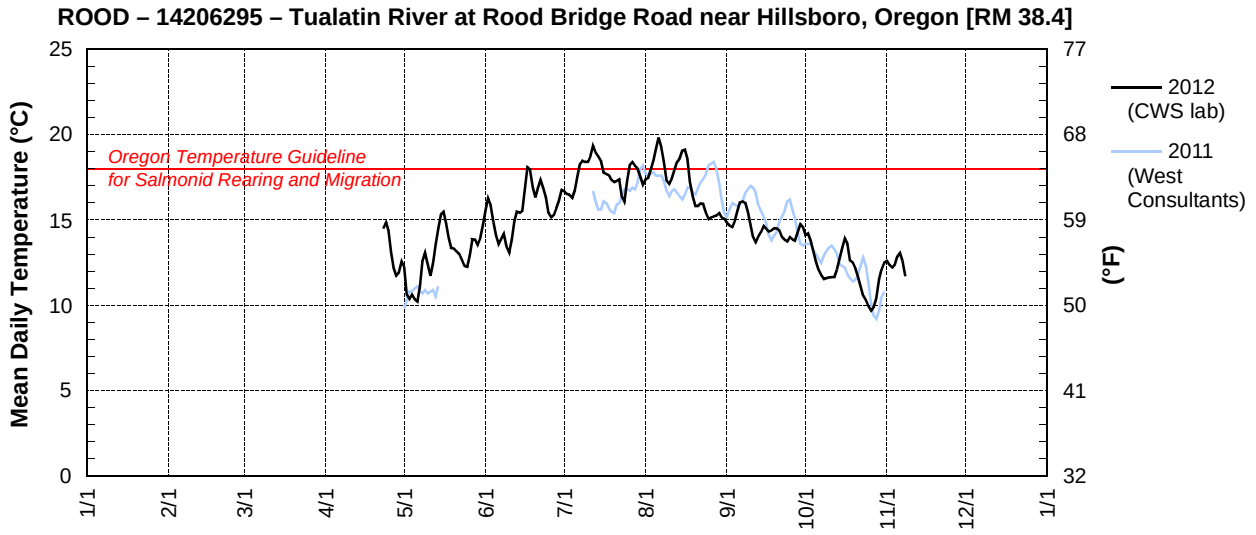
ROOD – 14206295 – TUALATIN RIVER AT ROOD BRIDGE ROAD NEAR HILLSBORO, OREGON [RM 38.4]

Latitude: 45 30 38 Longitude: 123 06 56 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius†											
	JAN	FEB	MAR	APR*	MAY	JUN	JUL	AUG	SEP	OCT	NOV*	DEC
1					12.2	15.5	16.7	17.4	14.8	14.1	12.6	
2					10.6	16.3	16.5	17.5	14.7	14.2	12.4	
3					10.4	15.9	16.5	17.9	14.6	13.8	12.2	
4					10.6	14.9	16.3	18.5	15.0	13.1	12.4	
5					10.3	14.1	16.7	19.2	15.5	12.5	12.9	
6					10.2	13.6	17.5	19.8	16.0	12.1	13.1	
7					11.1	13.9	18.3	19.3	16.1	11.8	12.6	
8					12.6	14.2	18.5	18.4	16.0	11.5	11.7	
9					13.1	13.4	18.4	17.3	15.5	11.6		
10					12.3	13.1	18.4	17.1	14.8	11.6		
11					11.7	13.8	18.8	17.4	14.0	11.7		
12					12.5	14.9	19.3	17.9	13.7	11.6		
13					13.5	15.5	18.9	18.4	14.0	12.1		
14					14.5	15.4	18.7	18.6	14.3	12.8		
15					15.3	15.5	18.4	19.1	14.7	13.4		
16					15.5	16.7	17.8	19.1	14.5	13.9		
17					14.8	18.1	17.7	18.6	14.3	13.6		
18					14.0	18.0	17.6	17.2	14.4	12.6		
19					13.3	16.9	17.4	16.4	14.5	12.5		
20					13.3	16.3	17.2	15.8	14.5	12.2		
21					13.1	16.9	17.3	15.8	14.4	11.7		
22					13.0	17.3	17.4	16.0	14.0	11.1		
23					12.7	16.9	16.4	15.9	13.9	10.6		
24					12.3	16.3	16.1	15.4	13.7	10.3		
25					12.2	15.4	17.3	15.0	14.0	9.9		
26					12.9	15.2	18.2	15.2	13.9	9.7		
27					13.9	15.3	18.4	15.2	13.8	9.9		
28				11.7	13.8	15.7	18.2	15.3	14.3	10.4		
29		—		11.9	13.5	16.2	18.0	15.4	14.8	11.5		
30		—		12.6	14.0	16.8	17.5	15.1	14.6	12.1		
31		—		—	14.7	—	17.1	15.1	—	12.5	—	
MEAN					12.8	15.6	17.7	17.1	14.6	12.0		
MAX					15.5	18.1	19.3	19.8	16.1	14.2		
MIN					10.2	13.1	16.1	15.0	13.7	9.7		

†No pre- or post-deployment instrument calibration checks in 2012; pre-calibration check in 2011 showed a high bias of about 0.2°C at 22°C.

*Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)



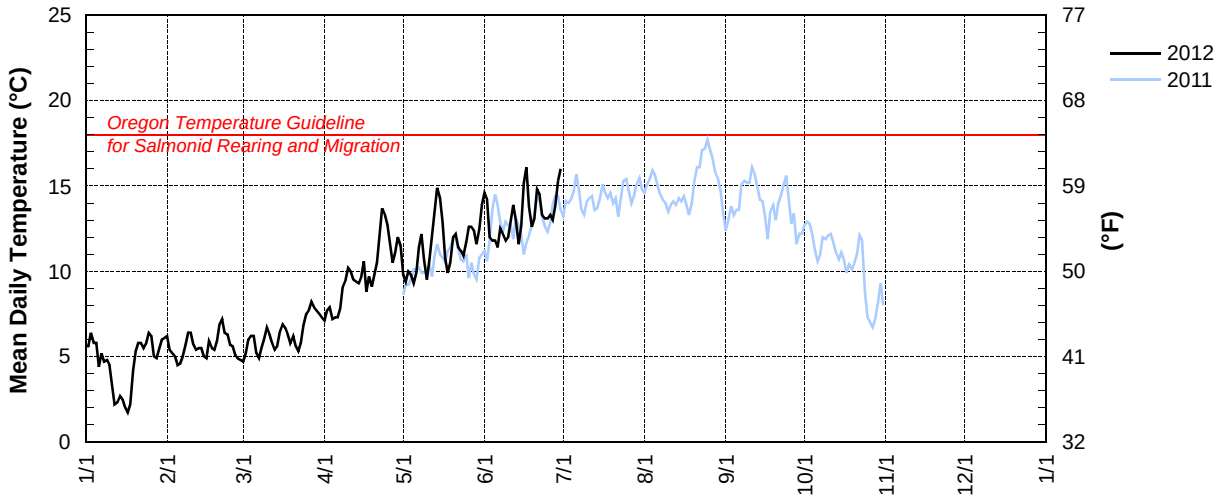
RCRR – 14206310 – ROCK CREEK AT ROCK CREEK ROAD NEAR BOWERS JUNCTION, OREGON [RM 15.8]

Latitude: 45 37 04 Longitude: 122 53 13 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.6	6.2	4.7	7.1	9.8	14.6						
2	5.6	5.4	5.2	7.7	9.4	14.2						
3	6.4	5.2	6.0	7.9	10.0	12.0						
4	5.8	5.0	6.2	7.2	9.8	11.8						
5	5.8	4.5	6.2	7.3	9.3	11.8						
6	4.4	4.6	5.2	7.3	9.9	11.4						
7	5.2	5.0	4.9	7.8	11.4	12.5						
8	4.7	5.7	5.5	9.1	12.2	12.2						
9	4.8	6.4	6.0	9.5	10.7	11.8						
10	4.5	6.4	6.7	10.2	9.5	12.0						
11	3.3	5.7	6.3	10.0	10.7	13.0						
12	2.2	5.4	5.8	9.5	12.3	13.9						
13	2.3	5.5	5.4	9.4	13.7	13.0						
14	2.7	5.5	5.6	9.3	14.9	11.6						
15	2.5	5.0	6.5	9.7	14.3	12.7						
16	2.0	4.9	6.9	10.6	12.9	15.2						
17	1.7	5.9	6.7	8.8	10.8	16.1						
18	2.2	5.5	6.3	9.7	9.9	13.8						
19	4.2	5.4	5.8	9.1	10.5	12.6						
20	5.3	5.9	6.2	9.8	12.0	13.1						
21	5.8	6.9	5.6	10.5	12.2	14.8						
22	5.8	7.2	5.3	12.2	11.4	14.5						
23	5.5	6.4	5.8	13.7	11.2	13.3						
24	5.8	6.3	6.8	13.3	10.9	13.1						
25	6.4	5.7	7.5	12.7	11.7	13.1						
26	6.2	5.6	7.7	11.6	12.6	13.3						
27	5.0	5.1	8.2	10.5	12.6	13.0						
28	4.9	4.9	7.9	11.1	12.4	13.8						
29	5.5	4.8	7.7	12.0	11.6	15.3						
30	6.0	—	7.5	11.5	12.5	16.0						
31	6.1	—	7.3	—	13.9	—			—		—	
MEAN	4.7	5.6	6.3	9.9	11.5	13.3						
MAX	6.4	7.2	8.2	13.7	14.9	16.1						
MIN	1.7	4.5	4.7	7.1	9.3	11.4						

Site discontinued July 2012

RCRR – 14206310 – Rock Creek at Rock Creek Road near Bowers Junction, Oregon [RM 15.8]



Site moved approximately one-half mile downstream in 2010. Former site id is 14206305.

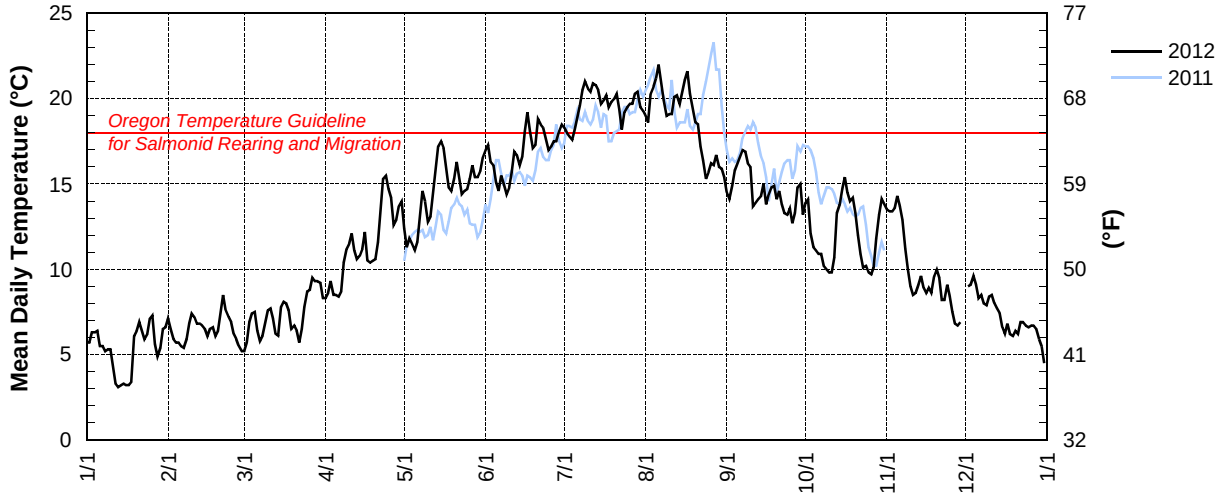
RCBL – 14206340 – ROCK CREEK BELOW BETHANY LAKE [RM 8.9]

Latitude: 45 33 21 Longitude: 122 52 25 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV*	DEC*
1	5.7	7.1	5.2	8.3	12.4	17.0	18.3	19.0	14.5	13.9	13.5	
2	5.7	6.5	5.7	8.6	11.3	17.3	18.0	18.6	14.1	14.1	13.4	9.0
3	6.3	5.9	6.9	9.3	11.8	16.3	17.8	20.3	14.9	12.1	13.4	9.1
4	6.3	5.7	7.4	8.5	11.5	16.1	17.6	20.7	15.8	11.3	13.6	9.6
5	6.4	5.7	7.5	8.5	11.1	15.1	18.2	21.2	16.2	11.1	14.3	9.1
6	5.5	5.5	6.4	8.4	11.6	14.6	18.9	22.0	16.6	10.9	13.7	8.3
7	5.5	5.4	5.8	8.7	13.2	15.5	19.6	20.9	17.0	10.9	12.9	8.5
8	5.2	5.9	6.1	10.4	14.6	15.0	20.5	19.9	16.9	10.2	11.2	8.0
9	5.3	6.8	6.8	11.2	14.0	14.4	21.0	19.0	16.2	10.0	10.0	7.9
10	5.3	7.4	7.6	11.5	12.8	14.8	20.6	19.1	16.0	9.8	9.0	8.4
11	4.3	7.2	7.7	12.1	13.1	15.7	20.4	19.1	13.7	9.8	8.5	8.5
12	3.3	6.8	7.1	11.1	14.4	16.9	20.9	20.1	13.9	10.7	8.6	8.0
13	3.1	6.8	6.2	10.6	15.8	16.7	20.8	20.2	14.1	13.3	9.1	7.7
14	3.2	6.7	6.1	10.8	17.2	16.1	20.5	19.7	14.3	13.8	9.6	7.4
15	3.3	6.5	7.8	11.2	17.5	16.6	19.7	20.4	15.0	14.7	8.9	6.6
16	3.2	6.1	8.1	12.2	17.1	18.1	19.9	21.1	13.8	15.4	8.6	6.2
17	3.2	6.5	8.0	10.5	15.9	19.2	20.2	21.6	14.4	14.5	8.9	6.8
18	3.4	6.6	7.6	10.4	14.8	18.1	19.5	20.3	14.8	14.0	8.6	6.2
19	6.1	6.1	6.5	10.5	14.6	17.1	19.8	19.4	14.9	14.2	9.6	6.1
20	6.4	6.4	6.7	10.6	15.3	17.3	20.0	18.6	14.1	13.3	10.0	6.4
21	6.9	7.5	6.4	11.6	16.3	18.8	20.3	18.5	14.6	12.0	9.5	6.2
22	6.4	8.5	5.7	13.4	15.4	18.5	19.4	17.2	13.8	10.9	8.2	6.9
23	5.9	7.6	6.5	15.3	14.4	18.3	18.2	16.4	13.3	10.1	8.2	6.9
24	6.2	7.2	7.8	15.5	14.6	17.6	19.2	15.3	13.2	10.2	9.1	6.7
25	7.1	6.9	8.7	14.7	14.7	17.0	19.5	15.7	13.6	9.8	8.4	6.6
26	7.3	6.2	8.8	14.2	15.3	17.2	19.7	16.2	12.7	9.7	7.5	6.7
27	5.6	5.9	9.5	12.6	16.1	17.5	19.7	16.1	13.3	10.1	6.8	6.7
28	4.9	5.5	9.3	12.9	15.4	17.5	20.3	16.7	14.8	11.8	6.7	6.5
29	5.4	5.2	9.3	13.7	15.4	18.1	20.4	16.0	15.0	13.2	6.9	5.9
30	6.5	—	9.2	14.0	15.8	18.5	19.5	15.9	13.2	14.1		5.5
31	6.6	—	8.3	—	16.6	—	19.3	15.4	—	13.8	—	4.5
MEAN	5.3	6.5	7.3	11.4	14.5	16.9	19.6	18.7	14.6	12.1	9.9	7.2
MAX	7.3	8.5	9.5	15.5	17.5	19.2	21.0	22.0	17.0	15.4	14.3	9.6
MIN	3.1	5.2	5.2	8.3	11.1	14.4	17.6	15.3	12.7	9.7	6.7	4.5

* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)

RCBL – Rock Creek below Bethany Lake [RM 8.9]



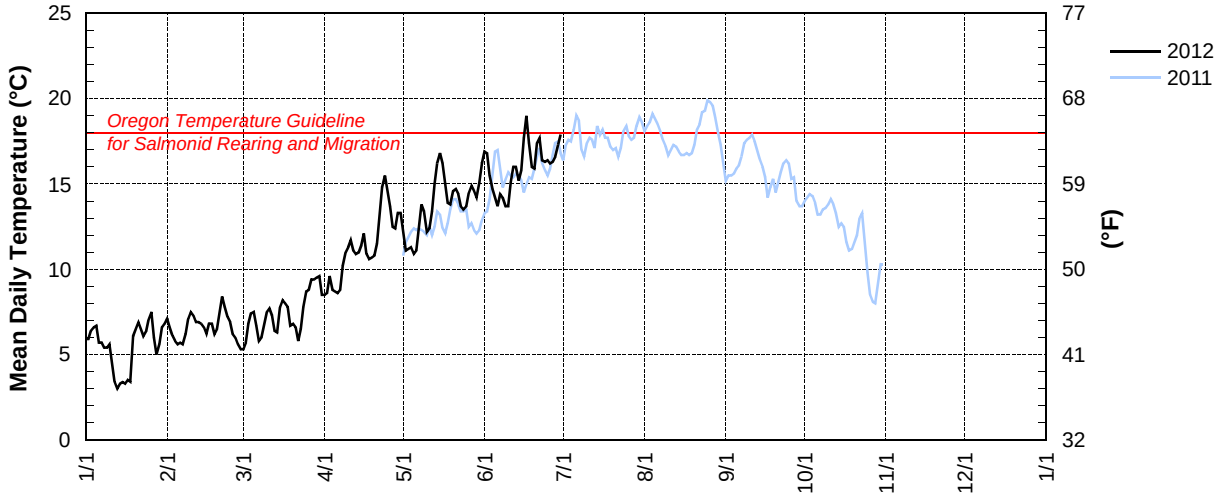
RCQR – 14206347 – ROCK CREEK AT QUATAMA ROAD NEAR ORENCO, OREGON [RM 4.9]

Latitude: 45 31 25 Longitude: 122 54 34 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.9	7.1	5.3	8.5	12.2	16.9						
2	5.9	6.6	5.7	8.6	11.1	16.8						
3	6.4	6.1	6.8	9.6	11.2	15.5						
4	6.6	5.8	7.4	8.8	11.3	14.7						
5	6.7	5.6	7.5	8.7	10.9	14.2						
6	5.7	5.7	6.7	8.6	11.1	13.7						
7	5.7	5.6	5.8	8.8	12.5	14.4						
8	5.4	6.2	6.0	10.2	13.8	14.2						
9	5.4	7.1	6.7	11.0	13.4	13.7						
10	5.6	7.5	7.5	11.3	12.2	13.7						
11	4.5	7.3	7.7	11.7	12.4	15.1						
12	3.4	6.9	7.3	11.1	13.4	16.0						
13	3.0	6.9	6.4	10.9	15.0	16.0						
14	3.3	6.8	6.3	11.0	16.2	15.2						
15	3.4	6.6	7.8	11.4	16.8	15.8						
16	3.3	6.2	8.2	12.1	16.2	17.7						
17	3.5	6.8	8.0	10.9	15.0	19.0						
18	3.4	6.8	7.8	10.6	13.9	17.4						
19	6.1	6.2	6.7	10.7	13.8	16.0						
20	6.5	6.5	6.8	10.8	14.6	15.9						
21	6.9	7.5	6.6	11.5	14.7	17.4						
22	6.5	8.4	5.8	13.2	14.4	17.7						
23	6.1	7.8	6.5	14.8	13.7	16.4						
24	6.4	7.2	7.8	15.5	13.5	16.3						
25	7.1	6.9	8.7	14.6	13.7	16.4						
26	7.5	6.2	8.8	13.7	14.5	16.2						
27	6.0	6.0	9.4	12.5	14.9	16.3						
28	5.0	5.6	9.4	12.4	14.6	16.6						
29	5.6	5.3	9.5	13.3	14.2	17.3						
30	6.6	—	9.6	13.3	15.1	17.9						
31	6.8	—	8.5	—	16.2	—			—		—	
MEAN	5.5	6.6	7.4	11.3	13.8	16.0						
MAX	7.5	8.4	9.6	15.5	16.8	19.0						
MIN	3.0	5.3	5.3	8.5	10.9	13.7						

Site discontinued July 2012

RCQR – 14206347 – Rock Creek at Quatama Road near Orenco, Oregon [RM 4.9]

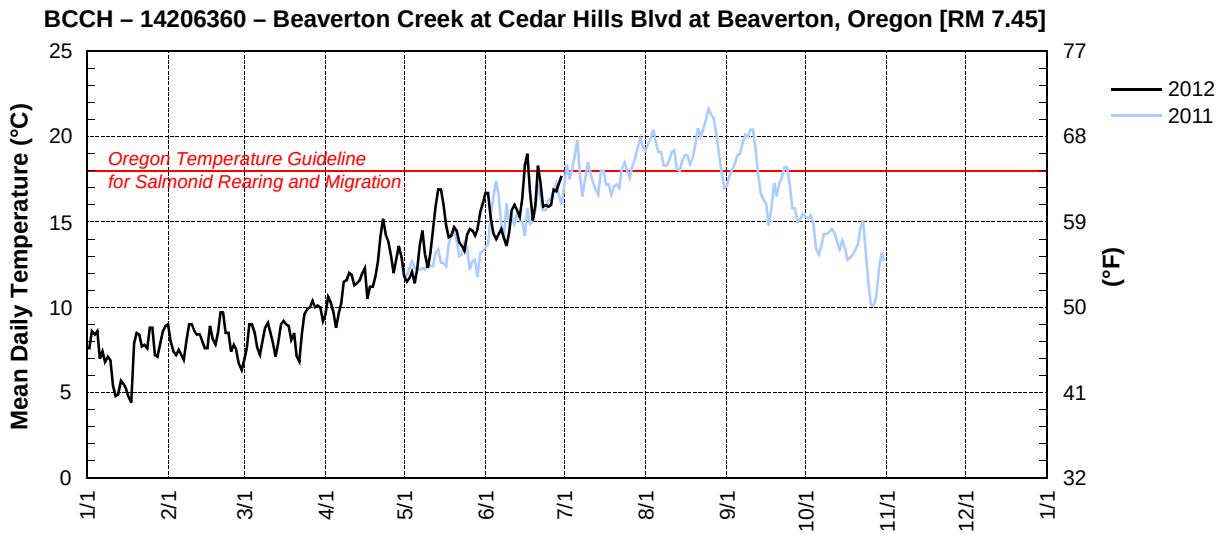


BCCH – 14206360 – BEAVERTON CREEK AT CEDAR HILLS BLVD AT BEAVERTON, OREGON [RM 7.45]

Latitude: 45 49 31 Longitude: 122 81 05 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7.6	9.0	6.9	9.6	11.8	16.7						
2	7.6	8.0	7.6	10.6	11.5	16.7						
3	8.6	7.4	9.0	10.3	11.7	15.3						
4	8.4	7.2	9.0	9.7	12.1	14.3						
5	8.6	7.5	8.5	8.8	11.4	14.0						
6	7.0	7.2	7.6	9.6	12.3	14.3						
7	7.4	6.9	7.2	10.2	13.7	14.6						
8	6.8	8.1	8.0	11.5	14.5	14.1						
9	7.1	9.0	8.8	11.6	13.1	13.6						
10	6.9	9.0	9.1	12.0	12.3	14.4						
11	5.4	8.6	8.5	11.9	13.2	15.7						
12	4.8	8.4	7.9	11.3	14.6	16.0						
13	4.9	8.4	7.1	11.4	15.9	15.7						
14	5.7	8.0	7.9	11.6	16.9	15.3						
15	5.5	7.6	9.0	12.0	16.9	16.4						
16	5.2	7.6	9.2	12.3	16.0	18.3						
17	4.7	8.9	9.0	10.5	14.8	19.0						
18	4.4	8.1	8.9	11.2	14.1	16.8						
19	7.9	7.8	8.1	11.2	14.2	15.1						
20	8.5	8.5	8.5	11.8	14.7	16.0						
21	8.4	9.7	7.1	12.7	14.5	18.3						
22	7.7	9.7	6.8	14.2	13.8	17.3						
23	7.8	8.5	8.4	15.2	13.6	15.9						
24	7.6	8.5	9.6	14.2	13.3	16.0						
25	8.8	7.4	9.9	13.8	14.3	15.9						
26	8.8	7.8	10.0	13.0	14.6	16.0						
27	7.2	7.5	10.4	12.0	14.5	16.9						
28	7.1	6.7	10.0	12.8	14.2	16.8						
29	7.9	6.3	10.1	13.6	14.6	17.3						
30	8.6	—	10.0	12.9	15.6	17.7						
31	8.9	—	9.2	—	16.1	—			—		—	
MEAN	7.2	8.0	8.6	11.8	14.0	16.0						
MAX	8.9	9.7	10.4	15.2	16.9	19.0						
MIN	4.4	6.3	6.8	8.8	11.4	13.6						

Site discontinued July 2012

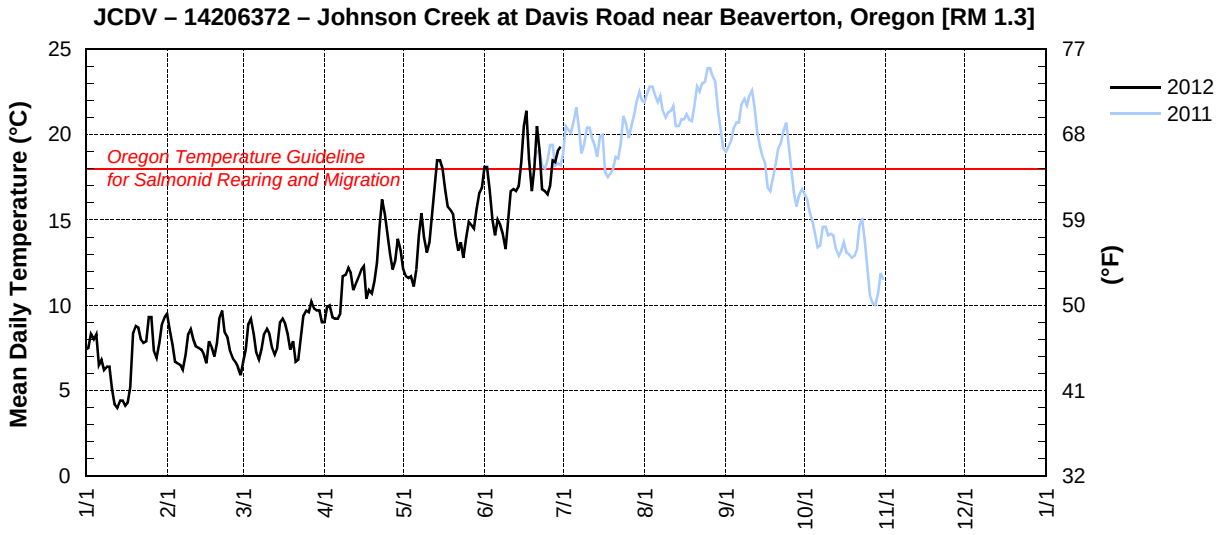


JCDV – 14206372 – JOHNSON CREEK AT DAVIS ROAD NEAR BEAVERTON, OREGON [RM 1.3]

Latitude: 45 28 30 Longitude: 122 49 52 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7.4	9.5	6.7	9.0	12.1	18.1						
2	7.5	8.6	7.4	9.9	11.7	18.1						
3	8.3	7.7	8.9	10.0	11.6	16.8						
4	8.0	6.7	9.2	9.3	11.7	15.0						
5	8.3	6.6	8.3	9.2	11.1	14.1						
6	6.5	6.5	7.2	9.2	12.1	15.0						
7	6.8	6.2	6.8	9.5	14.1	14.7						
8	6.2	7.1	7.4	11.7	15.4	14.2						
9	6.4	8.3	8.3	11.8	14.0	13.3						
10	6.4	8.6	8.6	12.2	13.1	15.1						
11	5.1	8.0	8.3	11.9	13.7	16.7						
12	4.2	7.6	7.5	10.9	15.3	16.8						
13	4.0	7.5	7.1	11.3	16.8	16.7						
14	4.4	7.4	7.5	11.7	18.5	17.0						
15	4.4	7.1	9.0	12.1	18.5	18.4						
16	4.1	6.6	9.2	12.3	18.0	20.5						
17	4.3	7.9	8.9	10.4	16.8	21.4						
18	5.2	7.5	8.3	10.9	15.8	18.6						
19	8.4	7.0	7.4	10.7	15.6	16.7						
20	8.8	7.8	7.9	11.4	15.3	18.1						
21	8.7	9.3	6.7	12.5	14.1	20.5						
22	8.0	9.7	6.8	14.6	13.2	19.1						
23	7.8	8.4	8.1	16.2	13.7	16.8						
24	7.9	8.1	9.4	15.3	12.8	16.7						
25	9.3	7.3	9.7	14.2	14.0	16.5						
26	9.3	6.9	9.6	13.0	14.9	17.0						
27	7.3	6.7	10.2	12.1	14.7	18.5						
28	6.9	6.4	9.8	12.6	14.5	18.4						
29	7.8	5.9	9.7	13.9	15.6	19.1						
30	8.9	—	9.7	13.2	16.6	19.3						
31	9.3	—	9.0	—	16.9	—			—		—	
MEAN	7.0	7.5	8.3	11.8	14.6	17.2						
MAX	9.7	10.2	16.2	18.5	21.4	0.0						
MIN	5.9	6.7	9.0	11.1	13.3	0.0						

* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month); site discontinued July 2012

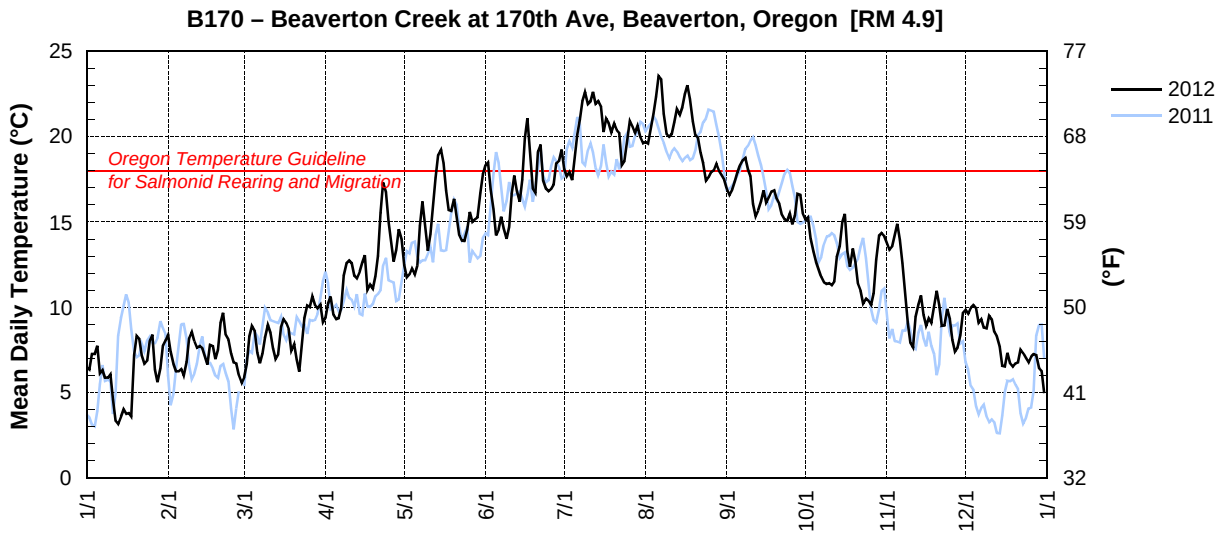


UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

STATION NUMBER 453004122510301 BEAVERTON CREEK AT 170TH AVE, BEAVERTON, OR.

LATITUDE: 453004 LONGITUDE: 1225103

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.5	8.4	5.9	9.4	12.5	18.3	18.1	19.7	17.0	15.1	13.8	9.9
2	6.3	7.4	6.7	10.2	11.8	18.5	17.7	19.6	16.6	15.3	13.4	9.6
3	7.2	6.7	8.3	10.7	11.9	17.0	18.0	20.4	16.9	14.1	13.6	10.0
4	7.3	6.3	8.9	9.6	12.3	15.8	17.4	21.3	17.4	13.3	14.2	10.1
5	7.8	6.2	8.6	9.3	11.9	14.2	18.9	22.3	17.9	12.7	14.9	10.0
6	6.2	6.4	7.4	9.3	12.4	14.5	20.1	23.5	18.3	12.2	14.0	9.1
7	6.3	6.0	6.7	9.9	14.7	15.3	21.0	23.4	18.6	11.8	12.6	9.3
8	5.9	6.8	7.3	11.8	16.2	14.6	22.1	21.4	18.8	11.5	10.7	8.8
9	5.9	8.2	8.2	12.5	14.9	14.0	22.6	20.2	18.1	11.4	9.1	8.8
10	6.1	8.6	9.0	12.7	13.3	14.7	21.9	20.0	17.7	11.4	7.9	9.5
11	4.6	8.0	8.5	12.6	14.3	16.6	22.0	20.2	16.1	11.3	7.6	9.3
12	3.4	7.6	7.6	11.9	15.8	17.8	22.6	20.8	15.3	11.5	9.4	8.6
13	3.2	7.7	7.0	11.7	17.6	16.8	21.9	21.6	15.7	12.9	10.2	8.3
14	3.6	7.6	7.2	12.1	18.9	16.2	22.1	21.3	16.2	13.6	10.7	7.7
15	4.0	7.1	8.8	12.6	19.3	17.4	21.8	21.7	16.8	15.0	9.6	6.6
16	3.8	6.6	9.3	13.1	18.4	19.9	20.3	22.5	16.2	15.5	8.9	6.5
17	3.8	7.8	9.1	11.1	16.9	21.1	21.0	23.0	16.4	13.3	9.3	7.3
18	3.6	7.7	8.7	11.3	15.7	19.3	20.8	22.3	16.8	12.4	9.1	6.7
19	7.1	7.0	7.5	11.1	15.7	17.0	20.2	20.9	16.9	13.4	10.1	6.5
20	8.3	7.5	7.9	11.8	16.4	16.6	20.8	20.1	16.4	12.7	11.0	6.7
21	8.2	9.1	7.0	13.0	15.3	19.1	20.4	19.9	16.1	11.4	10.2	6.8
22	7.2	9.7	6.2	15.5	14.2	19.6	20.2	19.1	15.4	11.0	8.9	7.5
23	6.7	8.4	7.7	17.3	13.9	17.5	18.4	18.5	15.2	10.2	8.9	7.3
24	6.9	8.1	9.3	16.8	13.9	16.9	18.5	17.4	15.1	10.5	9.9	7.0
25	8.0	7.3	10.1	15.1	14.5	16.8	19.9	17.6	15.5	10.4	9.4	6.8
26	8.4	6.8	10.0	13.9	15.6	16.9	20.9	17.9	14.9	10.1	8.1	7.1
27	6.4	6.7	10.7	12.7	15.0	17.2	20.6	18.0	15.3	10.8	7.4	7.3
28	5.6	6.1	10.2	13.3	15.2	18.4	20.2	18.4	16.6	12.8	7.6	7.2
29	6.4	5.6	9.9	14.6	15.2	18.6	20.6	18.0	16.6	14.2	8.3	6.4
30	7.8	—	10.2	14.0	16.7	19.2	20.0	17.7	15.5	14.4	9.7	6.3
31	8.1	—	9.1	—	17.8	—	19.6	17.5	—	14.2	—	5.0
MEAN	6.1	7.4	8.4	12.4	15.1	17.2	20.3	20.2	16.5	12.6	10.3	7.9
MAX	8.4	9.7	10.7	17.3	19.3	21.1	22.6	23.5	18.8	15.5	14.9	10.1
MIN	3.2	5.6	5.9	9.3	11.8	14.0	17.4	17.4	14.9	10.1	7.4	5.0



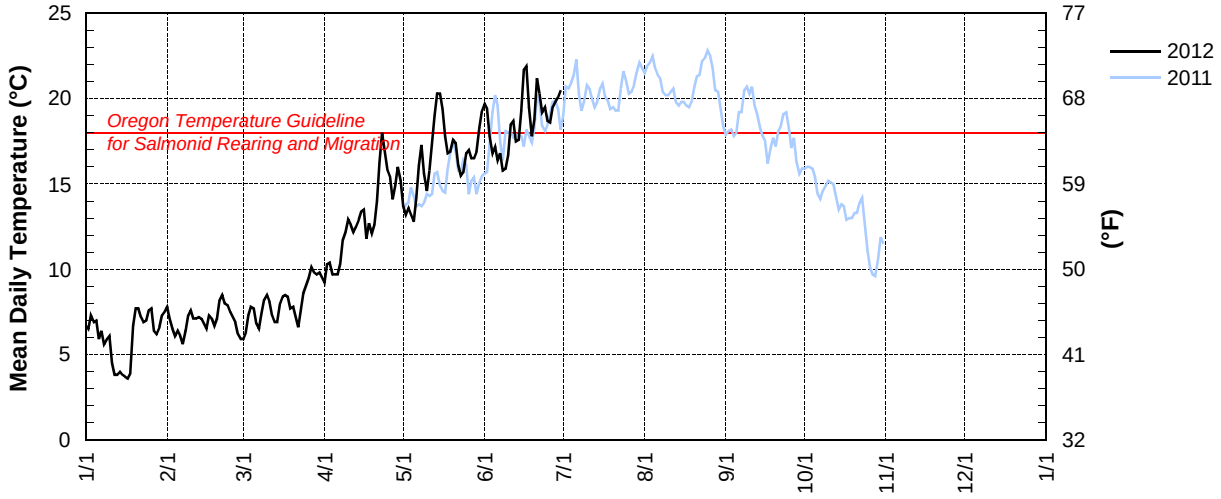
WC143 – 14206410 – WILLOW CREEK AT 143RD AVENUE NEAR BEAVERTON, OREGON [RM 3.5]

Latitude: 45 32 12 Longitude: 122 49 24 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.7	7.8	5.9	9.2	13.7	19.7						
2	6.5	7.1	6.3	10.3	13.2	19.4						
3	7.3	6.5	7.3	10.4	13.6	17.8						
4	6.9	6.1	7.8	9.7	13.2	16.8						
5	7.0	6.4	7.7	9.7	12.8	17.2						
6	5.9	6.1	6.8	9.7	14.2	16.4						
7	6.4	5.6	6.5	10.3	16.1	16.8						
8	5.6	6.4	7.4	11.7	17.3	15.8						
9	5.9	7.3	8.2	12.2	15.6	15.9						
10	6.1	7.6	8.5	12.9	14.6	16.7						
11	4.5	7.1	8.1	12.6	15.8	18.5						
12	3.8	7.1	7.3	12.2	17.3	18.7						
13	3.8	7.2	6.9	12.5	19.0	17.5						
14	4.0	7.1	6.9	12.9	20.3	17.6						
15	3.8	6.8	8.0	13.4	20.3	19.3						
16	3.7	6.5	8.4	13.5	19.4	21.7						
17	3.6	7.3	8.5	11.8	17.8	21.9						
18	3.9	7.1	8.4	12.7	16.8	19.5						
19	6.7	6.7	7.7	12.1	16.9	17.8						
20	7.7	7.1	7.8	12.6	17.6	18.8						
21	7.7	8.2	7.2	14.0	17.4	21.2						
22	7.2	8.5	6.6	16.3	16.1	20.3						
23	6.9	8.0	7.6	18.0	15.5	19.2						
24	7.0	7.9	8.6	16.8	15.7	19.5						
25	7.6	7.5	9.1	15.8	16.8	18.7						
26	7.7	7.2	9.5	15.4	17.0	18.6						
27	6.4	6.9	10.1	14.1	16.5	19.5						
28	6.2	6.2	9.8	14.9	16.5	19.8						
29	6.6	5.9	9.7	16.0	16.9	20.1						
30	7.3	—	9.8	15.2	18.3	20.5						
31	7.5	—	9.5	—	19.3	—			—		—	
MEAN	6.1	7.0	8.0	13.0	16.5	18.7						
MAX	7.7	8.5	10.1	18.0	20.3	21.9						
MIN	3.6	5.6	5.9	9.2	12.8	15.8						

Site discontinued July 2012

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

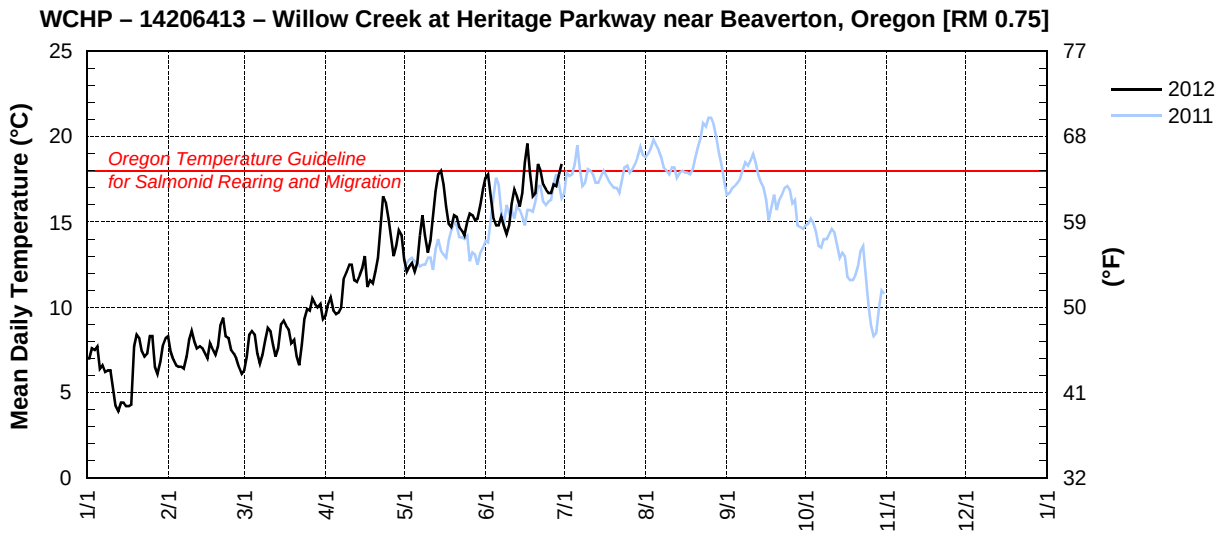


WCHP – 14206413 – WILLOW CREEK AT HERITAGE PARKWAY NEAR BEAVERTON, OREGON [RM 0.75]

Latitude: 45 31 12 Longitude: 122 51 35 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7.0	8.3	6.3	9.5	12.8	17.6						
2	7.0	7.4	7.1	10.2	12.1	17.8						
3	7.6	6.9	8.4	10.6	12.4	16.5						
4	7.5	6.6	8.6	9.8	12.6	15.2						
5	7.7	6.5	8.4	9.6	12.1	14.8						
6	6.4	6.5	7.3	9.7	12.6	14.8						
7	6.6	6.4	6.7	10.0	14.2	15.3						
8	6.2	7.1	7.2	11.7	15.4	14.8						
9	6.3	8.1	8.0	12.1	14.2	14.3						
10	6.3	8.6	8.8	12.5	13.2	14.8						
11	5.2	8.0	8.6	12.5	13.9	16.1						
12	4.2	7.6	7.8	11.6	15.3	16.9						
13	3.9	7.7	7.1	11.5	16.8	16.5						
14	4.4	7.6	7.6	11.9	17.8	15.9						
15	4.4	7.3	9.0	12.3	18.0	16.7						
16	4.2	7.0	9.2	13.0	17.2	18.5						
17	4.2	7.9	8.9	11.2	15.9	19.6						
18	4.3	7.5	8.7	11.6	14.9	17.9						
19	7.7	7.2	7.9	11.4	14.7	16.5						
20	8.4	7.7	8.1	12.1	15.4	16.7						
21	8.2	9.0	7.1	12.9	15.3	18.4						
22	7.4	9.4	6.6	14.9	14.7	18.0						
23	7.1	8.3	7.8	16.5	14.5	17.2						
24	7.3	8.2	9.3	16.1	14.2	16.9						
25	8.3	7.5	9.9	15.2	15.0	16.7						
26	8.3	7.3	9.8	14.1	15.5	16.7						
27	6.5	7.0	10.5	13.0	15.4	17.2						
28	6.1	6.5	10.2	13.6	15.1	17.1						
29	6.8	6.1	10.0	14.5	15.2	17.8						
30	7.8	—	10.2	14.2	16.0	18.4						
31	8.2	—	9.3	—	16.9	—			—		—	
MEAN	6.5	7.5	8.4	12.3	14.8	16.7						
MAX	8.4	9.4	10.5	16.5	18.0	19.6						
MIN	3.9	6.1	6.3	9.5	12.1	14.3						

Site discontinued July 2012

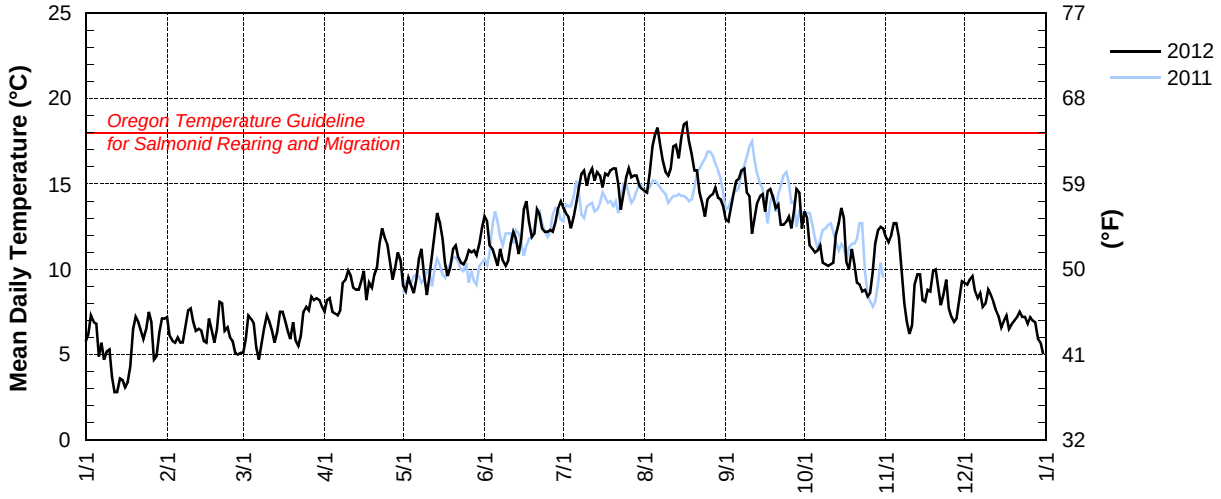


BCSR – 14206419 – BRONSON CREEK AT SALTZMAN ROAD NEAR ORENCO, OREGON [RM 5.1]

Latitude: 45 33 19 Longitude: 122 48 25 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.8	7.2	5.1	7.5	9.0	13.1	13.6	14.6	12.9	13.4	11.9	9.2
2	6.2	6.1	5.9	8.2	8.7	12.8	13.3	14.5	12.8	13.0	11.6	9.1
3	7.3	5.8	7.3	8.3	9.5	11.4	13.1	15.6	13.7	11.4	12.0	9.4
4	6.9	5.7	7.1	7.5	9.1	11.2	12.4	17.2	14.5	11.2	12.7	9.6
5	6.8	6.0	6.8	7.4	8.6	10.7	13.1	17.9	15.2	11.0	12.7	8.7
6	4.9	5.7	5.4	7.3	9.4	10.2	13.9	18.3	15.3	11.1	11.9	8.3
7	5.7	5.7	4.7	7.6	10.6	11.2	14.8	17.3	15.8	11.4	10.2	8.6
8	4.7	6.7	5.6	9.2	11.2	10.5	15.6	16.4	15.9	10.4	8.0	7.8
9	5.2	7.6	6.5	9.4	9.7	10.2	15.8	15.7	14.5	10.3	6.9	8.0
10	5.3	7.7	7.3	9.9	8.5	10.5	14.9	15.5	14.3	10.2	6.2	8.8
11	3.7	6.9	6.9	9.6	9.6	11.5	15.6	15.9	12.1	10.3	6.7	8.5
12	2.8	6.4	6.4	8.9	11.0	12.2	15.9	17.2	13.0	10.4	9.1	8.1
13	2.8	6.5	5.7	8.8	12.2	11.8	15.2	17.3	13.9	12.0	9.7	7.6
14	3.6	6.4	6.3	8.8	13.3	10.9	15.7	16.5	14.3	12.7	9.7	7.2
15	3.5	5.8	7.5	9.3	12.7	11.8	15.5	17.7	14.4	13.6	8.2	6.6
16	3.1	5.7	7.5	9.9	11.8	13.5	14.8	18.5	13.4	13.0	8.1	7.0
17	3.4	7.1	7.0	8.2	10.3	14.0	15.6	18.6	14.6	10.4	8.8	7.3
18	4.3	6.4	6.4	9.2	9.6	12.8	15.5	17.5	14.7	10.0	8.7	6.5
19	6.5	5.7	5.9	8.9	10.1	11.9	15.8	16.7	14.2	11.2	9.9	6.8
20	7.2	6.5	6.9	9.7	11.2	12.1	15.9	15.8	13.6	10.3	10.0	7.0
21	6.9	8.1	5.8	10.1	11.4	13.5	15.9	15.8	13.8	9.2	9.0	7.2
22	6.4	8.0	5.5	11.5	10.7	13.2	15.0	14.5	12.6	9.1	7.9	7.5
23	5.9	6.4	6.1	12.4	10.4	12.4	13.5	13.9	12.6	8.7	8.5	7.2
24	6.5	6.6	7.5	11.8	10.3	12.2	14.4	13.1	12.8	8.8	9.4	7.2
25	7.5	6.0	7.8	11.4	10.6	12.2	15.4	14.1	13.1	8.4	7.7	6.8
26	6.9	5.8	7.6	10.4	11.1	12.3	15.9	14.3	12.4	8.6	7.2	7.2
27	4.7	5.1	8.4	9.4	11.0	12.2	15.4	14.4	13.4	9.8	6.9	7.0
28	4.9	5.0	8.2	10.1	11.1	12.7	15.5	14.8	14.7	11.5	7.1	6.9
29	6.3	5.1	8.3	11.0	10.8	13.6	15.5	14.2	14.5	12.3	8.3	5.9
30	7.1	—	8.2	10.5	11.5	14.0	14.9	14.1	12.4	12.5	9.3	5.7
31	7.1	—	7.8	—	12.4	—	14.7	13.7	—	12.4	—	5.0
MEAN	5.5	6.3	6.8	9.4	10.6	12.1	14.9	15.9	13.8	10.9	9.1	7.5
MAX	7.5	8.1	8.4	12.4	13.3	14.0	15.9	18.6	15.9	13.6	12.7	9.6
MIN	2.8	5.0	4.7	7.3	8.5	10.2	12.4	13.1	12.1	8.4	6.2	5.0

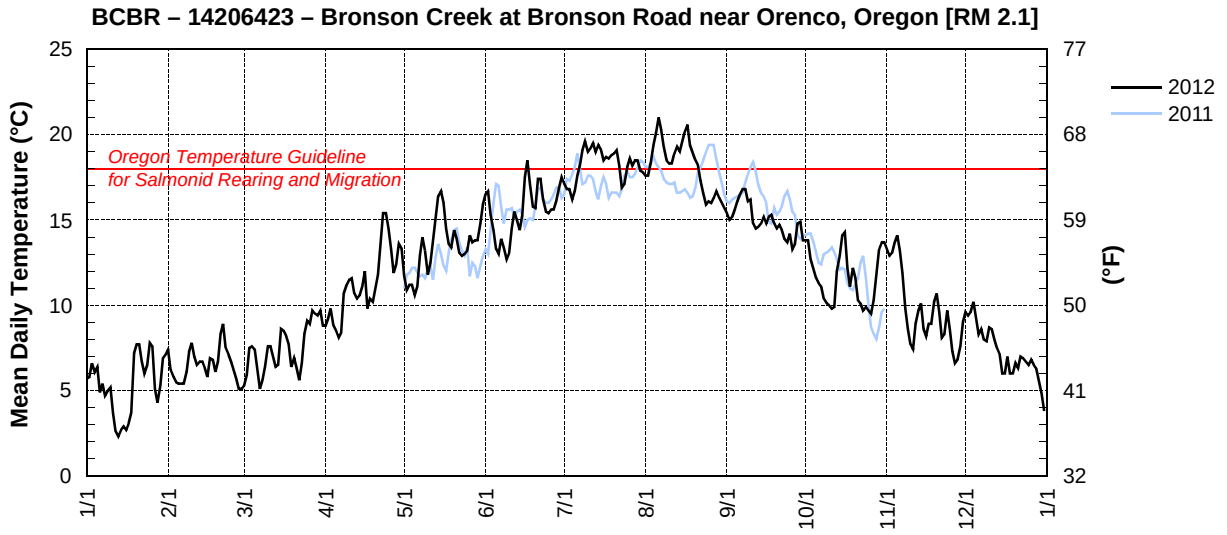
BCSR – 14206419 – Bronson Creek at Saltzman Road near Orenco, Oregon [RM 5.1]



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

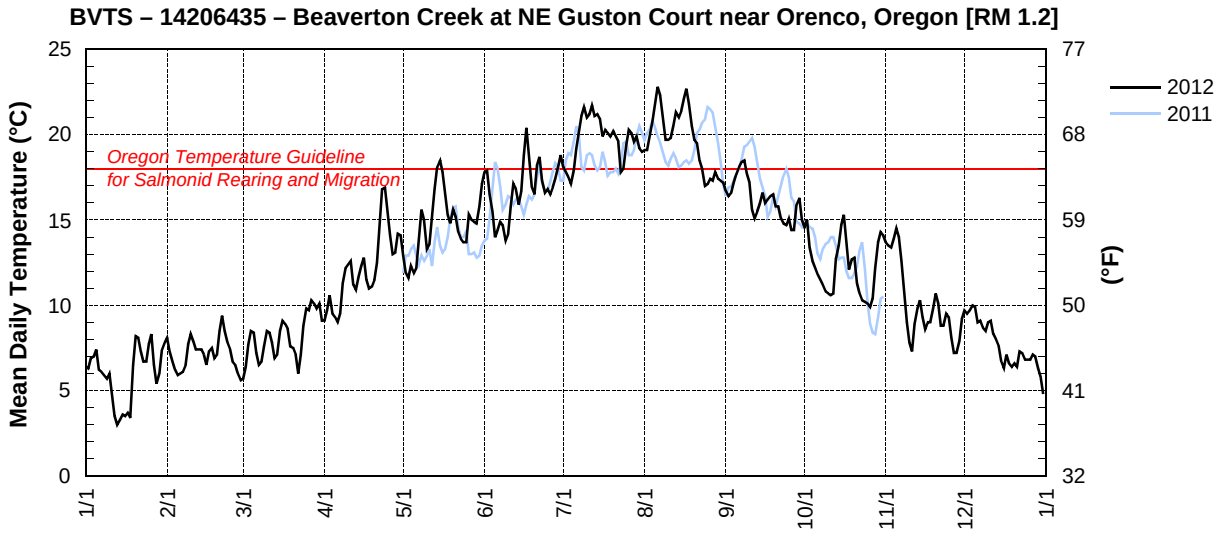
Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.7	7.4	5.3	8.8	11.7	16.5	17.1	17.6	15.4	13.8	13.3	9.6
2	5.8	6.2	5.9	9.2	10.9	16.7	16.8	17.6	15.0	13.8	12.9	9.4
3	6.6	5.8	7.5	9.8	11.2	15.3	16.8	18.3	15.2	12.7	13.1	9.6
4	6.1	5.5	7.6	8.8	11.2	14.4	16.2	19.4	15.6	12.1	13.7	10.2
5	6.4	5.4	7.4	8.5	10.6	13.3	16.7	20.1	16.1	11.6	14.1	9.3
6	4.9	5.4	6.2	8.1	11.1	13.0	17.6	21.0	16.5	11.3	13.2	8.3
7	5.4	5.4	5.1	8.4	12.9	13.9	18.2	20.3	16.8	11.1	11.9	8.6
8	4.7	6.1	5.6	10.7	14.0	13.4	19.1	19.3	16.8	10.4	9.8	8.0
9	5.0	7.3	6.4	11.2	13.2	12.7	19.6	18.5	16.1	10.1	8.6	7.9
10	5.2	7.8	7.6	11.5	11.8	13.1	19.0	18.3	16.2	10.0	7.7	8.7
11	3.7	7.0	7.6	11.6	12.5	14.5	19.2	18.3	14.8	9.8	7.4	8.6
12	2.6	6.5	7.0	10.7	13.8	15.5	19.5	18.9	14.5	9.9	8.9	8.0
13	2.3	6.7	6.4	10.4	15.2	15.0	19.0	19.3	14.6	12.0	9.7	7.5
14	2.7	6.7	6.5	10.6	16.4	14.4	19.4	19.0	14.8	12.9	10.1	7.1
15	2.9	6.3	8.6	11.1	16.7	15.3	19.1	19.6	15.2	14.1	8.6	6.0
16	2.7	5.8	8.5	12.0	16.0	17.5	18.5	20.2	14.8	14.3	8.2	6.0
17	3.1	6.9	8.2	9.8	14.5	18.5	18.7	20.6	15.2	12.2	8.9	7.0
18	3.7	6.8	7.7	10.4	13.6	17.1	18.6	19.4	15.3	11.1	8.9	6.0
19	7.2	6.1	6.4	10.2	13.4	15.8	18.8	18.9	14.8	12.2	10.2	6.0
20	7.7	6.7	6.9	11.0	14.4	15.7	18.9	18.5	14.5	11.6	10.7	6.6
21	7.7	8.3	6.3	11.8	13.9	17.4	19.1	18.2	14.7	10.3	9.6	6.3
22	6.7	8.9	5.6	13.7	13.1	17.4	18.2	17.3	14.4	10.1	8.1	7.0
23	6.0	7.5	6.6	15.4	12.9	16.2	16.9	16.6	13.9	9.7	8.3	6.9
24	6.5	7.1	8.3	15.4	13.0	15.5	17.1	15.9	13.7	9.9	9.7	6.7
25	7.8	6.7	9.1	14.5	13.2	15.4	18.1	16.1	14.2	9.7	8.6	6.5
26	7.6	6.2	8.9	13.3	14.1	15.6	18.6	16.0	13.3	9.5	7.3	6.8
27	5.1	5.7	9.7	11.9	13.7	15.6	18.2	16.3	13.6	10.3	6.6	6.5
28	4.3	5.1	9.5	12.4	13.8	16.1	18.5	16.7	14.8	11.8	6.8	6.3
29	5.3	5.1	9.4	13.6	13.8	16.9	18.5	16.3	14.9	13.3	7.6	5.5
30	6.9	—	9.7	13.3	14.8	17.5	17.9	16.0	13.8	13.7	9.0	4.8
31	7.1	—	8.8	—	15.9	—	17.8	15.7	—	13.7	—	3.8
MEAN	5.3	6.5	7.4	11.3	13.5	15.5	18.2	18.2	15.0	11.6	9.7	7.3
MAX	7.8	8.9	9.7	15.4	16.7	18.5	19.6	21.0	16.8	14.3	14.1	10.2
MIN	2.3	5.1	5.1	8.1	10.6	12.7	16.2	15.7	13.3	9.5	6.6	3.8



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

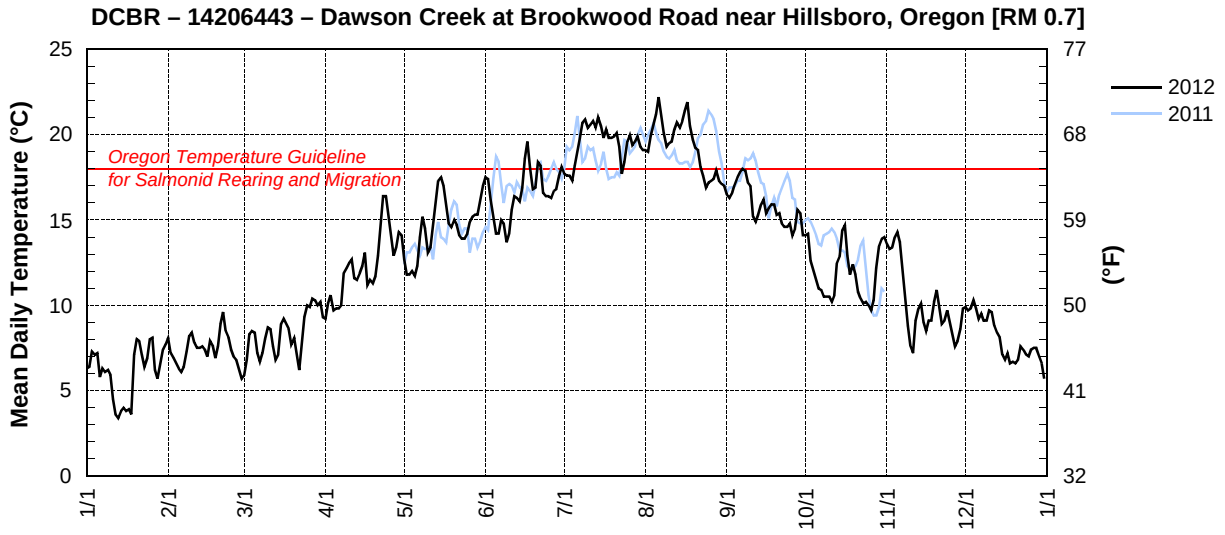
Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.4	8.1	5.7	9.1	12.9	17.8	18.1	19.1	16.7	14.6	13.7	9.7
2	6.3	7.3	6.4	9.7	11.9	17.9	17.8	19.1	16.4	15.0	13.5	9.5
3	6.9	6.7	7.7	10.6	11.6	16.5	17.5	19.9	16.6	13.4	13.4	9.7
4	7.0	6.2	8.5	9.5	12.3	15.5	17.1	20.8	17.2	12.6	13.9	10.0
5	7.4	5.9	8.4	9.3	11.9	14.0	17.9	21.8	17.7	12.2	14.5	9.9
6	6.2	6.0	7.2	9.0	12.2	14.4	19.2	22.8	18.1	11.8	14.0	9.0
7	6.1	6.1	6.5	9.5	14.0	14.9	20.1	22.3	18.4	11.5	12.6	9.1
8	5.9	6.5	6.7	11.3	15.6	14.7	21.1	21.0	18.5	11.2	10.6	8.7
9	5.7	7.7	7.6	12.2	15.0	13.8	21.6	19.7	17.7	10.8	9.0	8.5
10	6.0	8.3	8.5	12.4	13.3	14.2	21.0	19.7	17.2	10.7	7.8	9.0
11	4.8	7.9	8.4	12.6	13.6	15.8	21.2	19.8	15.6	10.6	7.3	9.1
12	3.5	7.4	7.8	11.2	15.1	17.1	21.7	20.5	15.1	10.7	8.9	8.3
13	3.0	7.4	6.9	10.9	16.8	16.8	21.1	21.3	15.5	12.7	9.8	8.0
14	3.3	7.4	7.1	11.7	18.1	15.9	21.2	21.0	16.0	13.5	10.3	7.6
15	3.6	7.1	8.5	12.3	18.5	16.7	20.9	21.4	16.6	14.7	9.3	6.7
16	3.5	6.5	9.1	12.8	17.8	18.8	19.9	22.1	16.0	15.3	8.6	6.3
17	3.7	7.3	8.9	11.5	16.5	20.4	20.3	22.7	16.2	13.7	9.0	7.1
18	3.4	7.5	8.6	11.0	15.3	18.8	20.1	21.8	16.4	12.1	9.0	6.6
19	6.5	6.9	7.6	11.1	14.8	16.9	19.9	20.5	16.5	12.7	9.8	6.4
20	8.2	7.1	7.5	11.5	15.6	16.5	20.2	19.7	15.8	12.8	10.7	6.6
21	8.1	8.5	7.1	12.5	15.2	18.2	19.9	19.5	15.8	11.3	10.1	6.4
22	7.3	9.4	6.0	14.8	14.3	18.7	19.6	18.5	15.1	10.7	8.8	7.3
23	6.7	8.5	7.1	16.8	13.9	17.3	17.8	18.0	14.8	10.3	8.8	7.2
24	6.7	7.8	8.8	16.9	13.7	16.6	18.0	17.0	14.7	10.2	9.5	6.8
25	7.7	7.4	9.8	15.5	13.7	16.8	19.4	17.1	15.1	10.1	9.3	6.8
26	8.3	6.7	9.7	14.1	15.3	16.5	20.3	17.4	14.4	9.9	8.1	6.8
27	6.5	6.5	10.3	13.0	15.0	16.9	20.1	17.3	14.4	10.4	7.2	7.1
28	5.4	6.0	10.1	13.1	14.9	17.4	19.6	17.8	15.9	12.2	7.2	7.0
29	6.0	5.6	9.8	14.2	14.8	18.1	19.9	17.4	16.3	13.7	7.9	6.3
30	7.4	—	10.1	14.1	15.8	18.8	19.2	17.3	15.0	14.3	9.2	5.8
31	7.8	—	9.1	—	17.1	—	19.0	17.2	—	14.1	—	4.8
MEAN	6.0	7.2	8.1	12.1	14.7	16.8	19.7	19.7	16.2	12.3	10.1	7.7
MAX	8.3	9.4	10.3	16.9	18.5	20.4	21.7	22.8	18.5	15.3	14.5	10.0
MIN	3.0	5.6	5.7	9.0	11.6	13.8	17.1	17.0	14.4	9.9	7.2	4.8



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	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.3	8.1	5.9	9.2	12.7	17.5	17.7	19.1	16.5	14.1	13.6	9.9
2	6.4	7.2	6.8	10.1	11.8	17.4	17.6	19.0	16.3	14.2	13.3	9.7
3	7.3	6.9	8.3	10.6	11.8	16.2	17.6	19.9	16.6	12.6	13.4	9.8
4	7.1	6.6	8.5	9.7	12.0	15.2	17.3	20.6	17.1	12.0	14.0	10.3
5	7.2	6.3	8.4	9.8	11.7	14.2	18.2	21.2	17.5	11.5	14.3	9.8
6	5.8	6.1	7.2	9.8	12.3	14.2	19.0	22.2	17.8	11.0	13.7	9.2
7	6.3	6.4	6.7	10.0	14.0	15.0	19.8	21.2	18.0	10.9	12.3	9.5
8	6.1	7.3	7.2	11.9	15.2	14.8	20.7	20.1	17.9	10.5	10.5	9.1
9	6.2	8.2	8.0	12.2	14.5	13.7	20.9	19.3	17.2	10.5	8.8	9.1
10	5.9	8.4	8.7	12.5	13.1	14.2	20.4	19.5	17.0	10.5	7.6	9.7
11	4.5	7.8	8.6	12.7	13.4	15.6	20.6	19.6	15.2	10.2	7.2	9.6
12	3.6	7.5	7.6	11.6	14.7	16.4	20.8	20.3	14.9	10.6	9.1	8.8
13	3.4	7.5	6.8	11.5	16.1	16.3	20.4	20.7	15.3	12.5	9.8	8.4
14	3.8	7.6	7.1	11.9	17.3	16.1	21.0	20.4	15.9	12.9	10.1	8.1
15	4.0	7.4	8.9	12.3	17.5	16.9	20.5	20.8	16.2	14.4	9.0	7.1
16	3.8	7.0	9.2	13.1	17.0	18.6	19.8	21.4	15.4	14.7	8.5	6.8
17	3.9	7.9	8.9	11.2	15.9	19.6	20.3	21.9	15.7	12.9	9.1	7.2
18	3.6	7.6	8.6	11.5	14.8	18.1	19.8	20.5	15.9	11.8	9.1	6.6
19	7.1	6.9	7.7	11.3	14.6	16.8	19.8	19.7	15.9	12.4	10.2	6.7
20	8.0	7.6	8.1	11.7	15.0	16.9	19.9	19.2	15.3	11.8	10.9	6.6
21	7.9	8.9	7.2	12.9	14.7	18.4	20.1	19.1	15.4	10.8	9.9	6.8
22	7.1	9.6	6.2	14.8	14.1	18.2	19.3	18.1	14.8	10.4	8.9	7.6
23	6.4	8.5	7.7	16.4	13.9	16.6	17.7	17.6	14.6	10.1	9.1	7.4
24	6.9	8.1	9.3	16.4	13.9	16.4	18.4	16.9	14.6	10.2	9.7	7.1
25	8.0	7.4	10.0	15.2	14.2	16.4	19.6	17.2	14.8	10.0	9.0	7.0
26	8.1	7.0	9.9	14.1	14.9	16.3	20.0	17.3	14.1	9.7	8.3	7.4
27	6.2	6.8	10.4	12.9	15.2	16.7	19.4	17.4	14.5	10.3	7.6	7.5
28	5.7	6.3	10.3	13.4	15.3	16.8	19.6	17.9	15.6	12.2	7.9	7.5
29	6.6	5.7	10.0	14.3	15.3	17.6	19.9	17.3	15.4	13.5	8.6	7.0
30	7.4	—	10.2	14.1	16.2	18.1	19.3	17.1	14.1	13.9	9.8	6.6
31	7.7	—	9.3	—	17.0	—	19.1	17.0	—	14.0	—	5.7
MEAN	6.1	7.4	8.3	12.3	14.5	16.5	19.5	19.3	15.9	11.8	10.1	8.1
MAX	8.1	9.6	10.4	16.4	17.5	19.6	21.0	22.2	18.0	14.7	14.3	10.3
MIN	3.4	5.7	5.9	9.2	11.7	13.7	17.3	16.9	14.1	9.7	7.2	5.7



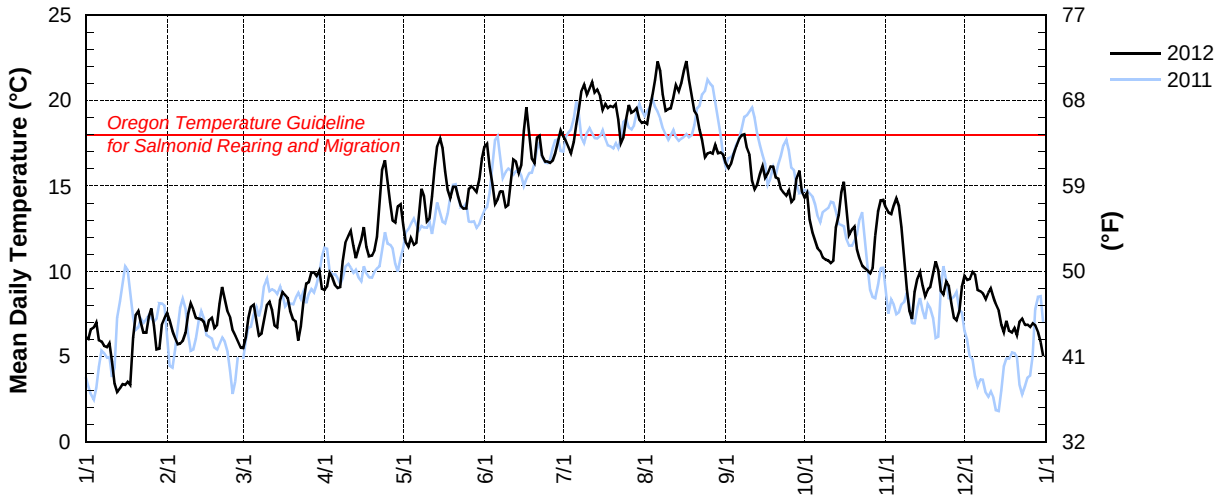
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

STATION NUMBER 453030122560101 ROCK CREEK AT BROOKWOOD AVENUE, HILLSBORO, OR.

LATITUDE: 453029.5 LONGITUDE: 1225600.6

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.1	7.6	5.5	8.9	12.8	17.3	17.9	18.7	16.3	14.3	13.7	9.7
2	6.0	7.1	6.1	9.1	11.7	17.5	17.6	18.6	16.0	14.6	13.5	9.5
3	6.6	6.5	7.2	9.9	11.4	16.2	17.3	19.5	16.3	13.1	13.4	9.5
4	6.7	6.1	7.9	9.6	12.0	15.1	16.9	20.3	16.9	12.3	13.9	10.0
5	7.0	5.7	8.1	9.2	11.6	14.0	17.5	21.2	17.3	11.8	14.3	9.8
6	6.0	5.7	7.2	9.0	11.7	14.2	18.6	22.3	17.7	11.4	13.9	8.9
7	5.9	5.9	6.2	9.1	13.2	14.7	19.5	21.8	18.0	11.2	12.6	8.8
8	5.6	6.4	6.3	10.6	14.8	14.7	20.6	20.4	18.0	10.8	10.8	8.7
9	5.6	7.5	7.1	11.7	14.4	13.8	21.0	19.4	17.3	10.7	9.0	8.4
10	5.8	8.1	8.0	12.1	12.9	13.9	20.4	19.5	16.8	10.6	7.7	8.7
11	4.7	7.8	8.2	12.4	13.1	15.3	20.7	19.5	15.3	10.5	7.2	9.0
12	3.4	7.3	7.7	11.5	14.4	16.5	21.1	20.1	14.8	10.6	8.7	8.5
13	2.9	7.2	6.8	10.8	16.0	16.4	20.5	20.9	15.1	12.5	9.6	8.1
14	3.1	7.2	6.7	11.4	17.3	15.8	20.6	20.5	15.7	13.3	10.0	7.7
15	3.4	7.1	8.3	11.8	17.8	16.2	20.3	21.0	16.2	14.6	9.2	6.9
16	3.3	6.5	8.8	12.6	17.2	18.2	19.5	21.7	15.5	15.3	8.6	6.4
17	3.5	7.1	8.6	11.5	15.9	19.6	19.8	22.3	15.7	13.8	8.9	7.1
18	3.3	7.3	8.5	10.9	14.8	18.2	19.6	21.3	16.1	12.2	9.1	6.5
19	6.0	6.7	7.7	10.9	14.3	16.6	19.7	20.3	16.1	12.5	9.9	6.4
20	7.5	6.8	7.2	11.2	14.9	16.3	19.6	19.4	15.5	12.6	10.6	6.7
21	7.7	8.1	7.1	12.0	14.9	17.8	19.8	19.1	15.4	11.3	10.1	6.3
22	7.0	9.1	6.0	14.0	14.4	18.0	19.0	18.3	14.8	10.7	8.9	7.1
23	6.4	8.4	6.8	15.9	13.8	16.8	17.5	17.7	14.6	10.3	8.6	7.2
24	6.4	7.6	8.2	16.5	13.7	16.4	17.8	16.7	14.5	10.2	9.4	6.9
25	7.3	7.3	9.3	15.4	13.7	16.4	18.9	16.9	14.8	10.1	9.1	6.9
26	7.8	6.5	9.4	14.1	14.8	16.4	19.7	17.0	14.1	9.9	8.1	6.7
27	6.9	6.2	9.9	13.0	15.0	16.5	19.3	16.9	14.2	10.2	7.3	6.9
28	5.4	5.9	10.0	12.8	14.8	16.9	19.4	17.4	15.5	12.1	7.1	6.8
29	5.4	5.5	9.7	13.8	14.7	17.6	19.6	16.9	15.9	13.5	7.7	6.4
30	6.9	—	10.1	14.0	15.4	18.3	18.9	17.0	14.7	14.1	9.1	5.9
31	7.3	—	9.0	—	16.6	—	18.7	16.8	—	14.2	—	5.0
MEAN	5.7	7.0	7.9	11.9	14.3	16.4	19.3	19.3	15.8	12.2	10.0	7.7
MAX	7.8	9.1	10.1	16.5	17.8	19.6	21.1	22.3	18.0	15.3	14.3	10.0
MIN	2.9	5.5	5.5	8.9	11.4	13.8	16.9	16.7	14.1	9.9	7.1	5.0

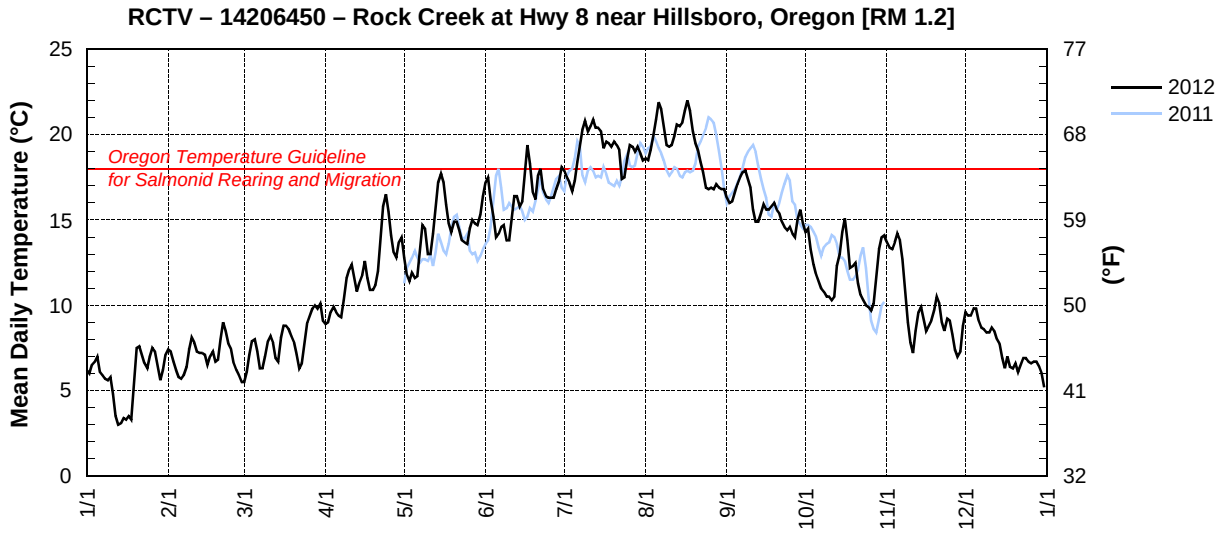
RCBR – Rock Creek at Brookwood Avenue, Hillsboro, Oregon [RM 2.4]



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

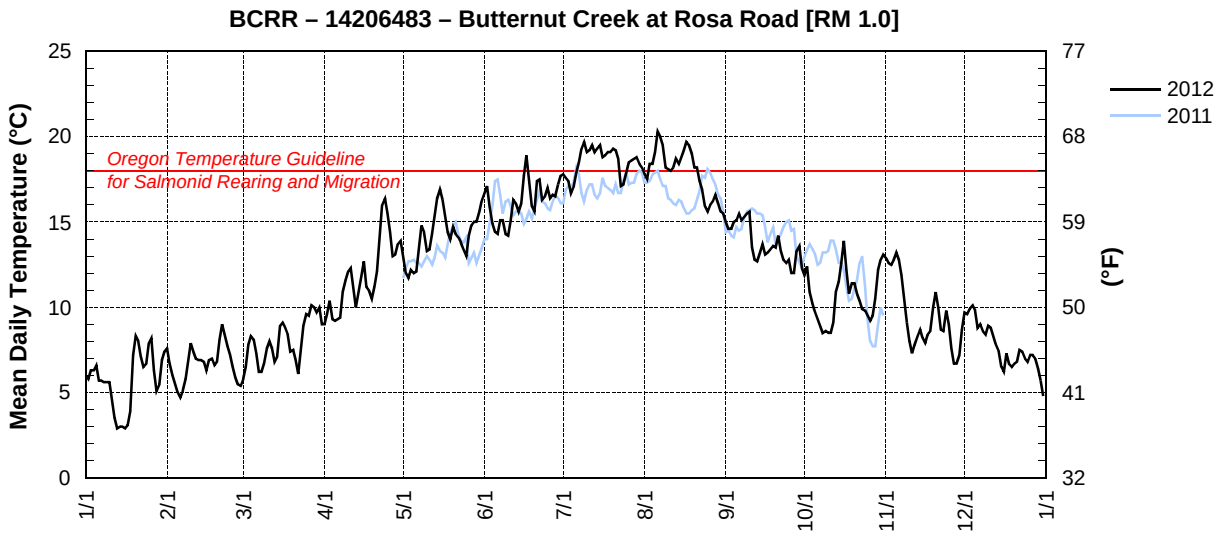
Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.2	7.4	5.5	8.9	12.8	17.2	17.9	18.6	16.3	14.3	13.7	9.6
2	6.0	7.3	6.1	9.0	11.8	17.5	17.5	18.5	16.0	14.5	13.4	9.4
3	6.5	6.7	7.1	9.6	11.4	16.2	17.2	19.1	16.1	13.3	13.3	9.4
4	6.7	6.2	7.9	9.9	11.9	15.2	16.7	20.0	16.6	12.4	13.7	9.8
5	7.0	5.8	8.0	9.6	11.6	14.0	17.3	20.9	17.1	11.8	14.2	9.8
6	6.1	5.7	7.3	9.4	11.7	14.2	18.4	21.9	17.5	11.4	13.8	9.1
7	5.9	5.9	6.3	9.3	13.1	14.6	19.3	21.5	17.8	11.0	12.7	8.7
8	5.7	6.4	6.3	10.3	14.7	14.7	20.3	20.5	17.9	10.8	10.9	8.6
9	5.6	7.4	7.0	11.6	14.5	13.8	20.8	19.4	17.4	10.5	9.0	8.4
10	5.8	8.1	7.9	12.1	13.0	13.8	20.2	19.3	16.9	10.5	7.8	8.4
11	4.8	7.8	8.2	12.4	13.0	15.1	20.5	19.4	15.6	10.3	7.2	8.7
12	3.5	7.3	7.8	11.6	14.2	16.4	20.9	19.9	14.9	10.5	8.5	8.5
13	3.0	7.2	6.9	10.8	15.8	16.4	20.4	20.6	14.9	12.3	9.6	8.0
14	3.1	7.2	6.7	11.4	17.2	15.8	20.4	20.5	15.4	13.0	9.9	7.7
15	3.4	7.1	8.1	11.8	17.7	16.1	20.2	20.7	15.9	14.3	9.2	6.9
16	3.3	6.5	8.8	12.6	17.2	17.9	19.2	21.4	15.6	15.1	8.5	6.3
17	3.5	7.0	8.8	11.6	15.9	19.4	19.6	22.0	15.6	13.8	8.8	7.0
18	3.3	7.3	8.6	10.9	14.8	18.3	19.5	21.4	15.8	12.2	9.1	6.4
19	5.7	6.7	8.2	10.9	14.3	16.6	19.3	20.2	16.0	12.3	9.7	6.3
20	7.5	6.8	7.8	11.2	14.9	16.2	19.6	19.5	15.6	12.5	10.5	6.6
21	7.6	8.0	7.1	12.0	14.9	17.6	19.4	19.1	15.4	11.3	10.1	6.1
22	7.1	9.0	6.3	13.8	14.4	18.0	19.1	18.4	14.9	10.6	9.0	6.5
23	6.6	8.5	6.6	15.8	13.8	16.8	17.4	17.8	14.6	10.3	8.5	6.9
24	6.3	7.7	7.8	16.5	13.7	16.4	17.5	16.9	14.4	10.0	9.2	6.9
25	7.0	7.4	9.0	15.5	13.6	16.3	18.6	16.8	14.6	9.9	9.1	6.7
26	7.5	6.6	9.4	14.1	14.5	16.3	19.4	16.9	14.2	9.7	8.3	6.6
27	7.3	6.2	9.8	13.1	15.0	16.3	19.3	16.8	14.0	10.1	7.4	6.7
28	6.5	5.9	10.0	12.8	14.8	16.8	19.0	17.1	15.0	11.7	7.0	6.7
29	5.6	5.5	9.8	13.7	14.7	17.3	19.3	16.9	15.6	13.3	7.3	6.4
30	6.2	—	10.1	14.0	15.3	18.1	18.9	16.8	14.8	14.0	8.8	6.0
31	7.1	—	9.1	—	16.4	—	18.5	16.8	—	14.1	—	5.2
MEAN	5.7	7.0	7.9	11.9	14.3	16.3	19.1	19.2	15.7	12.0	9.9	7.6
MAX	7.6	9.0	10.1	16.5	17.7	19.4	20.9	22.0	17.9	15.1	14.2	9.8
MIN	3.0	5.5	5.5	8.9	11.4	13.8	16.7	16.8	14.0	9.7	7.0	5.2



BCRR – 14206483 – BUTTERNUT CREEK AT ROSA ROAD [RM 1.0]

Latitude: 43 28 42 Longitude:122 55 05 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.0	7.6	5.8	9.0	12.9	16.7	17.8	17.8	15.0	11.9	12.9	9.7
2	5.8	6.7	6.5	9.6	12.0	17.1	17.6	17.5	14.6	12.4	12.6	9.6
3	6.3	6.0	7.8	10.4	11.7	15.9	17.4	18.4	14.6	10.9	12.5	9.9
4	6.3	5.5	8.3	9.3	12.2	14.9	16.7	18.4	15.0	10.2	12.8	10.1
5	6.6	5.0	8.1	9.2	12.0	14.4	17.1	19.1	15.1	9.7	13.2	9.8
6	5.7	4.7	7.3	9.3	12.1	14.3	17.9	20.3	15.5	9.3	12.8	8.8
7	5.7	5.1	6.2	9.4	13.5	15.1	18.5	20.0	15.1	8.9	11.9	9.0
8	5.6	5.8	6.2	10.9	14.8	15.1	19.3	19.5	15.3	8.5	10.5	8.6
9	5.6	6.9	6.7	11.6	14.4	14.3	19.7	18.2	15.5	8.6	9.1	8.4
10	5.6	7.9	7.6	12.1	13.3	14.2	19.1	18.1	15.6	8.5	8.0	8.9
11	4.6	7.4	8.0	12.3	13.4	15.1	19.2	18.0	13.5	8.5	7.3	8.8
12	3.5	7.0	7.6	11.1	14.3	16.3	19.5	18.2	12.8	9.1	7.8	8.3
13	2.9	6.9	6.8	10.0	15.4	16.1	19.1	18.7	12.7	10.9	8.3	7.8
14	3.0	6.9	7.1	11.0	16.4	15.6	19.3	18.4	13.2	11.5	8.7	7.4
15	3.0	6.8	8.9	11.8	16.9	16.1	19.5	18.8	13.7	12.6	8.2	6.5
16	2.9	6.3	9.1	12.7	16.3	17.7	18.8	19.2	13.1	13.9	7.9	6.2
17	3.1	6.9	8.8	11.2	15.3	18.9	18.9	19.7	13.2	12.2	8.4	7.3
18	3.9	7.0	8.4	11.0	14.4	17.6	19.1	19.5	13.4	10.8	8.6	6.7
19	7.2	6.6	7.4	10.5	14.0	15.9	19.1	19.0	13.6	11.4	10.0	6.5
20	8.3	6.8	7.5	11.2	14.7	15.6	19.3	18.2	13.5	11.4	10.9	6.7
21	8.0	8.1	6.9	12.1	14.3	17.4	19.2	18.2	14.2	10.8	10.0	6.8
22	7.1	9.0	6.1	13.9	14.1	17.5	18.7	17.4	13.3	10.4	8.7	7.5
23	6.5	8.4	7.4	16.0	13.8	16.3	17.1	16.9	12.8	9.9	8.6	7.4
24	6.7	7.7	8.9	16.4	13.4	16.5	17.2	15.9	12.6	9.8	9.8	7.0
25	7.9	7.2	9.6	15.5	13.0	17.0	17.9	15.6	12.8	9.5	9.0	6.8
26	8.2	6.5	9.5	14.4	14.2	16.4	18.5	16.0	12.0	9.2	7.6	7.2
27	6.3	5.9	10.1	13.0	14.8	16.6	18.6	16.2	12.0	9.5	6.7	7.2
28	5.1	5.5	10.0	13.1	15.0	16.5	18.7	16.6	13.3	10.5	6.7	7.0
29	5.5	5.4	9.7	13.7	15.0	17.2	18.8	16.1	13.6	12.2	7.2	6.4
30	6.9	—	10.0	13.9	15.6	17.7	18.4	15.6	12.3	12.8	8.7	5.7
31	7.4	—	9.0	—	16.3	—	18.2	15.5	—	13.1	—	4.8
MEAN	5.7	6.7	8.0	11.9	14.2	16.2	18.5	17.9	13.8	10.6	9.5	7.7
MAX	8.3	9.0	10.1	16.4	16.9	18.9	19.7	20.3	15.6	13.9	13.2	10.1
MIN	8.3	4.7	5.8	9.0	11.7	14.2	16.7	15.5	12.0	8.5	6.7	4.8

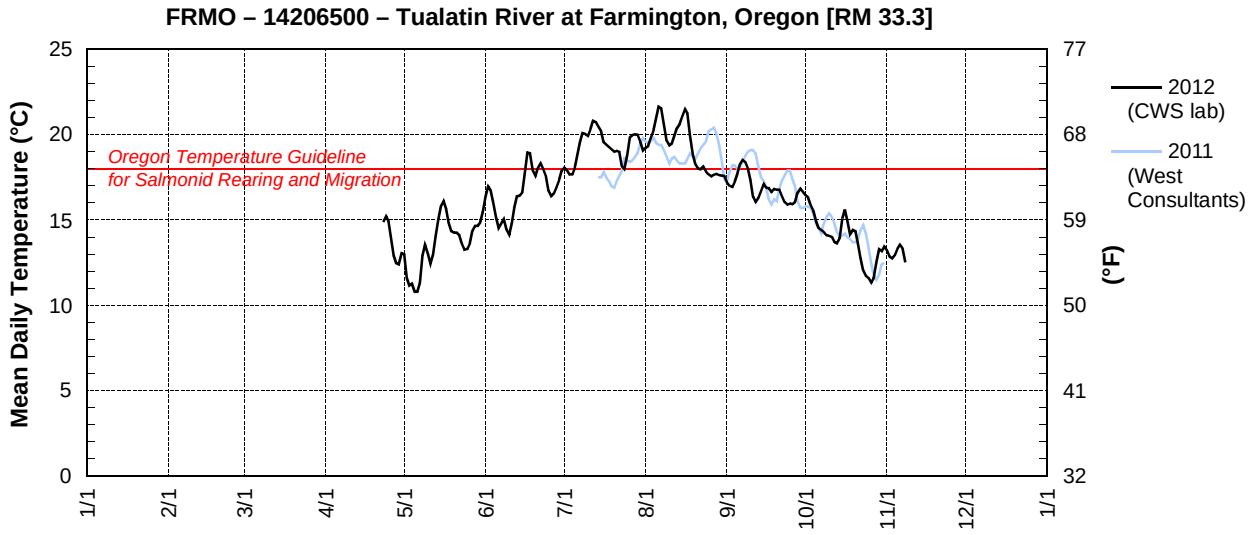


FRMO – 14206500 – TUALATIN RIVER AT FARMINGTON, OREGON [RM 33.3]

Latitude: 45 26 58 Longitude: 122 57 02 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius†											
	JAN	FEB	MAR	APR*	MAY	JUN	JUL	AUG	SEP	OCT	NOV*	DEC
1					13.0	16.4	18.1	19.2	17.2	16.4	13.2	
2					11.6	17.0	17.9	19.3	17.0	16.3	12.9	
3					11.2	16.7	17.7	19.8	16.9	15.9	12.7	
4					11.3	15.9	17.7	20.3	17.2	15.5	12.9	
5					10.8	15.2	18.1	20.9	17.7	14.9	13.3	
6					10.8	14.5	18.8	21.6	18.3	14.5	13.6	
7					11.3	14.8	19.5	21.5	18.5	14.4	13.4	
8					12.9	15.1	20.1	20.7	18.4	14.3	12.5	
9					13.5	14.4	20.1	19.6	18.0	14.1		
10					13.0	14.1	19.9	19.4	17.3	14.1		
11					12.4	14.8	20.3	19.5	16.3	14.0		
12					13.0	15.7	20.8	19.9	16.1	13.7		
13					14.0	16.4	20.7	20.4	16.3	13.6		
14					15.0	16.4	20.5	20.6	16.7	14.0		
15					15.8	16.6	20.2	21.1	17.1	15.1		
16					16.1	17.7	19.6	21.5	16.9	15.6		
17					15.7	18.9	19.4	21.2	16.9	14.9		
18					14.8	18.9	19.3	20.0	16.6	14.2		
19					14.4	17.9	19.1	18.8	16.8	14.4		
20					14.3	17.6	19.0	18.3	16.8	14.4		
21					14.3	18.1	19.1	18.0	16.8	13.6		
22					14.1	18.3	19.0	18.0	16.4	12.8		
23					13.6	18.0	18.2	18.1	16.1	12.0		
24					13.3	17.5	18.0	17.8	15.9	11.7		
25					13.3	16.7	18.8	17.7	16.0	11.6		
26					13.6	16.4	19.8	17.6	15.9	11.3		
27					14.4	16.5	20.0	17.6	16.0	11.6		
28				12.5	14.7	16.9	20.0	17.7	16.6	12.5		
29		—		12.4	14.6	17.3	20.0	17.6	16.8	13.3		
30		—		13.0	14.9	17.9	19.6	17.6	16.6	13.2		
31		—		—	15.5	—	19.1	17.6	—	13.5	—	
MEAN					13.6	16.6	19.3	19.3	16.9	13.9		
MAX					16.1	18.9	20.8	21.6	18.5	16.4		
MIN					10.8	14.1	17.7	17.6	15.9	11.3		

†No pre- or post-deployment instrument calibration checks in 2012; pre-calibration check in 2011 showed a high bias of about 0.2°C at 22°C.
*Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)



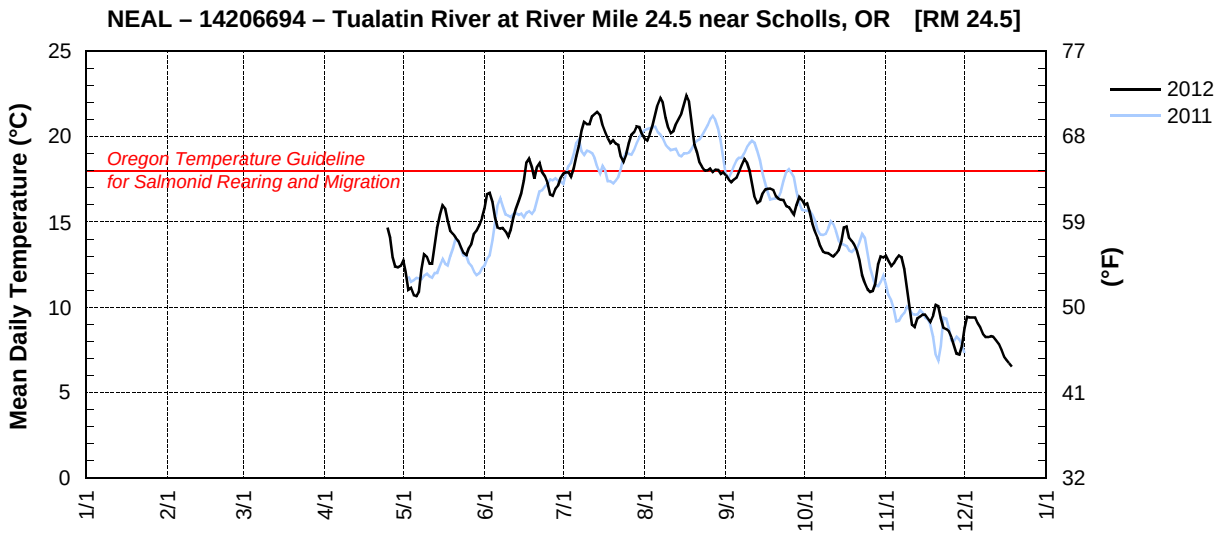
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

STATION NUMBER 14206694 TUALATIN RIVER AT RIVER MILE 24.5, NR SCHOLLS, OR

LATITUDE: 452406 LONGITUDE: 1225338

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR*	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC*
1					12.8	15.8	17.8	19.9	17.8	16.0	13.0	8.7
2					12.1	16.6	17.9	19.8	17.5	16.1	12.7	9.4
3					11.0	16.7	17.9	20.1	17.3	15.6	12.4	9.4
4					11.2	16.2	17.6	20.6	17.5	14.9	12.6	9.4
5					10.7	15.3	18.1	21.2	17.6	14.4	12.8	9.4
6					10.6	14.7	18.8	21.9	18.0	14.1	13.0	9.1
7					10.9	14.6	19.5	22.3	18.3	13.6	13.0	8.8
8					12.2	14.6	20.3	22.0	18.7	13.3	12.3	8.5
9					13.1	14.5	20.9	21.1	18.5	13.2	11.1	8.3
10					13.0	14.2	20.7	20.5	18.1	13.2	10.0	8.3
11					12.6	14.5	20.7	20.2	17.3	13.1	9.0	8.3
12					12.5	15.2	21.2	20.3	16.5	13.0	8.8	8.3
13					13.6	15.8	21.3	20.7	16.1	13.1	9.3	8.1
14					14.6	16.3	21.5	21.1	16.2	13.4	9.5	7.9
15					15.4	16.7	21.3	21.3	16.7	13.8	9.6	7.5
16					16.0	17.4	20.7	21.9	16.9	14.7	9.6	7.1
17					15.8	18.5	20.3	22.4	16.9	14.7	9.4	6.9
18					15.1	18.7	19.9	22.1	17.0	14.1	9.2	6.7
19					14.5	18.2	19.6	20.7	16.9	13.9	9.5	6.5
20					14.3	17.5	19.8	19.6	16.5	13.7	10.1	
21					14.1	18.2	19.6	19.1	16.4	13.3	10.1	
22					13.9	18.5	19.5	18.5	16.3	12.8	9.4	
23					13.5	17.9	18.8	18.2	16.3	11.9	8.8	
24					13.2	17.7	18.5	18.0	15.9	11.4	8.7	
25				14.7	13.1	17.3	19.0	18.0	15.9	11.0	8.6	
26				14.1	13.5	16.6	19.6	18.1	15.7	10.9	8.2	
27				12.9	13.7	16.5	20.1	17.9	15.4	11.0	7.8	
28				12.4	14.3	16.9	20.3	18.1	16.0	11.4	7.3	
29				12.4	14.5	17.1	20.6	18.0	16.5	12.5	7.2	
30		—		12.4	14.8	17.6	20.6	17.8	16.3	13.0	7.7	
31		—		—	15.2	—	20.2	17.9	—	12.9	—	
MEAN					13.4	16.5	19.8	20.0	16.9	13.4	10.0	
MAX					16.0	18.7	21.5	22.4	18.7	16.1	13.0	
MIN					10.6	14.2	17.6	17.8	15.4	10.9	7.2	

* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)



ELSN – 14206600 – TUALATIN RIVER AT ROY ROGERS ROAD (ELSNER) NEAR SHERWOOD, OREGON [RM 16.2]

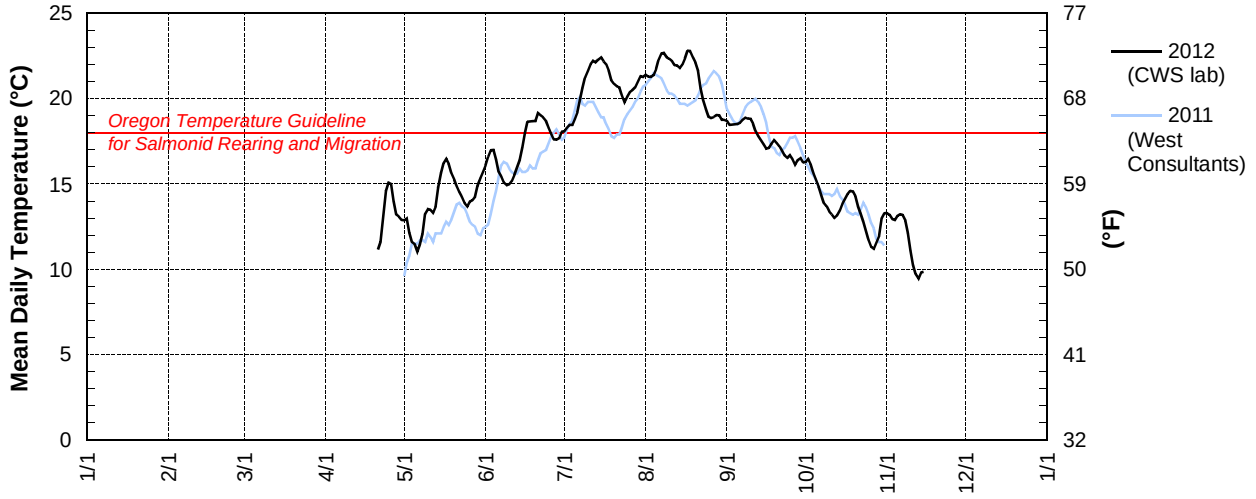
Latitude: 45 23 17 Longitude: 122 51 03 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius†											
	JAN	FEB	MAR	APR*	MAY	JUN	JUL	AUG	SEP	OCT	NOV*	DEC
1					12.9	16.1	18.1	21.4	18.7	16.3	13.3	
2					13.0	16.6	18.3	21.3	18.4	16.5	13.2	
3					12.1	17.0	18.5	21.3	18.5	16.1	12.9	
4					11.6	17.0	18.5	21.4	18.5	15.6	12.9	
5					11.5	16.4	18.8	21.7	18.5	15.2	13.1	
6					11.1	15.7	19.2	22.3	18.6	14.8	13.2	
7					11.5	15.4	19.9	22.6	18.8	14.3	13.2	
8					12.1	15.1	20.6	22.7	18.9	13.9	12.9	
9					13.2	14.9	21.2	22.4	18.8	13.7	12.1	
10					13.5	15.0	21.6	22.3	18.8	13.4	11.1	
11					13.5	15.2	22.0	22.2	18.5	13.2	10.2	
12					13.3	15.5	22.2	22.0	18.1	13.0	9.7	
13					13.7	15.9	22.1	21.9	17.8	13.2	9.4	
14					14.8	16.4	22.3	21.8	17.5	13.5	9.8	
15					15.7	17.1	22.4	22.0	17.3	13.8	9.8	
16					16.2	18.0	22.2	22.4	17.1	14.1		
17					16.5	18.6	22.0	22.8	17.1	14.4		
18					16.2	18.7	21.6	22.8	17.3	14.6		
19					15.6	18.7	21.1	22.4	17.6	14.6		
20					15.3	18.7	20.9	22.1	17.4	14.3		
21					14.9	19.1	20.7	21.6	17.2	13.7		
22					14.5	19.0	20.7	20.6	17.0	13.3		
23					14.2	18.9	20.2	19.9	16.7	12.8		
24					13.9	18.7	19.8	19.4	16.5	12.3		
25					13.7	18.3	20.1	18.9	16.7	11.7		
26				15.0	14.0	17.9	20.4	18.9	16.4	11.3		
27				14.0	14.1	17.6	20.5	18.9	16.1	11.2		
28				13.2	14.2	17.6	20.7	19.0	16.4	11.6		
29		—		13.1	14.9	17.7	21.0	19.0	16.5	12.0		
30		—		12.9	15.4	18.1	21.3	18.8	16.3	13.0		
31		—		—	15.7	—	21.3	18.8	—	13.3	—	
MEAN					14.0	17.2	20.7	21.2	17.6	13.7		
MAX					16.5	19.1	22.4	22.8	18.9	16.5		
MIN					11.1	14.9	18.1	18.8	16.1	11.2		

†Pre-deployment calibration check showed high bias of about 0.5°C at 22°C; no post-deployment check in 2012

*Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)

ELSN – 14206600 – Tualatin River at Roy Rogers Road (Elsner) near Sherwood, Oregon [RM 16.2]



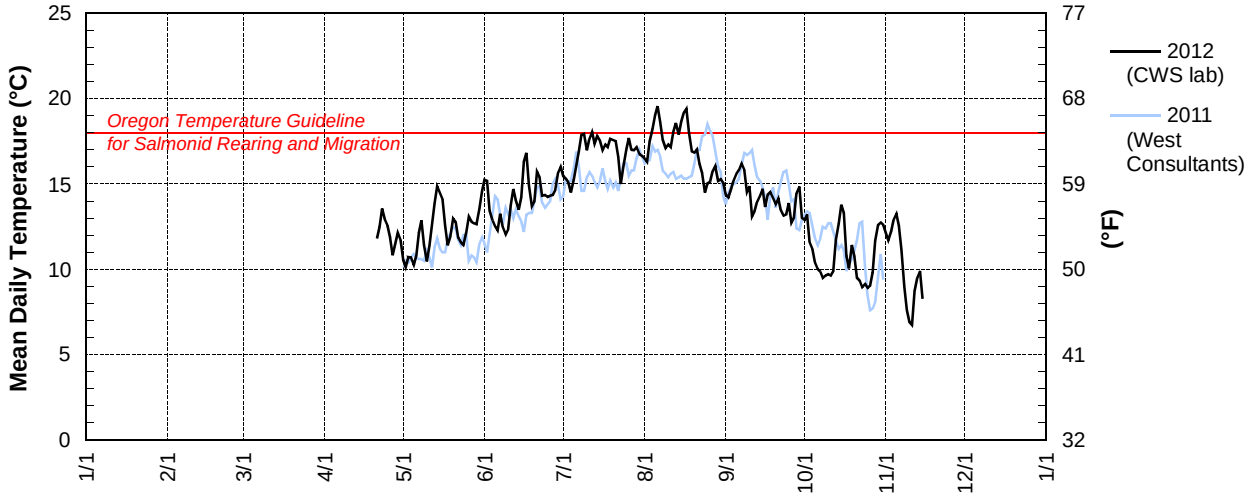
CCKR – CHICKEN CREEK AT KRUGER ROAD [RM 4.5]

Latitude: 45 22 05 Longitude: 122 51 22 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius†											
	JAN	FEB	MAR	APR*	MAY	JUN	JUL	AUG	SEP	OCT	NOV*	DEC
1					10.6	15.2	15.5	16.5	14.4	12.9	12.1	
2					10.1	15.2	15.3	16.3	14.2	13.2	11.7	
3					10.7	13.4	15.1	17.5	14.7	11.6	12.2	
4					10.7	12.9	14.5	18.2	15.2	11.2	12.9	
5					10.2	12.5	15.2	19.0	15.6	10.4	13.3	
6					10.8	12.3	16.1	19.6	15.8	10.0	12.6	
7					12.1	13.3	16.9	18.6	16.2	9.9	11.1	
8					12.9	12.5	17.9	17.6	15.8	9.5	9.0	
9					11.4	12.0	18.0	17.1	14.5	9.6	7.6	
10					10.5	12.4	17.0	17.3	14.9	9.7	6.9	
11					11.4	13.8	17.7	17.2	13.1	9.6	6.7	
12					12.7	14.7	18.1	18.0	13.4	9.9	8.7	
13					13.9	14.0	17.4	18.6	14.0	11.7	9.6	
14					14.9	13.5	17.8	17.9	14.3	12.7	9.9	
15					14.4	14.2	17.5	18.7	14.7	13.8	8.3	
16					14.1	16.3	17.0	19.2	13.7	13.3		
17					12.6	16.8	17.3	19.4	14.4	10.8		
18					11.4	14.9	17.2	18.0	14.5	10.1		
19					11.9	13.7	17.7	16.9	14.1	11.4		
20					13.0	14.0	17.6	16.8	13.8	10.7		
21					12.8	15.7	17.5	17.0	14.2	9.5		
22					11.8	15.4	16.6	16.2	13.4	9.3		
23					11.6	14.3	15.0	15.6	13.1	8.9		
24					11.4	14.4	16.0	14.5	13.2	9.1		
25					12.2	14.2	17.0	15.0	13.9	8.9		
26				11.8	13.1	14.3	17.7	15.1	12.7	9.0		
27				10.8	12.8	14.3	17.0	15.8	13.0	9.8		
28				11.5	12.7	14.7	17.0	16.1	14.5	11.7		
29		—		12.1	12.6	15.7	17.2	15.2	14.9	12.6		
30		—		11.7	13.5	16.0	16.8	15.3	13.0	12.7		
31		—		—	14.5	—	16.7	15.1	—	12.6	—	
MEAN					12.2	14.2	16.8	17.1	14.2	10.8		
MAX					14.9	16.8	18.1	19.6	16.2	13.8		
MIN					10.1	12.0	14.5	14.5	12.7	8.9		

†No pre- or post-deployment instrument calibration checks in 2012; pre-calibration check in 2011 within 0.2°C at 0°C and at 22°C.
*Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)

CCKR – Chicken Creek at Kruger Road [RM 4.5]

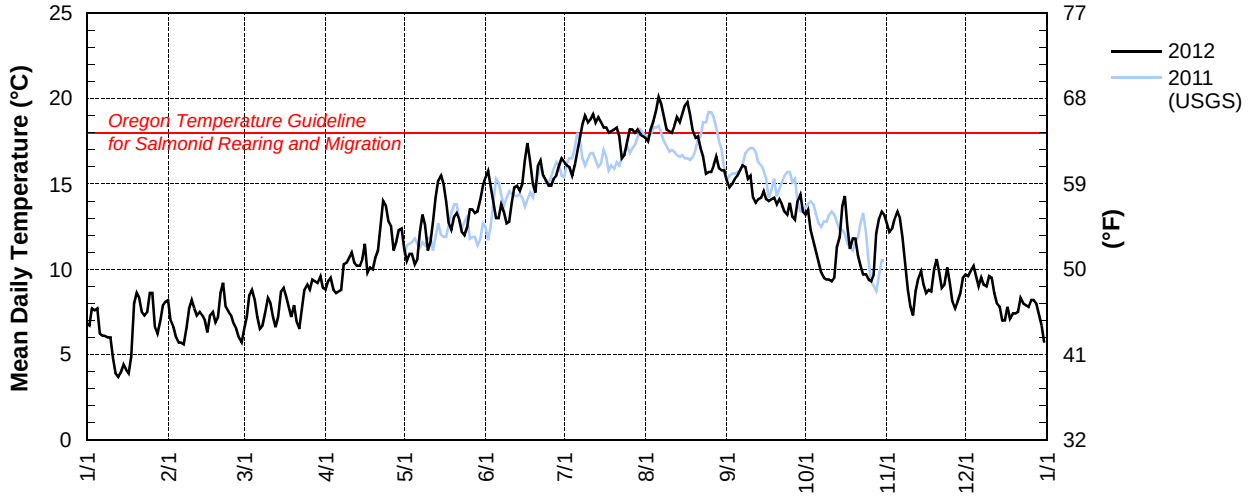


CCSR – 14206750* – CHICKEN CREEK AT ROY ROGERS ROAD NEAR SHERWOOD, OREGON [RM 2.3]

Latitude: 45 22 30 Longitude: 122 51 22 Source Agency: WEST Consultants for Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.8	8.2	6.5	8.8	11.2	15.4	16.3	17.7	15.2	13.2	12.7	9.7
2	6.7	7.0	7.2	9.3	10.5	15.8	16.1	17.5	14.8	13.5	12.2	9.6
3	7.7	6.6	8.5	9.5	10.9	14.9	16.0	18.2	15.0	12.3	12.4	9.9
4	7.6	6.0	8.8	8.8	10.9	13.9	15.5	18.7	15.3	11.6	13.0	10.2
5	7.7	5.7	8.2	8.6	10.3	13.0	16.1	19.3	15.5	11.0	13.4	9.6
6	6.2	5.7	7.2	8.7	10.6	13.0	16.9	20.1	15.8	10.4	13.0	9.0
7	6.1	5.6	6.5	8.8	12.2	13.8	17.7	19.7	16.1	9.8	11.9	9.5
8	6.1	6.6	6.7	10.3	13.2	13.4	18.5	19.0	16.0	9.5	10.3	9.1
9	6.0	7.7	7.4	10.4	12.6	12.7	19.0	18.2	15.3	9.4	8.8	9.0
10	6.0	8.2	8.3	10.7	11.1	12.8	18.6	18.1	15.5	9.4	7.8	9.6
11	4.8	7.7	8.0	11.0	11.6	13.9	18.8	18.0	14.2	9.3	7.3	9.5
12	3.9	7.3	7.2	10.4	12.8	14.8	19.1	18.4	13.9	9.5	8.7	8.6
13	3.7	7.5	6.6	10.2	14.2	14.9	18.6	18.9	14.1	11.3	9.5	8.0
14	4.0	7.3	7.2	10.2	15.2	14.6	18.9	18.6	14.2	11.9	9.9	7.8
15	4.4	7.0	8.7	10.6	15.5	15.0	18.6	19.1	14.6	13.7	9.1	7.0
16	4.1	6.3	8.9	11.5	15.0	16.4	18.3	19.6	14.1	14.3	8.6	7.0
17	3.9	7.3	8.4	9.8	14.0	17.4	18.3	19.8	14.0	12.5	8.8	7.8
18	4.9	7.5	7.8	10.1	12.7	16.4	18.0	19.1	14.1	11.2	8.7	7.1
19	8.0	6.9	7.2	10.0	12.3	15.0	18.1	18.1	14.2	11.8	10.0	7.4
20	8.6	7.2	7.9	10.7	13.1	14.5	18.2	17.7	13.8	11.8	10.6	7.4
21	8.3	8.6	6.9	11.1	13.3	16.1	18.3	17.8	14.1	10.8	9.8	7.5
22	7.5	9.2	6.5	12.6	12.9	16.4	17.8	17.1	13.8	10.2	8.9	8.3
23	7.3	7.8	7.6	14.0	12.2	15.5	16.5	16.6	13.4	9.7	9.1	8.0
24	7.5	7.5	8.8	13.7	12.0	15.2	16.7	15.6	13.2	9.7	10.1	7.9
25	8.6	7.3	9.1	12.8	12.5	14.9	17.5	15.7	13.9	9.4	9.2	7.8
26	8.6	6.8	8.8	12.5	13.5	14.9	18.2	15.7	13.1	9.3	8.1	8.2
27	6.6	6.5	9.4	11.1	13.5	15.3	18.2	16.1	12.9	9.7	7.7	8.2
28	6.2	6.0	9.3	11.6	13.3	15.5	18.0	16.6	14.0	12.1	8.1	8.0
29	7.0	5.7	9.2	12.3	13.4	16.1	18.2	15.9	14.4	13.0	8.6	7.3
30	7.9	—	9.6	12.4	14.1	16.5	17.9	15.8	13.4	13.4	9.5	6.7
31	8.1	—	8.9	—	14.9	—	17.8	15.8	—	13.2	—	5.7
MEAN	6.5	7.1	8.0	10.8	12.8	14.9	17.8	17.8	14.4	11.2	9.9	8.3
MAX	8.6	9.2	9.6	14.0	15.5	17.4	19.1	20.1	16.1	14.3	13.4	10.2
MIN	3.7	5.6	6.5	8.6	10.3	12.7	15.5	15.6	12.9	9.3	7.3	5.7

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

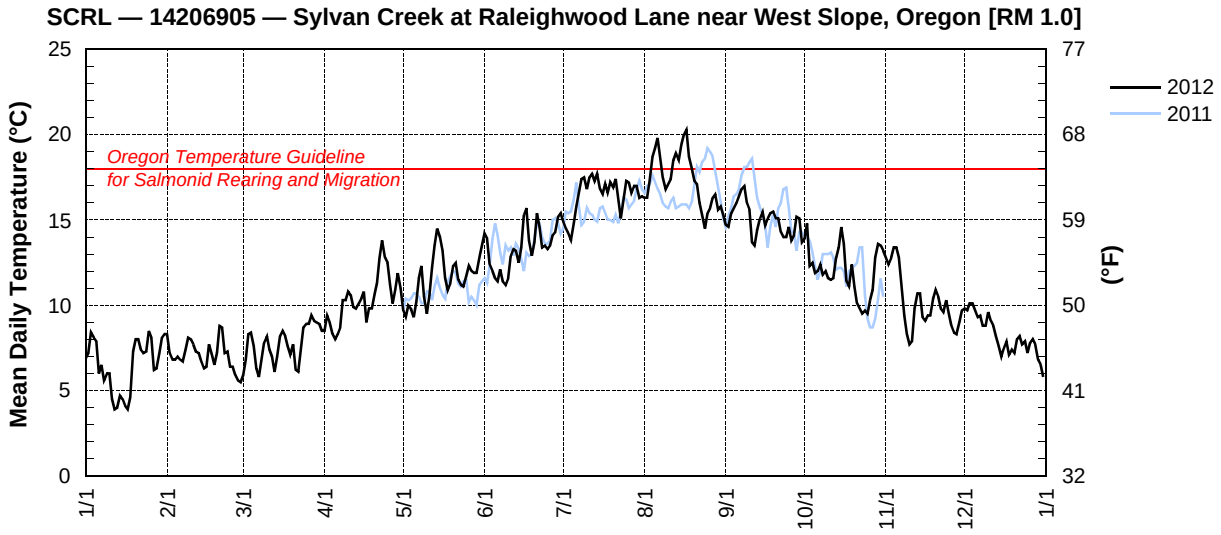


*OWRD #14206750 is equivalent to USGS #452230122512201.

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

Latitude: 45 27 27 Longitude: 122 47 49 Source Agency: WEST Consultants for Clean Water Services

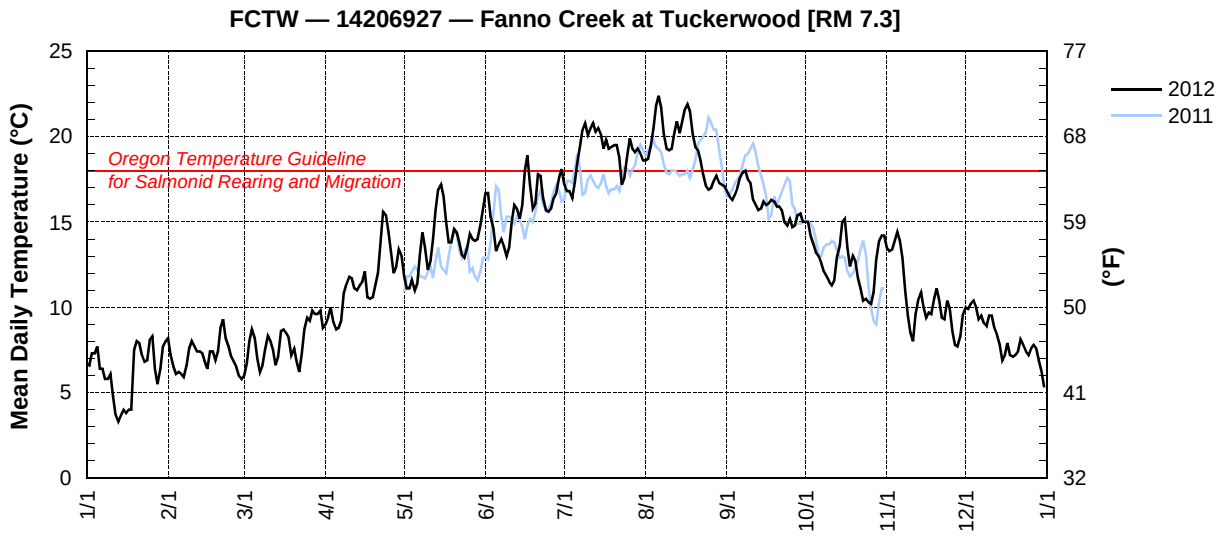
Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.9	8.3	5.9	8.5	9.7	14.2	14.9	16.3	14.7	13.9	12.8	9.8
2	7.2	7.2	6.8	9.4	9.3	13.9	14.5	16.3	14.6	14.8	12.4	9.7
3	8.4	6.8	8.3	9.0	10.0	12.4	14.2	17.3	15.4	12.3	12.8	10.1
4	8.1	6.8	8.4	8.3	9.8	12.0	13.8	18.7	15.7	12.5	13.4	10.1
5	7.9	7.0	7.6	8.0	9.3	11.6	14.8	19.2	16.0	11.9	13.4	9.7
6	6.0	6.8	6.3	8.3	10.2	11.4	15.8	19.8	16.4	12.0	12.8	9.3
7	6.5	6.7	5.8	8.7	11.6	12.1	16.6	18.7	16.8	12.4	11.3	9.4
8	5.6	7.4	6.8	10.3	12.3	11.4	17.4	17.5	17.0	11.8	9.4	8.8
9	6.0	8.1	7.8	10.3	10.5	11.2	17.5	16.8	16.0	12.0	8.3	8.8
10	6.0	8.0	8.2	10.8	9.5	11.6	16.8	17.1	15.6	11.6	7.7	9.6
11	4.5	7.7	7.4	10.6	10.6	12.9	17.5	17.4	13.7	11.5	7.9	9.1
12	3.9	7.3	7.0	9.9	12.2	13.3	17.7	18.5	13.5	11.6	9.8	8.8
13	4.0	7.2	6.1	9.8	13.5	13.2	17.3	18.9	14.4	12.7	10.7	8.2
14	4.7	6.7	7.0	10.1	14.5	12.5	17.7	18.5	15.1	13.4	10.7	7.6
15	4.5	6.3	8.2	10.4	14.0	13.4	16.8	19.4	15.5	14.6	9.3	7.0
16	4.1	6.4	8.5	10.8	13.2	15.3	16.5	20.0	14.7	13.6	9.1	7.5
17	3.9	7.7	8.2	9.0	11.6	15.7	17.1	20.3	15.1	11.4	9.4	7.9
18	4.6	7.1	7.6	9.8	10.9	13.8	16.6	18.7	15.4	11.1	9.4	7.1
19	7.3	6.5	7.1	9.8	11.3	12.9	17.2	18.0	15.5	12.4	10.4	7.4
20	8.0	7.2	7.7	10.6	12.3	13.7	16.9	17.3	15.1	11.1	10.9	7.2
21	8.0	8.8	6.2	11.3	12.5	15.4	17.4	17.1	15.1	10.1	10.5	8.0
22	7.4	8.7	6.1	12.8	11.5	14.6	16.2	16.0	14.3	9.8	9.8	8.2
23	7.2	7.2	7.4	13.8	11.2	13.4	15.1	15.3	14.0	9.5	9.6	7.7
24	7.3	7.3	8.7	12.8	11.1	13.5	16.1	14.5	14.0	9.7	10.3	7.9
25	8.5	6.4	8.9	12.5	11.7	13.3	17.3	15.4	14.6	9.5	9.5	7.2
26	8.1	6.4	8.9	11.2	12.3	13.5	17.2	15.7	13.8	10.3	8.8	7.8
27	6.2	5.9	9.4	10.1	12.0	14.1	16.6	16.3	14.1	10.9	8.4	8.0
28	6.3	5.6	9.1	10.9	11.9	14.3	17.0	16.5	15.2	12.8	8.3	7.7
29	7.2	5.5	9.0	11.9	11.9	15.2	17.0	15.6	15.1	13.6	9.0	6.8
30	8.1	—	8.9	11.0	12.8	15.4	16.3	15.8	13.7	13.5	9.7	6.5
31	8.3	—	8.5	—	13.5	—	16.4	15.3	—	13.2	—	5.8
MEAN	6.5	7.1	7.7	10.4	11.6	13.4	16.5	17.4	15.0	12.0	10.2	8.2
MAX	8.5	8.8	9.4	13.8	14.5	15.7	17.7	20.3	17.0	14.8	13.4	10.1
MIN	3.9	5.5	5.8	8.0	9.3	11.2	13.8	14.5	13.5	9.5	7.7	5.8



FCTW – 14206927 – FANNO CREEK AT TUCKERWOOD [RM 7.3]

Latitude: 45 27 27 Longitude: 122 47 49 Source Agency: WEST Consultants for Clean Water Services

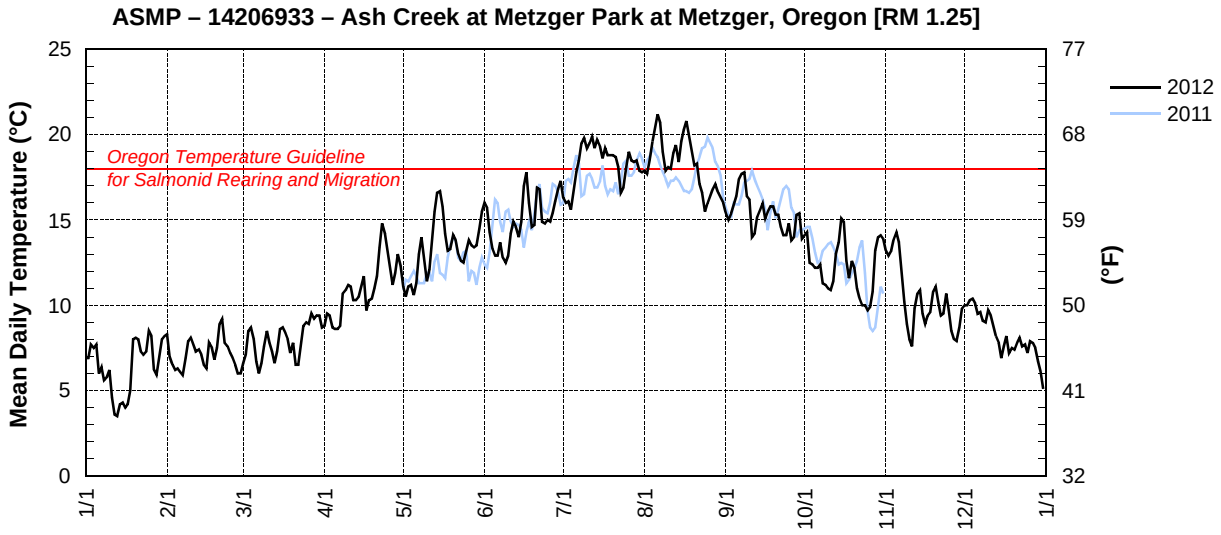
Day	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.7	8.2	6.0	9.0	11.8	16.7	17.2	18.6	16.8	15.0	13.5	10.0
2	6.6	7.2	6.7	9.4	11.1	16.7	16.8	18.7	16.5	15.0	13.3	9.9
3	7.3	6.5	8.0	10.0	11.1	15.3	16.8	19.4	16.3	14.2	13.4	10.2
4	7.3	6.1	8.7	9.1	11.6	14.6	16.4	20.5	16.6	13.7	13.9	10.4
5	7.7	6.2	8.2	8.7	11.0	13.3	17.3	21.8	17.0	13.2	14.4	10.0
6	6.4	6.1	7.0	8.8	11.4	13.7	18.5	22.4	17.6	13.0	13.9	9.3
7	6.4	5.9	6.2	9.2	13.1	14.0	19.4	21.7	17.9	12.6	12.9	9.5
8	5.8	6.6	6.6	10.8	14.4	13.6	20.4	20.2	18.0	12.1	10.9	9.1
9	5.8	7.6	7.5	11.4	13.5	13.0	20.8	19.3	17.5	11.8	9.5	8.9
10	6.1	8.0	8.3	11.8	12.2	13.5	20.1	19.2	17.3	11.5	8.5	9.5
11	4.8	7.7	8.0	11.7	12.7	15.0	20.5	19.3	16.3	11.3	8.0	9.5
12	3.7	7.4	7.5	11.1	14.0	16.0	20.8	20.2	16.0	11.6	9.6	8.8
13	3.3	7.4	6.6	11.0	15.7	15.8	20.3	20.9	15.7	12.9	10.5	8.4
14	3.7	7.3	7.1	11.3	16.9	15.2	20.5	20.2	15.8	13.6	10.9	7.8
15	4.0	6.8	8.6	11.5	17.2	16.0	20.1	20.9	16.2	15.0	10.0	6.9
16	3.8	6.4	8.7	12.1	16.5	18.0	19.3	21.6	16.0	15.2	9.4	7.2
17	4.0	7.4	8.5	10.6	15.0	18.9	19.8	21.9	16.1	13.5	9.7	7.9
18	4.0	7.4	8.2	10.5	13.8	17.2	19.3	21.5	16.3	12.4	9.6	7.2
19	7.5	6.9	7.2	10.6	13.8	15.8	19.4	20.1	16.2	13.0	10.5	7.1
20	8.0	7.4	7.6	11.3	14.6	16.1	19.5	19.4	15.9	12.7	11.1	7.2
21	7.9	8.8	6.8	12.0	14.4	17.8	19.5	19.2	15.9	11.7	10.4	7.4
22	7.2	9.3	6.2	14.0	13.8	17.7	18.8	18.6	15.7	11.1	9.4	8.1
23	6.8	8.2	7.3	15.6	13.1	16.4	17.2	17.8	15.0	10.4	9.3	7.8
24	6.9	7.7	8.7	15.4	12.9	15.7	17.6	17.1	14.8	10.5	10.4	7.4
25	8.1	7.1	9.4	14.4	13.5	15.6	18.9	16.9	15.2	10.3	9.9	7.2
26	8.3	6.8	9.2	13.2	14.3	15.8	19.9	17.0	14.7	10.2	8.6	7.6
27	6.4	6.5	9.8	12.0	14.0	16.4	19.3	17.4	14.8	10.9	7.8	7.8
28	5.5	6.0	9.6	12.4	13.9	16.7	19.1	17.7	15.4	12.8	7.7	7.6
29	6.4	5.8	9.6	13.4	14.0	17.6	19.3	17.3	15.5	13.9	8.3	6.8
30	7.7	—	9.8	13.0	14.8	18.1	19.0	17.2	15.0	14.2	9.6	6.2
31	8.0	—	8.8	—	15.7	—	18.6	17.1	—	14.2	—	5.3
MEAN	6.2	7.1	7.9	11.5	13.7	15.9	19.0	19.4	16.1	12.7	10.5	8.2
MAX	8.3	9.3	9.8	15.6	17.2	18.9	20.8	22.4	18.0	15.2	14.4	10.4
MIN	3.3	5.8	6.0	8.7	11.0	13.0	16.4	16.9	14.7	10.2	7.7	5.3



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	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.9	8.3	6.6	8.8	11.1	16.0	16.3	17.9	15.4	14.1	13.2	10.0
2	6.9	7.0	7.1	9.5	10.5	15.7	16.0	17.7	15.0	14.3	12.9	10.0
3	7.7	6.5	8.5	9.4	11.1	14.3	16.1	18.5	15.4	12.5	13.2	10.3
4	7.5	6.2	8.7	8.7	11.2	13.3	15.6	19.6	15.9	12.4	13.9	10.4
5	7.7	6.3	8.0	8.6	10.6	12.9	16.8	20.4	16.4	12.2	14.3	10.1
6	6.0	6.1	6.7	8.6	11.3	12.9	17.8	21.2	17.4	12.2	13.7	9.5
7	6.4	5.9	6.0	8.8	13.0	13.7	18.5	20.7	17.7	12.4	12.2	9.6
8	5.6	6.9	6.6	10.7	14.0	12.8	19.5	19.0	17.8	11.3	10.2	9.1
9	5.8	7.9	7.6	10.9	12.8	12.5	19.8	17.9	16.4	11.2	8.9	9.0
10	6.2	8.1	8.5	11.2	11.4	12.9	19.2	18.1	16.2	11.0	8.0	9.7
11	4.6	7.7	7.8	11.1	12.1	14.2	19.5	18.0	14.0	10.9	7.6	9.4
12	3.6	7.3	7.3	10.3	13.7	14.9	19.9	18.9	14.2	11.4	9.8	8.8
13	3.5	7.4	6.6	10.3	15.5	14.6	19.2	19.4	15.2	13.0	10.7	8.2
14	4.2	7.1	7.3	10.5	16.6	14.0	19.7	18.4	15.6	13.7	10.9	7.8
15	4.3	6.5	8.6	11.1	16.7	14.9	19.3	19.6	16.0	15.1	9.5	6.9
16	4.0	6.3	8.7	11.7	15.8	17.0	18.6	20.3	15.1	14.9	8.9	7.6
17	4.2	7.8	8.4	9.7	14.2	17.8	19.2	20.8	15.5	12.6	9.4	8.2
18	5.0	7.5	8.0	10.3	13.2	16.0	18.8	20.0	15.8	11.6	9.6	7.2
19	8.0	6.8	7.2	10.4	13.3	14.6	18.8	19.0	15.8	12.6	10.8	7.5
20	8.1	7.5	7.8	11.0	14.1	14.7	18.8	18.2	15.3	12.2	11.1	7.4
21	8.0	8.9	6.5	11.7	13.8	16.9	18.7	18.3	15.3	11.0	10.2	7.8
22	7.3	9.2	6.5	13.4	13.0	16.8	18.1	17.1	14.6	10.4	9.4	8.1
23	7.1	7.8	7.7	14.8	12.6	14.9	16.6	16.6	14.1	10.0	9.5	7.6
24	7.3	7.6	8.8	14.2	12.5	14.8	16.9	15.5	14.1	10.0	10.7	7.7
25	8.5	7.2	9.0	13.3	13.2	15.0	18.1	16.0	14.8	9.7	9.7	7.2
26	8.2	6.9	8.9	12.3	13.8	14.9	19.0	16.4	13.8	9.9	8.5	7.9
27	6.2	6.5	9.5	11.2	13.5	15.4	18.5	16.8	14.0	10.8	8.0	7.8
28	5.9	6.0	9.2	11.9	13.4	16.1	18.4	17.1	15.3	13.2	7.9	7.5
29	7.0	6.0	9.4	13.0	13.5	16.8	18.5	16.6	15.4	14.0	8.7	6.7
30	8.0	—	9.4	12.3	14.5	17.3	17.9	16.3	13.9	14.1	9.8	6.1
31	8.2	—	8.7	—	15.5	—	17.8	16.0	—	13.9	—	5.1
MEAN	6.4	7.1	7.9	11.0	13.3	15.0	18.3	18.3	15.4	12.2	10.4	8.3
MAX	8.5	9.2	9.5	14.8	16.7	17.8	19.9	21.2	17.8	15.1	14.3	10.4
MIN	3.5	5.9	6.0	8.6	10.5	12.5	15.6	15.5	13.8	9.7	7.6	5.1



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

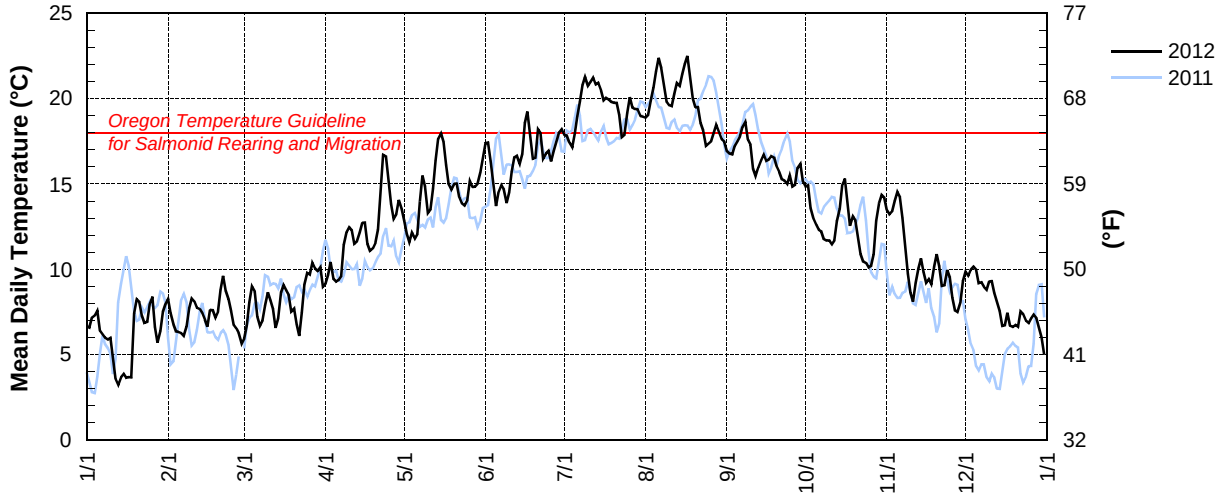
STATION NUMBER 14206950 FANNO CREEK AT DURHAM, OR

LATITUDE: 452413 LONGITUDE: 1224513

Water Temperature, degrees Celsius, Calendar Year January to December 2012 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.7	8.3	5.9	9.2	12.9	17.4	17.9	18.9	16.9	14.9	13.5	9.9
2	6.6	7.4	6.7	9.6	12.1	17.4	17.8	19.0	16.8	14.9	13.2	9.6
3	7.2	6.8	8.0	10.5	11.6	16.4	17.4	19.8	16.7	13.6	13.4	10.0
4	7.3	6.4	9.0	9.4	12.1	15.0	17.1	20.6	17.2	13.0	14.0	10.2
5	7.6	6.3	8.7	9.3	11.8	13.7	17.9	21.6	17.5	12.6	14.5	10.0
6	6.4	6.3	7.3	9.4	12.0	14.6	19.0	22.4	17.8	12.3	14.2	9.2
7	6.2	6.1	6.7	9.6	13.9	14.9	19.8	21.8	18.3	12.2	13.1	9.3
8	6.0	6.6	7.0	11.4	15.5	14.7	20.8	20.9	18.6	11.8	11.3	9.0
9	5.9	7.7	7.8	12.2	14.9	13.9	21.3	19.8	17.6	11.7	9.8	8.8
10	6.0	8.3	8.6	12.5	13.3	14.5	20.8	19.6	17.3	11.7	8.6	9.3
11	4.8	8.1	8.2	12.3	13.5	15.7	21.0	19.6	15.9	11.5	8.1	9.3
12	3.6	7.7	7.7	11.5	14.7	16.6	21.2	20.3	15.5	11.7	9.2	8.6
13	3.2	7.7	6.6	11.6	16.3	16.7	20.8	20.9	15.9	12.8	10.1	8.1
14	3.7	7.4	7.1	12.2	17.6	16.2	20.9	20.8	16.4	13.5	10.6	7.6
15	3.9	7.1	8.6	12.7	18.0	16.7	20.5	21.4	16.7	15.0	9.8	6.7
16	3.6	6.6	9.1	12.7	17.5	18.5	19.9	22.0	16.4	15.3	9.2	6.7
17	3.7	7.6	8.8	11.5	16.1	19.3	20.0	22.5	16.4	14.0	9.4	7.4
18	3.6	7.6	8.5	11.1	15.0	18.0	20.0	21.4	16.6	12.5	9.1	6.7
19	7.4	7.2	7.5	11.2	14.7	16.5	19.8	20.0	16.6	13.1	10.1	6.6
20	8.2	7.5	7.7	11.6	15.0	16.5	19.8	19.5	16.0	12.9	10.9	6.8
21	8.1	8.8	6.8	12.3	15.0	18.2	19.7	19.5	15.7	11.9	10.2	6.6
22	7.3	9.6	6.1	14.7	14.2	18.0	19.1	18.6	15.3	10.9	9.0	7.5
23	6.9	8.8	7.4	16.7	13.9	16.5	17.8	18.2	15.2	10.5	9.1	7.4
24	6.9	8.3	9.1	16.6	13.7	16.8	17.8	17.2	15.0	10.4	9.9	7.0
25	8.0	7.6	9.8	15.4	14.0	16.9	19.2	17.4	15.5	10.1	9.6	6.9
26	8.4	6.8	9.7	13.9	15.2	16.3	20.1	17.5	14.9	10.2	8.4	7.1
27	6.7	6.6	10.4	13.0	14.8	16.9	19.5	18.0	14.9	10.9	7.6	7.4
28	5.7	6.3	10.1	13.2	14.8	17.5	19.4	18.5	15.9	12.8	7.5	7.2
29	6.3	5.7	9.9	14.1	15.0	18.0	19.4	18.0	16.2	13.9	8.0	6.5
30	7.5	—	10.2	13.6	15.7	18.2	19.0	17.6	15.2	14.3	9.3	6.0
31	8.0	—	9.0	—	16.5	—	18.9	17.5	—	14.2	—	5.0
MEAN	6.2	7.4	8.2	12.3	14.5	16.5	19.5	19.7	16.3	12.6	10.4	7.9
MAX	8.4	9.6	10.4	16.7	18.0	19.3	21.3	22.5	18.6	15.3	14.5	10.2
MIN	3.2	5.7	5.9	9.2	11.6	13.7	17.1	17.2	14.9	10.1	7.5	5.0

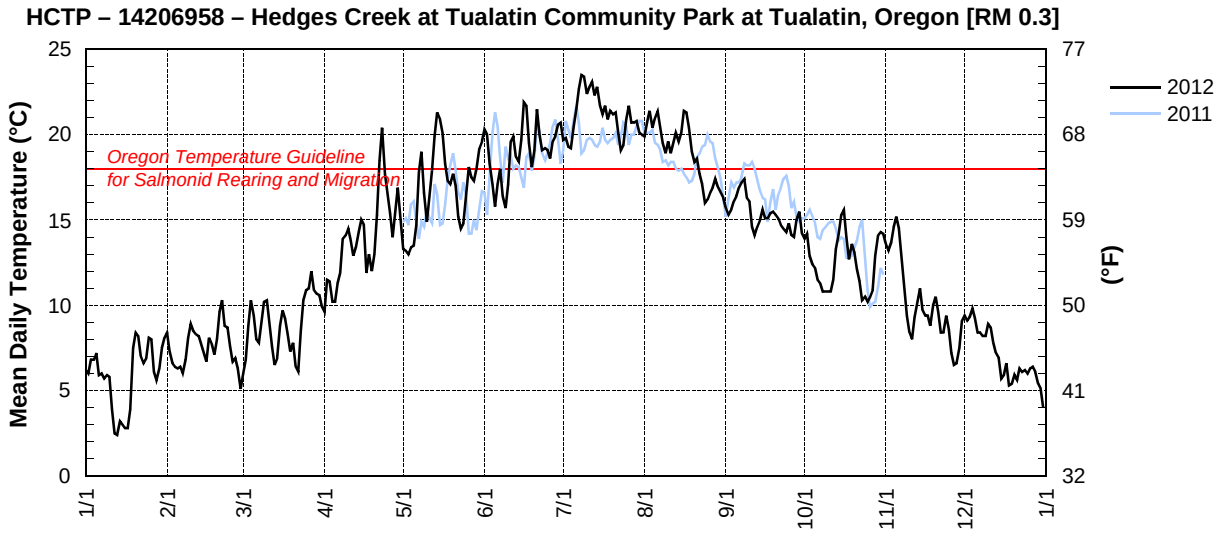
FANO – 14206950 – Fanno Creek at Durham Road near Tigard, Oregon [RM 1.2]



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	2012 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.2	8.4	6.0	9.6	13.3	20.3	19.7	19.9	15.7	13.9	13.6	9.4
2	6.0	7.3	6.8	11.5	13.2	20.0	19.8	20.7	15.3	14.2	13.2	9.1
3	6.8	6.6	8.8	11.4	13.0	18.3	19.3	21.4	15.6	12.9	13.7	9.3
4	6.8	6.4	10.3	10.2	13.4	17.1	19.2	20.4	16.1	12.4	14.6	9.8
5	7.2	6.3	9.4	10.2	13.5	15.8	20.5	21.0	16.4	12.2	15.2	9.2
6	5.9	6.4	8.0	11.3	14.7	17.1	21.5	21.4	16.9	11.5	14.5	8.4
7	6.0	6.0	7.8	11.9	17.8	18.0	22.7	20.5	17.2	11.3	12.9	8.4
8	5.7	6.8	9.0	13.9	19.0	16.4	23.5	19.5	17.4	10.8	11.0	8.2
9	5.9	8.1	10.2	14.1	16.6	15.7	23.4	18.9	16.3	10.8	9.4	8.2
10	5.8	8.9	10.3	14.5	14.9	17.1	22.4	19.6	16.1	10.8	8.4	8.9
11	3.9	8.5	8.9	13.8	16.4	19.6	22.8	18.9	14.6	10.8	8.0	8.7
12	2.5	8.3	7.6	12.9	17.9	19.9	23.1	19.5	14.1	11.5	9.3	7.8
13	2.4	8.2	6.5	13.4	19.9	18.7	22.3	20.1	14.6	13.3	10.2	7.2
14	3.2	7.7	6.9	14.3	21.3	18.4	22.8	19.6	15.0	14.2	11.0	6.9
15	3.0	7.2	8.8	15.0	20.9	19.7	21.7	20.1	15.6	15.3	9.7	5.7
16	2.8	6.7	9.7	14.7	20.1	21.9	21.2	21.4	15.1	15.6	9.4	5.9
17	2.8	8.1	9.2	11.9	18.3	21.7	21.7	21.3	15.1	14.0	9.4	6.6
18	3.9	7.7	8.3	13.0	17.3	19.5	20.9	20.4	15.4	12.7	8.8	5.3
19	7.5	7.1	7.3	12.0	17.1	18.1	21.4	19.0	15.5	13.6	10.0	5.4
20	8.4	8.0	7.8	13.0	17.7	19.1	21.2	18.4	15.3	13.1	10.5	5.9
21	8.2	9.6	6.4	15.3	17.0	21.5	21.3	18.6	15.1	12.1	9.6	5.6
22	7.0	10.3	6.1	18.5	15.2	20.0	20.1	17.7	14.7	11.4	8.4	6.3
23	6.6	8.8	8.5	20.4	14.5	19.1	19.1	17.1	14.5	10.3	8.4	6.1
24	6.9	8.7	10.3	17.7	14.8	19.2	19.4	16.0	14.3	10.5	9.4	6.2
25	8.1	7.6	10.9	16.6	16.5	19.1	20.9	16.2	14.8	10.2	8.6	6.0
26	8.0	6.7	11.0	15.4	18.1	18.6	21.7	16.6	14.1	10.5	7.2	6.3
27	6.1	6.9	12.0	14.0	17.5	19.6	20.7	16.9	14.0	10.9	6.5	6.4
28	5.6	6.3	10.9	15.5	17.3	19.9	20.7	17.4	15.0	12.9	6.6	6.1
29	6.3	5.1	10.7	16.9	18.0	20.6	20.8	16.9	15.5	14.1	7.5	5.4
30	7.5	—	10.6	15.1	19.2	20.7	20.1	16.6	14.2	14.3	9.1	5.1
31	8.1	—	9.9	—	19.6	—	20.0	16.3	—	14.2	—	4.0
MEAN	5.8	7.5	8.9	13.9	16.9	19.0	21.2	19.0	15.3	12.5	10.1	7.0
MAX	8.4	10.3	12.0	20.4	21.3	21.9	23.5	21.4	17.4	15.6	15.2	9.8
MIN	2.4	5.1	6.0	9.6	13.0	15.7	19.1	16.0	14.0	10.2	6.5	4.0



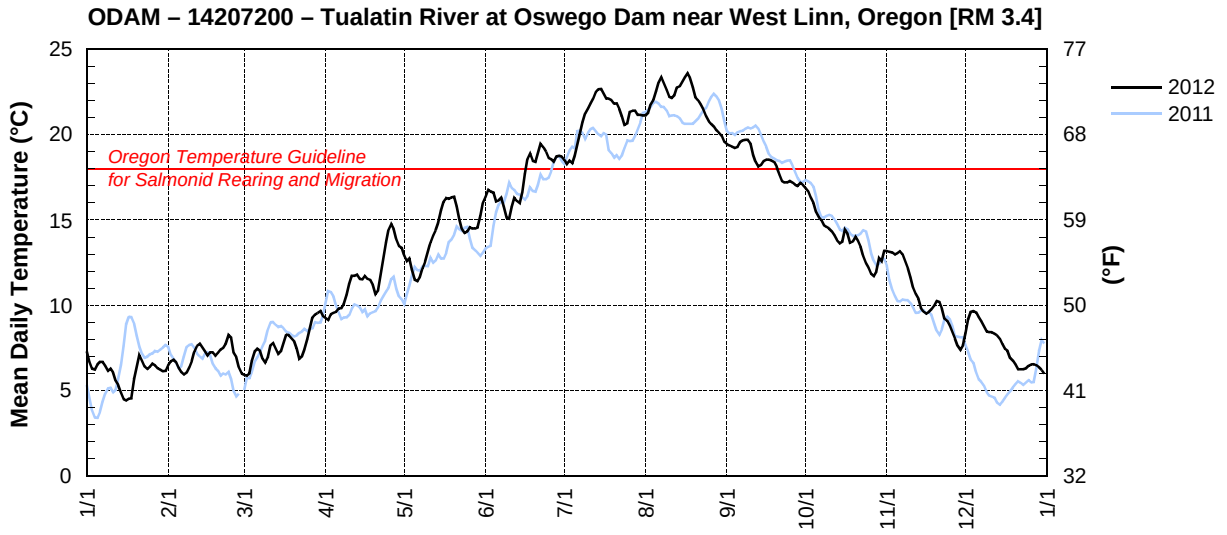
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

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 2012 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7.3	6.5	5.9	9.3	12.9	16.4	18.5	21.1	19.5	16.9	13.2	8.4
2	6.7	6.7	5.9	9.1	12.6	16.8	18.3	21.3	19.4	16.7	13.1	9.2
3	6.3	6.8	6.0	9.5	12.7	16.7	18.5	21.8	19.3	16.3	13.1	9.6
4	6.2	6.7	6.8	9.6	12.1	16.6	18.3	22.1	19.2	16.0	13.0	9.7
5	6.5	6.3	7.3	9.6	11.5	16.1	18.8	22.5	19.3	15.5	13.1	9.6
6	6.7	6.1	7.4	9.8	11.4	16.1	19.4	23.1	19.6	15.2	13.2	9.3
7	6.7	5.9	7.4	9.8	11.7	16.3	20.0	23.4	19.7	15.0	13.0	9.1
8	6.5	6.1	6.9	10.1	12.2	15.8	20.7	23.0	19.7	14.7	12.6	8.8
9	6.1	6.3	6.6	10.6	12.5	15.1	21.2	22.6	19.7	14.6	12.2	8.5
10	6.3	6.7	7.0	11.2	13.2	15.1	21.5	22.2	19.5	14.5	11.6	8.4
11	6.1	7.3	7.6	11.7	13.7	15.8	21.8	22.2	18.8	14.3	11.0	8.4
12	5.6	7.6	7.8	11.7	14.1	16.3	22.1	22.3	18.4	14.1	10.7	8.4
13	5.3	7.8	7.5	11.8	14.4	16.1	22.5	22.8	18.2	13.8	10.4	8.3
14	4.9	7.5	7.2	11.5	14.8	16.0	22.7	22.9	18.2	13.6	9.8	8.1
15	4.5	7.3	7.3	11.5	15.6	16.6	22.7	23.1	18.5	13.7	9.6	7.7
16	4.4	7.1	7.8	11.7	16.1	17.7	22.4	23.4	18.5	14.4	9.5	7.5
17	4.5	7.2	8.3	11.6	16.3	18.6	22.1	23.6	18.5	14.2	9.6	7.3
18	4.5	7.2	8.3	11.5	16.3	18.9	22.1	23.3	18.5	13.7	9.8	6.9
19	5.6	7.1	8.1	11.2	16.3	18.5	22.0	22.8	18.4	13.8	10.0	6.8
20	6.4	7.2	7.9	10.7	16.4	18.4	21.8	22.2	18.1	14.0	10.3	6.5
21	7.1	7.4	7.5	10.8	15.8	18.9	21.8	22.0	17.7	13.8	10.2	6.3
22	6.8	7.5	6.9	11.8	15.1	19.5	21.5	21.8	17.3	13.4	9.8	6.2
23	6.4	7.7	7.0	12.6	14.5	19.3	21.1	21.5	17.2	12.9	9.2	6.2
24	6.3	8.2	7.4	13.7	14.2	19.0	20.6	21.1	17.2	12.5	9.1	6.3
25	6.4	8.1	8.0	14.4	14.3	18.6	20.7	20.8	17.3	12.2	8.8	6.5
26	6.6	7.2	8.7	14.8	14.6	18.6	21.3	20.6	17.2	11.8	8.4	6.5
27	6.5	7.0	9.3	14.5	14.5	18.4	21.4	20.5	17.1	11.7	8.1	6.6
28	6.3	6.4	9.5	13.9	14.5	18.7	21.4	20.3	17.0	12.0	7.6	6.5
29	6.2	6.0	9.6	13.5	14.5	18.8	21.2	20.1	17.2	12.8	7.4	6.4
30	6.1	—	9.7	13.4	15.2	18.7	21.2	20.0	17.0	12.6	7.6	6.2
31	6.2	—	9.4	—	16.0	—	21.1	19.6	—	13.2	—	6.0
MEAN	6.1	7.0	7.7	11.6	14.2	17.4	21.0	21.9	18.4	14.0	10.5	7.6
MAX	7.3	8.2	9.7	14.8	16.4	19.5	22.7	23.6	19.7	16.9	13.2	9.7
MIN	4.4	5.9	5.9	9.1	11.4	15.1	18.3	19.6	17.0	11.7	7.4	6.0



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

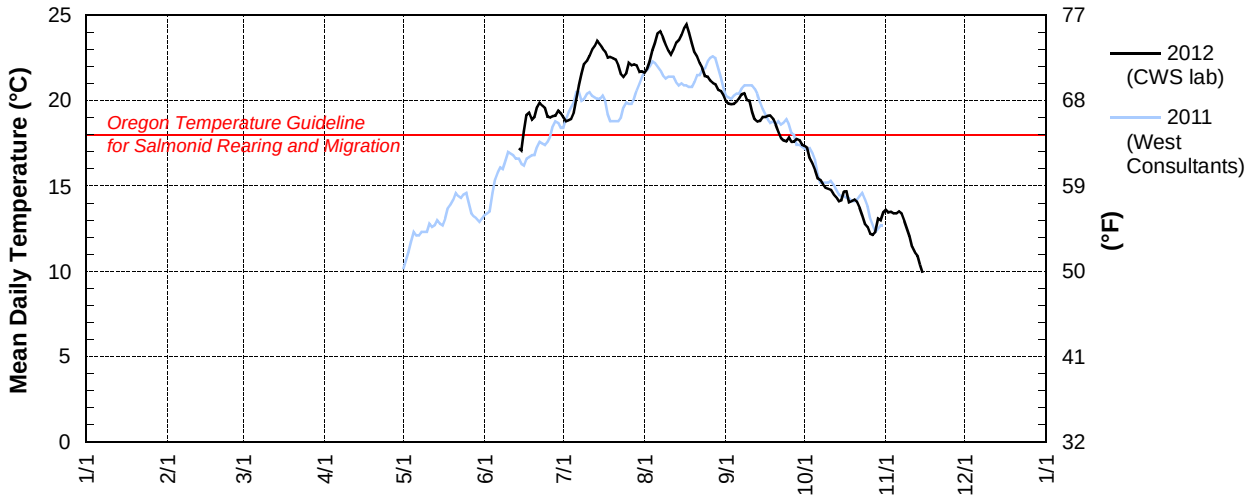
Latitude: 45 22 57 Longitude: 122 43 17 Source Agency: Clean Water Services

Day	2012 Mean Daily Water Temperature in Degrees Celsius*											
	JAN	FEB	MAR	APR	MAY	JUN*	JUL	AUG	SEP	OCT	NOV*	DEC
1							19.0	21.6	20.0	17.3	13.6	
2							18.8	21.9	19.8	17.2	13.4	
3							18.9	22.3	19.8	16.6	13.5	
4							18.9	23.0	19.8	16.3	13.4	
5							19.3	23.4	19.9	15.9	13.4	
6							20.1	23.9	20.1	15.5	13.5	
7							20.9	24.1	20.4	15.4	13.4	
8							21.6	23.7	20.4	15.1	12.9	
9							22.2	23.3	20.0	14.9	12.5	
10							22.3	22.9	20.0	14.8	12.1	
11							22.6	22.7	19.4	14.8	11.4	
12							23.0	23.0	18.9	14.5	11.1	
13							23.2	23.4	18.8	14.4	10.9	
14							23.5	23.5	18.8	14.1	10.4	
15							23.3	23.8	19.0	14.2	9.9	
16							23.0	24.2	19.0	14.7		
17							22.9	24.5	19.1	14.7		
18							22.5	24.0	19.1	14.1		
19						18.9	22.6	23.3	18.9	14.1		
20						19.0	22.5	22.8	18.6	14.2		
21						19.6	22.4	22.6	18.2	14.1		
22						19.9	22.1	22.2	17.8	13.7		
23						19.7	21.6	21.9	17.7	13.3		
24						19.6	21.4	21.4	17.6	12.8		
25						19.1	21.6	21.4	17.8	12.6		
26						19.0	22.2	21.2	17.6	12.2		
27						19.1	22.1	21.0	17.6	12.1		
28						19.1	22.1	21.0	17.8	12.3		
29		—				19.4	22.1	20.6	17.7	13.1		
30		—				19.3	21.7	20.6	17.4	13.0		
31		—		—		—	21.7	20.3	—	13.4	—	
MEAN							21.7	22.6	18.9	14.4		
MAX							23.5	24.5	20.4	17.3		
MIN							18.8	20.3	17.4	12.1		

†No pre- or post-deployment instrument calibration checks in 2012; pre-calibration check in 2011 within 0.2°C at 0°C and at 22°C.

*Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)

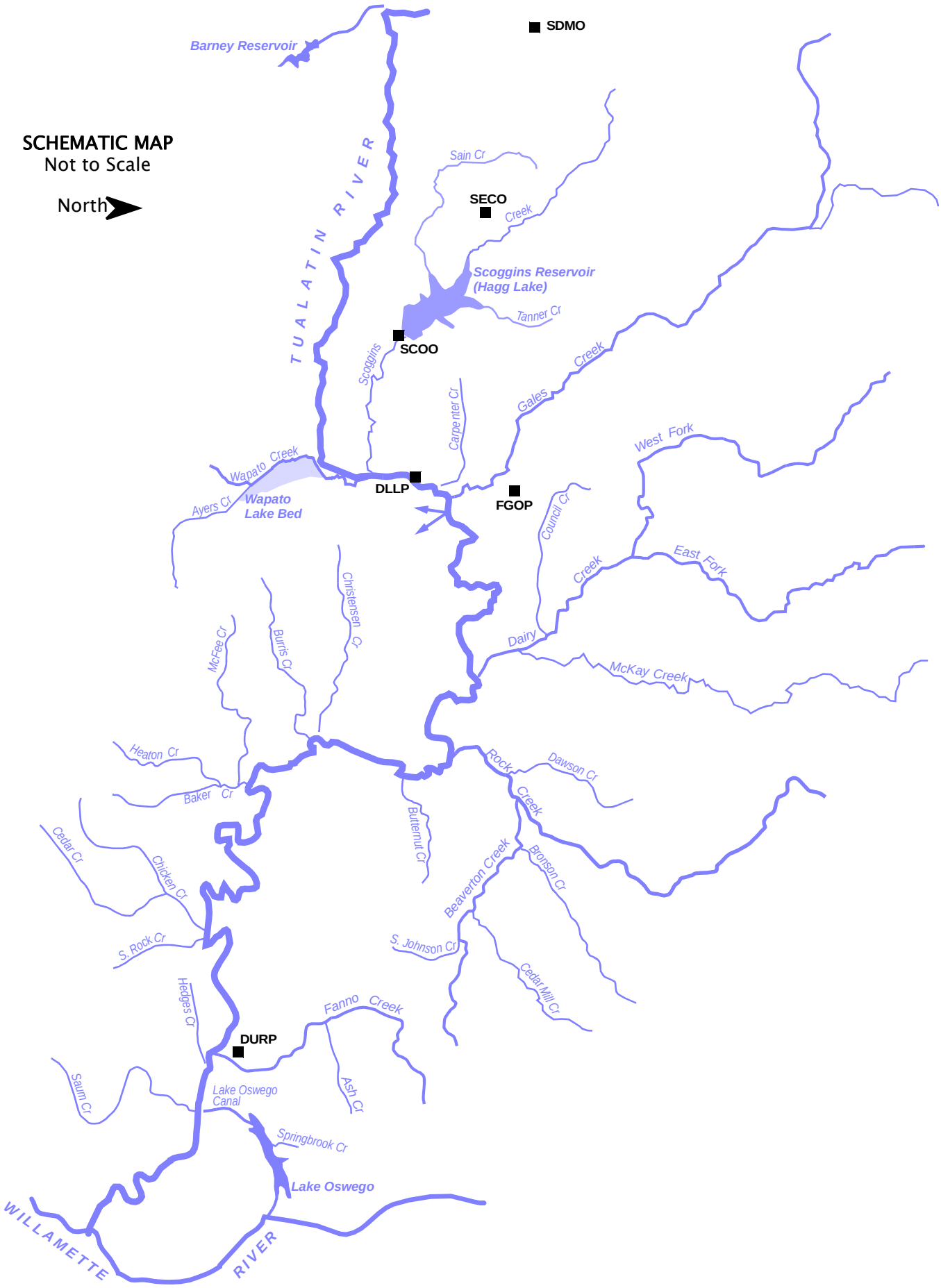
WSLO – 14207500 – Tualatin River at West Linn, Oregon [RM 1.75]



Appendix H

Precipitation Data

PRECIPITATION MONITORING STATIONS — LOCATIONS



PRECIPITATION SITES — ALPHABETICAL LISTING BY SITE CODE

SITE CODE	SITE NAME	Elevation (ft)	PAGE
DLLP	Dilley Precipitation Station	170	H-10
DURP	Durham Wastewater Treatment Plant Precipitation Station	140	H-14
FGOP	Forest Grove Precipitation Station (Verboort)	180	H-12
SCOO	Scoggins Creek below Henry Hagg Lake	215	H-8
SDMO	South Saddle Mountain Precipitation Station	3250	H-4
SECO	Sain Creek Precipitation Station	2000	H-6

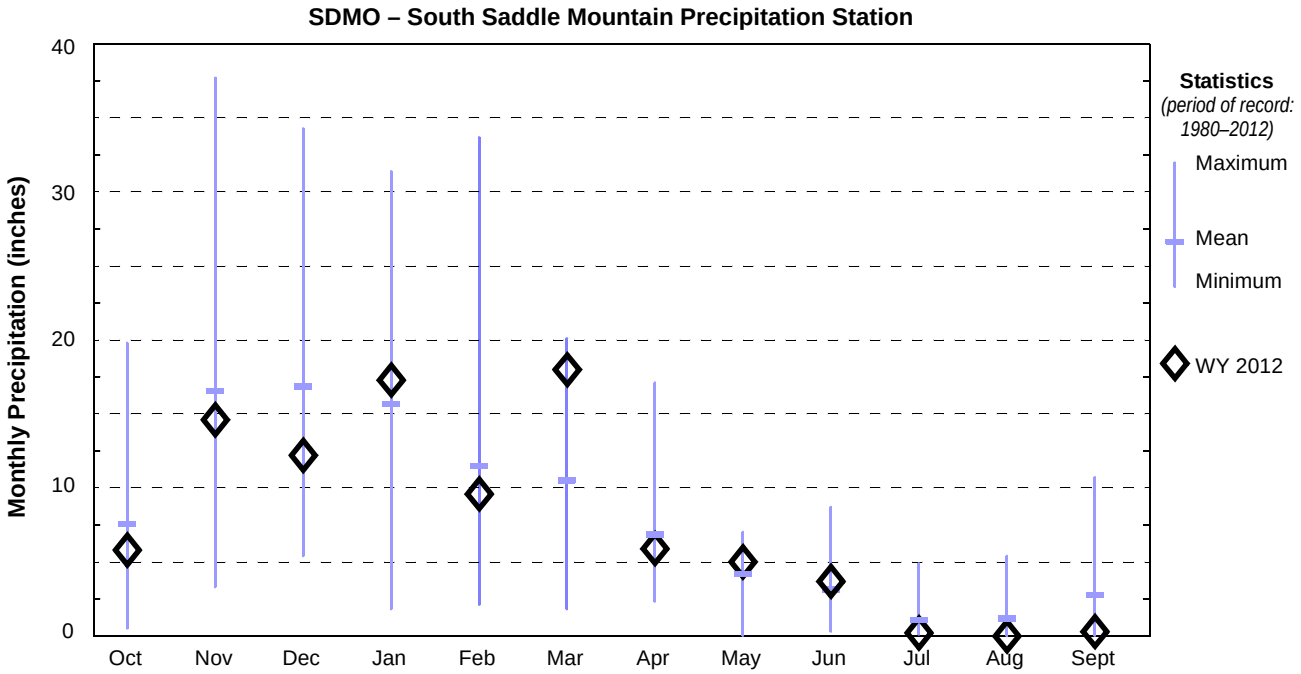
SDMO – SOUTH SADDLE MOUNTAIN PRECIPITATION STATION

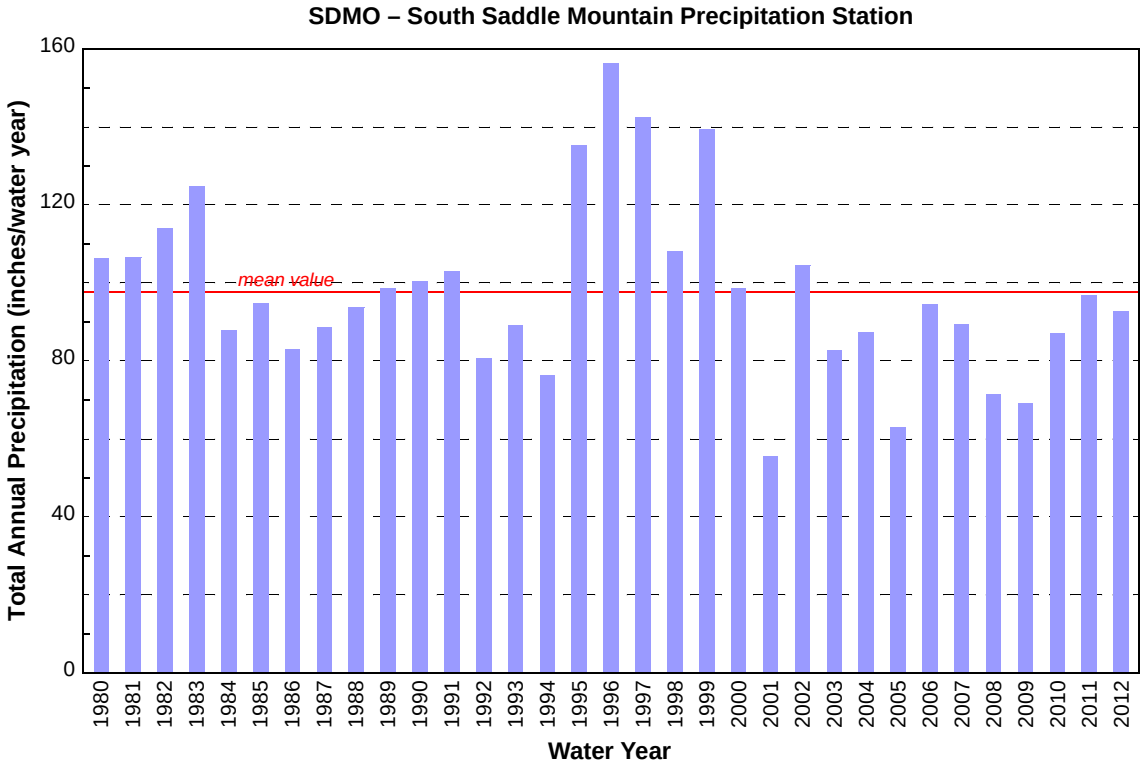
Elevation: 3250 ft
Latitude: 45 31 48 Longitude: 123 22 12

Source Agency: Natural Resources Conservation Service
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
2009	6.6	11.9	10.7	11.5	4.4	7.1	4.8	7.0	0.8	0.5	1.3	2.4
2010	7.8	15.5	9.2	14.5	8.5	9.7	7.2	4.8	5.0	0.5	0.5	3.8
2011	9.1	14.1	19.1	12.3	8.2	13.8	10.0	5.1	1.7	1.3	0.1	1.8
2012	5.8	14.6	12.2	17.3	9.6	18.0	5.9	5.0	3.7	0.2	0.0	0.3
MIN	0.5	3.3	5.4	1.8	2.1	1.8	2.3	0.0	0.3	0.1	0.0	0.0
MAX	19.8	37.7	34.3	31.4	33.7	20.1	17.1	7.0	8.7	4.9	5.4	10.7
MEAN	7.56	16.52	16.83	15.68	11.48	10.50	6.84	4.16	3.12	1.05	1.17	2.73

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


SDMO – South Saddle Mountain Precipitation Station
Monthly Precipitation (inches)
0
10
20
30
40
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
Statistics
(period of record: 1980–2012)
Maximum
Mean
Minimum
WY 2012


SDMO – South Saddle Mountain Precipitation Station
Total Annual Precipitation (inches/water year)
0
40
80
120
160
mean value
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Water Year

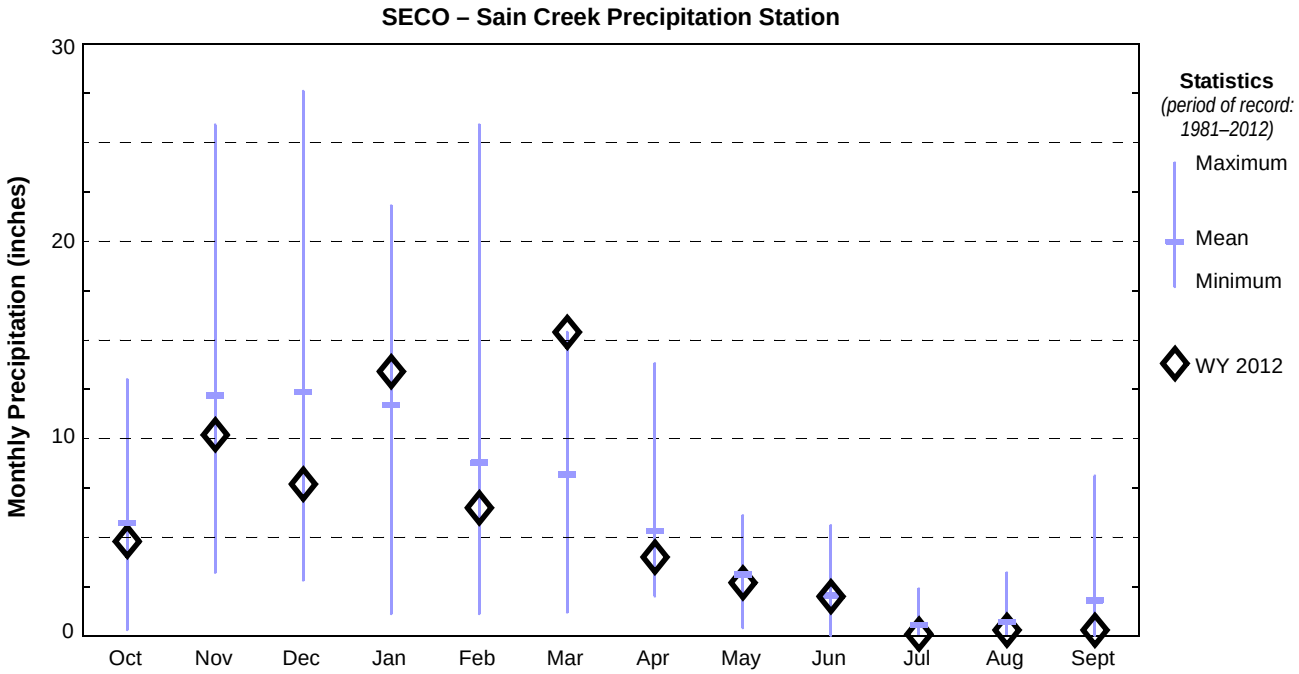
SECO – SAIN CREEK PRECIPITATION STATION

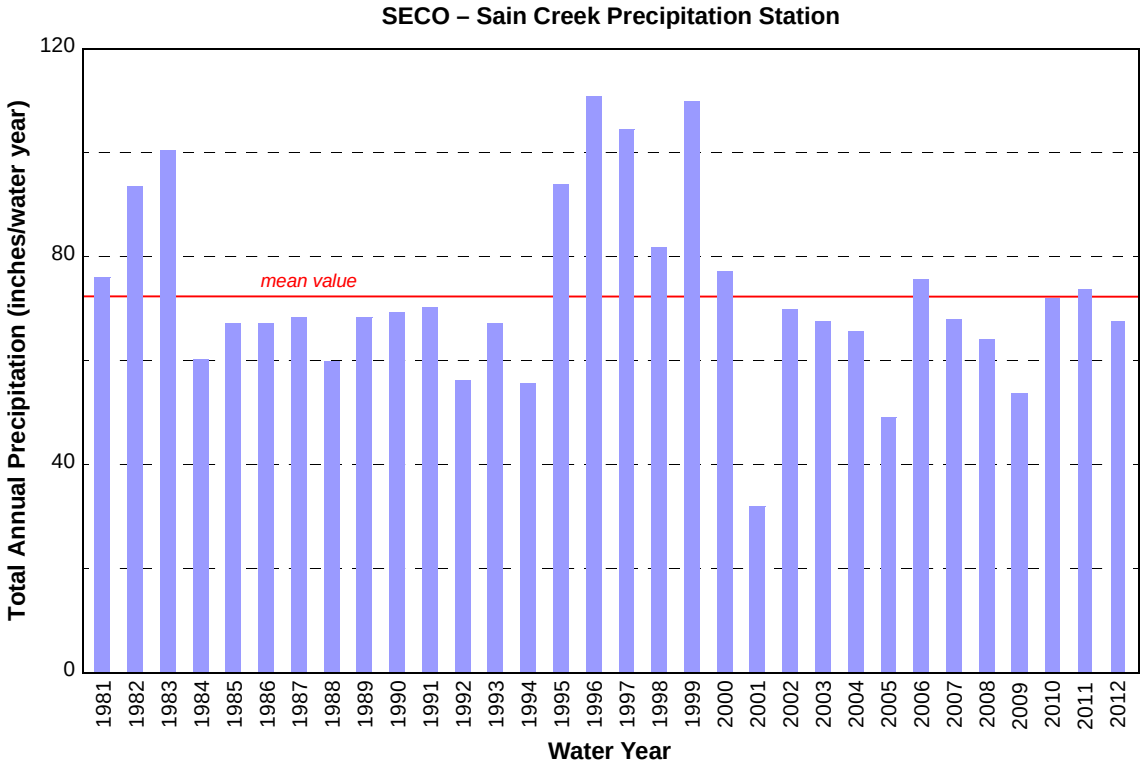
Elevation: 2000 ft
Latitude: 45 31 12 Longitude: 123 16 48

Source Agency: Natural Resources Conservation Service
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
2009	5.8	7.4	11.3	7.9	3.0	5.9	2.9	5.3	0.8	0.0	1.3	2.0
2010	6.2	12.5	7.7	13.0	7.2	8.2	6.7	3.3	4.1	0.1	0.2	2.7
2011	7.0	10.1	16.1	7.3	6.6	12.3	7.7	2.6	1.4	1.4	0.0	1.3
2012	4.8	10.2	7.7	13.4	6.5	15.4	4.0	2.7	2.0	0.1	0.3	0.3
MIN	0.3	3.2	2.8	1.1	1.1	1.2	2.0	0.4	0.0	0.0	0.0	0.0
MAX	13.0	25.9	27.6	21.8	25.9	15.4	13.8	6.1	5.6	2.4	3.2	8.1
MEAN	5.70	12.17	12.36	11.69	8.77	8.17	5.32	3.11	2.04	0.55	0.70	1.79

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


SECO – Sain Creek Precipitation Station
Monthly Precipitation (inches)
30
20
10
0
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
Statistics
(period of record: 1981–2012)
Maximum
Mean
Minimum
WY 2012


SECO – Sain Creek Precipitation Station
Total Annual Precipitation (inches/water year)
120
80
40
0
mean value
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Water Year

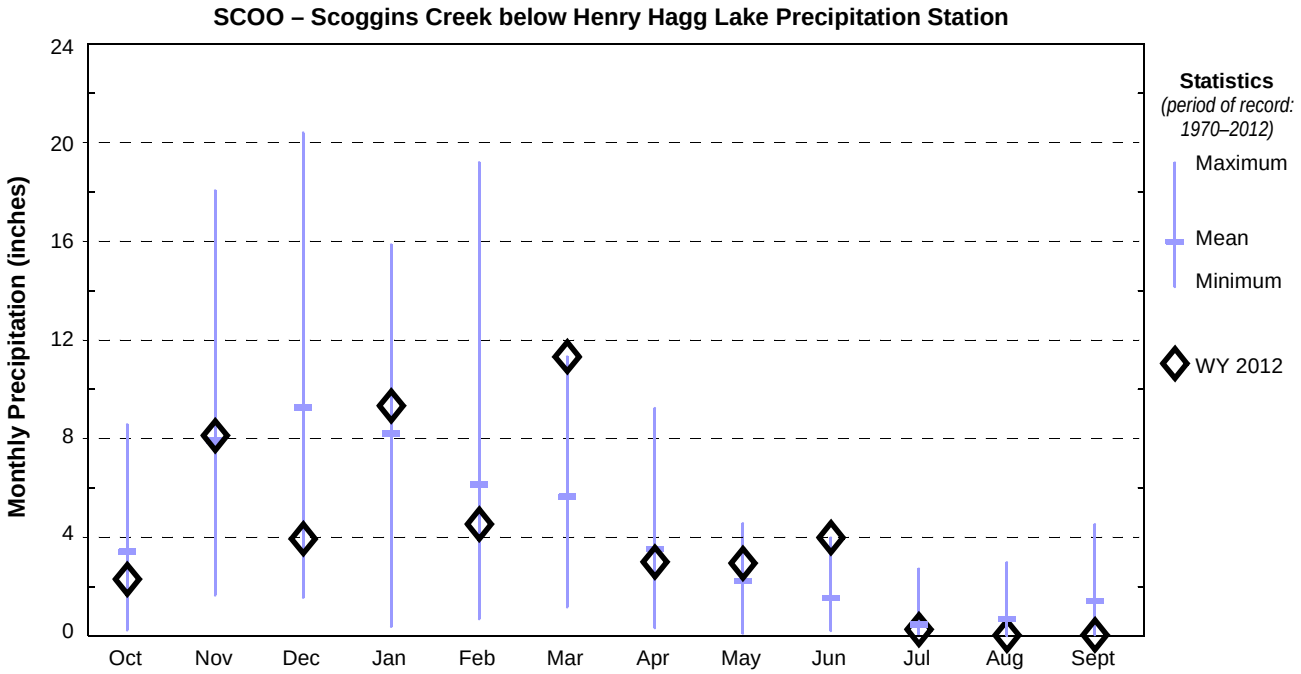
SCOO – SCOGGINS CREEK BELOW HENRY HAGG LAKE PRECIPITATION STATION

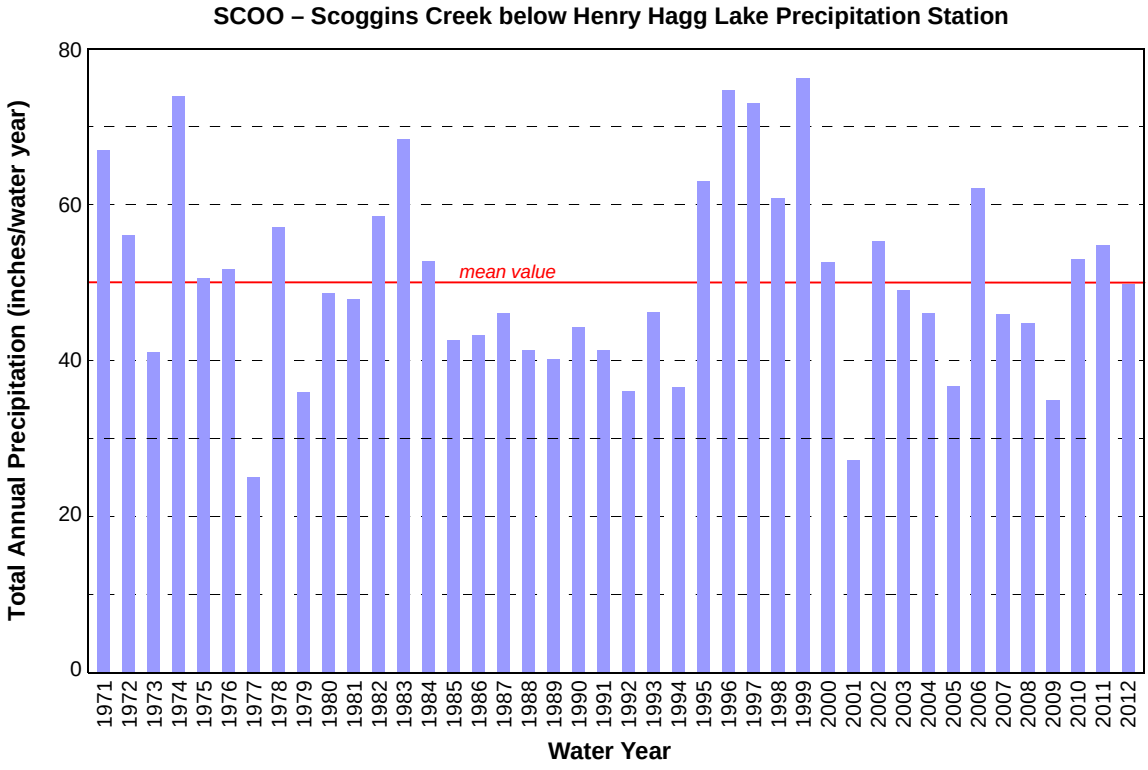
Elevation: 187.5 ft
Latitude: 45 28 10 Longitude: 123 11 56

Source Agency: Tualatin Valley Irrigation District
data not available online

Water Year*	Total Monthly Precipitation (inches)											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1970			8.53	15.85	6.30	3.47	3.49	1.27	0.77	0.01	0.00	1.10
1971	4.40	6.86	16.85	10.82	5.60	10.30	3.96	1.54	2.03	0.14	0.52	3.92
1972	4.02	8.68	12.12	10.20	5.05	6.79	3.92	0.92	0.58	0.28	0.25	3.12
1973	0.72	6.31	12.28	6.44	2.36	3.75	2.15	1.19	1.37	0.04	0.86	3.54
1974	3.82	18.05	14.64	12.46	7.92	9.31	3.98	1.31	0.86	1.38	0.02	0.06
1975	1.33	8.02	9.94	10.45	8.11	5.71	2.00	2.12	0.67	0.47	1.72	0.03
1976	6.69	6.38	9.50	7.68	8.25	5.98	1.81	1.63	0.48	0.70	1.80	0.69
1977	1.26	1.65	1.54	1.05	3.37	5.33	0.32	2.50	1.11	0.41	2.99	3.42
1978	2.76	8.11	13.47	7.92	6.66	2.47	5.04	2.95	1.00	0.65	2.11	3.94
1979	0.81	4.29	3.77	3.16	9.75	3.30	2.83	2.99	0.68	0.15	1.71	2.42
1980	6.69	4.25	9.21	8.30	7.13	4.09	4.38	1.10	1.81	0.22	0.05	1.37
1981	1.76	8.71	11.80	3.60	6.07	3.22	2.88	2.67	3.14	0.08	0.06	3.77
1982	5.55	6.77	13.00	7.21	8.43	4.85	6.45	0.51	1.41	0.37	1.46	2.49
1983	5.82	6.90	13.00	8.13	13.46	9.93	2.88	1.54	2.10	2.73	1.19	0.67
1984	1.34	15.16	7.91	3.09	7.92	4.81	4.05	3.95	3.34	0.00	0.00	1.13
1985	5.16	14.86	4.88	0.37	4.03	5.22	1.50	0.73	2.58	0.41	0.68	2.17
1986	4.48	4.55	2.93	9.23	8.42	4.13	2.57	2.65	0.59	1.07	0.00	2.60
1987	3.43	7.85	5.96	8.19	6.67	8.51	1.80	2.10	0.31	0.79	0.11	0.23
1988	0.23	3.09	12.51	9.46	1.67	4.50	3.32	2.78	2.59	0.15	0.09	0.89
1989	0.27	12.19	4.64	4.61	4.59	8.21	1.26	1.63	0.89	0.48	0.83	0.55
1990	2.74	4.39	3.52	13.00	8.87	2.60	2.20	3.01	2.02	0.26	1.18	0.49
1991	4.35	4.49	3.87	4.69	4.72	5.38	9.03	2.29	1.44	0.22	0.54	0.23
1992	1.80	6.31	5.74	7.72	4.66	1.16	5.63	0.09	0.71	0.42	0.35	1.47
1993	2.84	5.94	8.85	6.25	1.21	5.40	6.71	3.95	2.26	2.59	0.17	0.04
1994	1.21	1.92	9.97	6.47	7.71	3.41	2.49	0.96	1.30	0.00	0.13	0.98
1995	4.94	9.30	11.54	12.00	5.36	7.88	4.53	1.47	2.44	0.58	1.01	1.89
1996	3.70	12.24	12.17	11.53	13.61	2.81	9.23	4.49	1.59	0.58	0.34	2.32
1997	5.44	8.73	20.40	10.71	2.98	9.22	3.38	2.68	3.34	0.29	1.28	4.52
1998	8.57	9.32	4.41	14.18	9.08	6.26	2.31	4.56	0.96	0.24	0.00	0.91
1999	4.51	15.20	13.27	11.84	19.20	6.25	1.77	2.15	0.93	0.08	0.96	0.06
2000	3.13	12.68	9.50	9.02	6.51	4.08	1.40	2.94	2.26	0.03	0.19	0.81
2001	3.24	3.08	5.11	2.30	2.36	3.05	2.19	2.20	1.79	0.23	1.12	0.52
2002	3.28	12.10	11.86	11.36	4.11	5.84	2.79	1.58	1.46	0.13	0.19	0.57
2003	0.73	4.37	13.26	9.33	4.20	9.29	5.17	0.86	0.20	0.01	0.62	0.86
2004	3.34	5.26	9.92	8.84	5.96	3.11	3.12	1.63	0.90	0.00	2.01	2.00
2005	4.60	2.75	4.95	4.92	0.70	7.73	3.34	4.52	1.99	0.38	0.39	0.38
2006	5.54	8.57	12.92	15.72	4.10	6.13	3.63	2.96	1.53	0.15	0.00	0.75
2007	0.83	17.64	7.76	4.37	6.42	2.79	2.15	0.90	0.76	0.69	0.58	0.99
2008	3.91	4.68	13.42	8.69	3.30	5.03	2.50	0.92	1.25	0.02	0.98	0.09
2009	2.89	6.29	4.58	6.36	2.20	4.13	1.99	3.95	0.76	0.21	0.66	0.82
2010	3.73	8.95	5.11	10.29	5.16	5.72	5.79	3.20	3.04	0.36	0.05	1.54
2011	4.53	7.24	12.96	4.99	4.78	9.67	5.35	2.96	0.78	1.11	0.00	0.35
2012	2.29	8.12	3.93	9.33	4.53	11.32	2.99	2.94	3.98	0.25	0.02	0.04
MIN	0.23	1.65	1.54	0.37	0.70	1.16	0.32	0.09	0.20	0.00	0.00	0.03
MAX	8.57	18.05	20.40	15.85	19.20	11.2	9.23	4.56	3.98	2.73	2.99	4.52
MEAN	3.40	7.91	9.24	8.19	6.13	5.63	3.49	2.22	1.53	0.45	0.68	1.41

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


SCOO – Scoggins Creek below Henry Hagg Lake Precipitation Station
Monthly Precipitation (inches)
0
4
8
12
16
20
24
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
Statistics
(period of record: 1970–2012)
Maximum
Mean
Minimum
WY 2012


SCOO – Scoggins Creek below Henry Hagg Lake Precipitation Station
Total Annual Precipitation (inches/water year)
0
20
40
60
80
mean value
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Water Year

DLLP – DILLEY PRECIPITATION STATION (ID# 352325)

Elevation: 170 ft
Latitude: 45 29 Longitude: 123 07

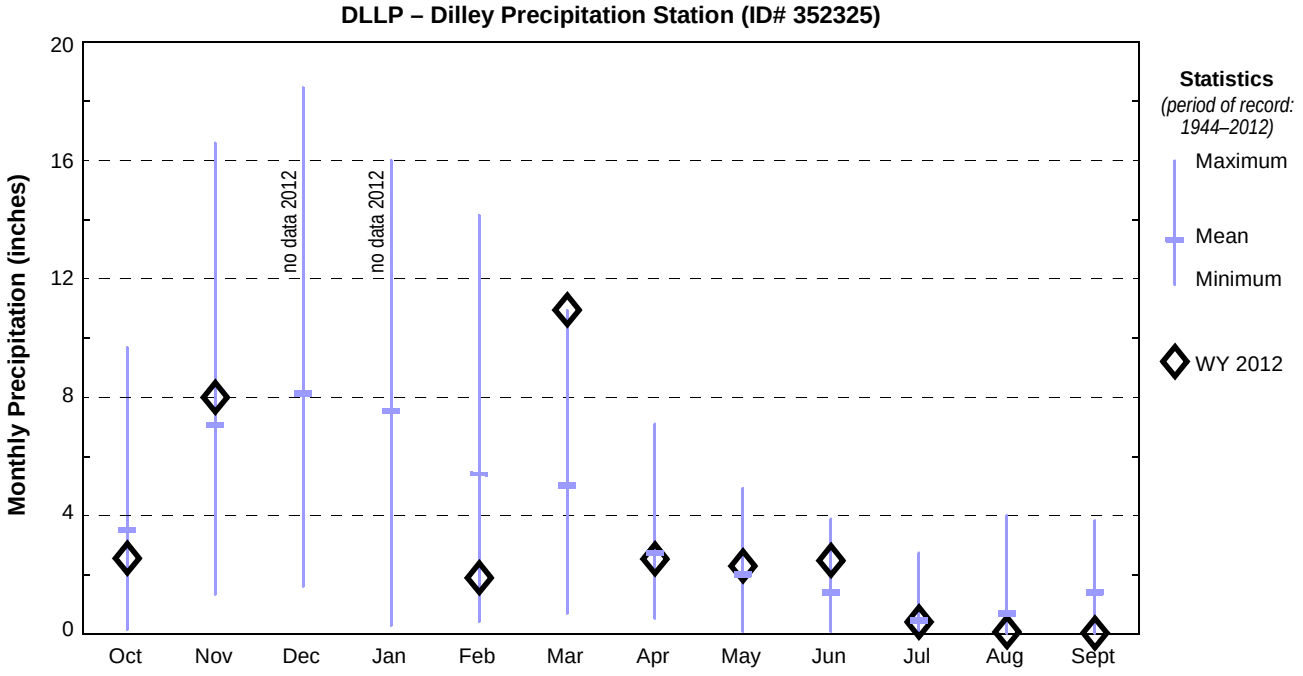
Source Agency: Western Climatic Data Center
www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?or2325

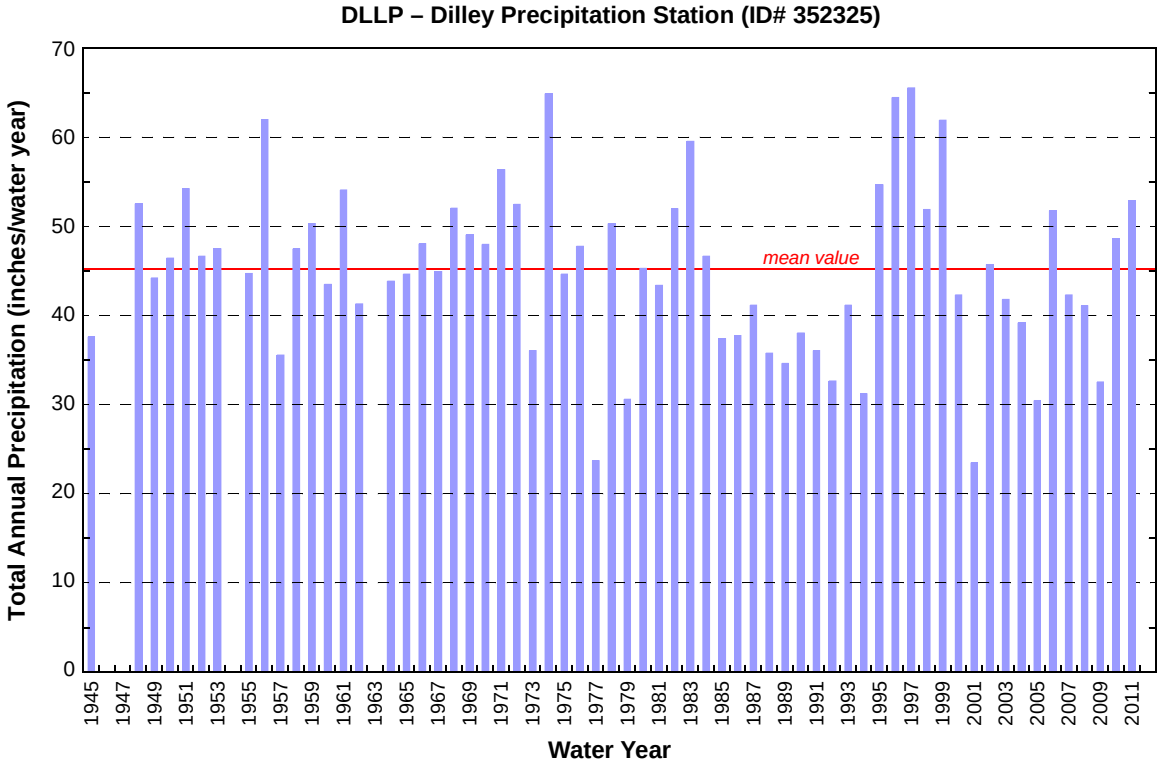
Water	Total Monthly Precipitation (inches)											
Year*	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1944			4.08	5.12	3.98	3.22	3.93	0.94	0.74	1.06	0.20	2.80
1945	1.56	5.5	2.74	4.13	6.99	7.18	2.09	3.71	0.22	0.20	0.13	3.17
1946	1.45	11.82	7.56	7.21	7.61	6.09	1.41	1.51	1.74			
1947		10.27	5.38	5.47	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	0.60	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
2009	2.42	6.01	4.85	5.53	2.04	3.43	1.72	3.53	0.23	0.17	1.29	1.32

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

Water Year*	Total Monthly Precipitation (inches)											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
2010	3.67	8.41	4.48	8.95	4.91	5.26	4.82	3.36	3.03	0.16	0.08	1.50
2011	4.00	7.00	13.55	5.63	4.36	8.93	4.62	2.47	0.84	0.98	0.07	0.42
2012	2.56	8.00			1.9	10.95	2.54	2.3	2.48	0.41	0.07	0.04
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	10.95	7.09	4.92	3.88	2.74	4.01	3.83
MEAN	3.49	7.04	8.10	7.51	5.39	5.01	2.73	2.00	1.39	0.45	0.68	1.40

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





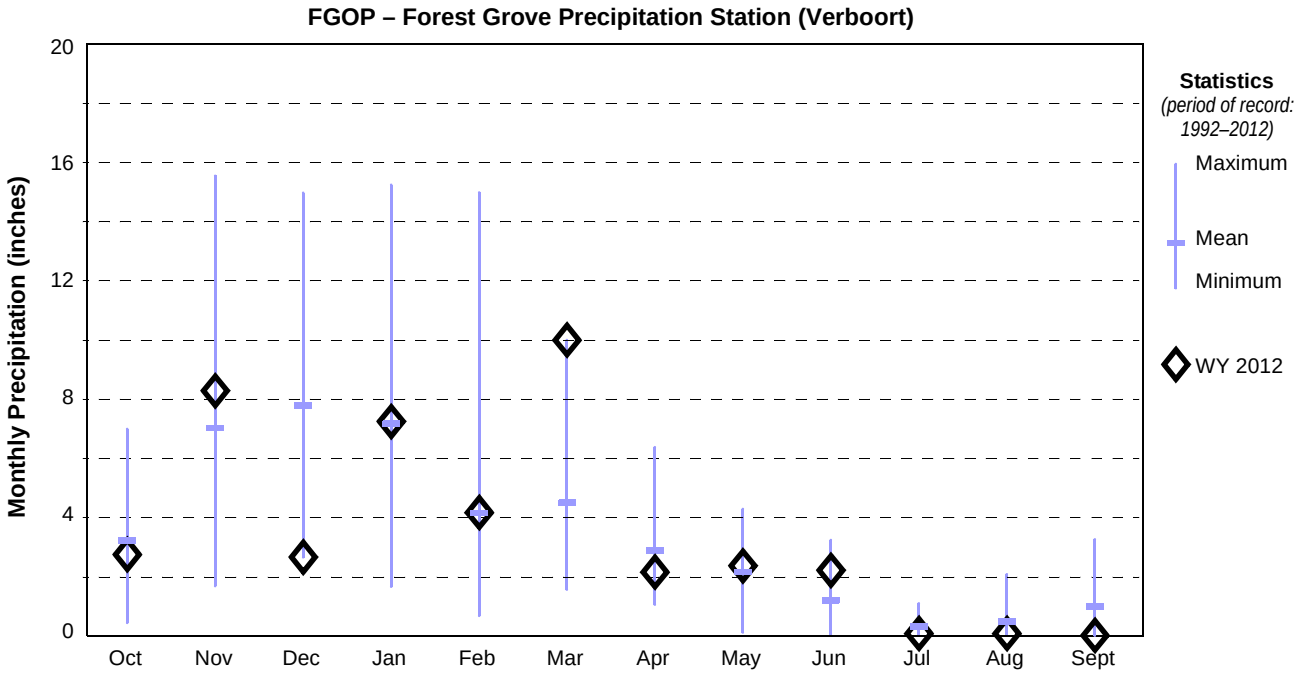
FGOP – FOREST GROVE PRECIPITATION STATION (VERBOORT)

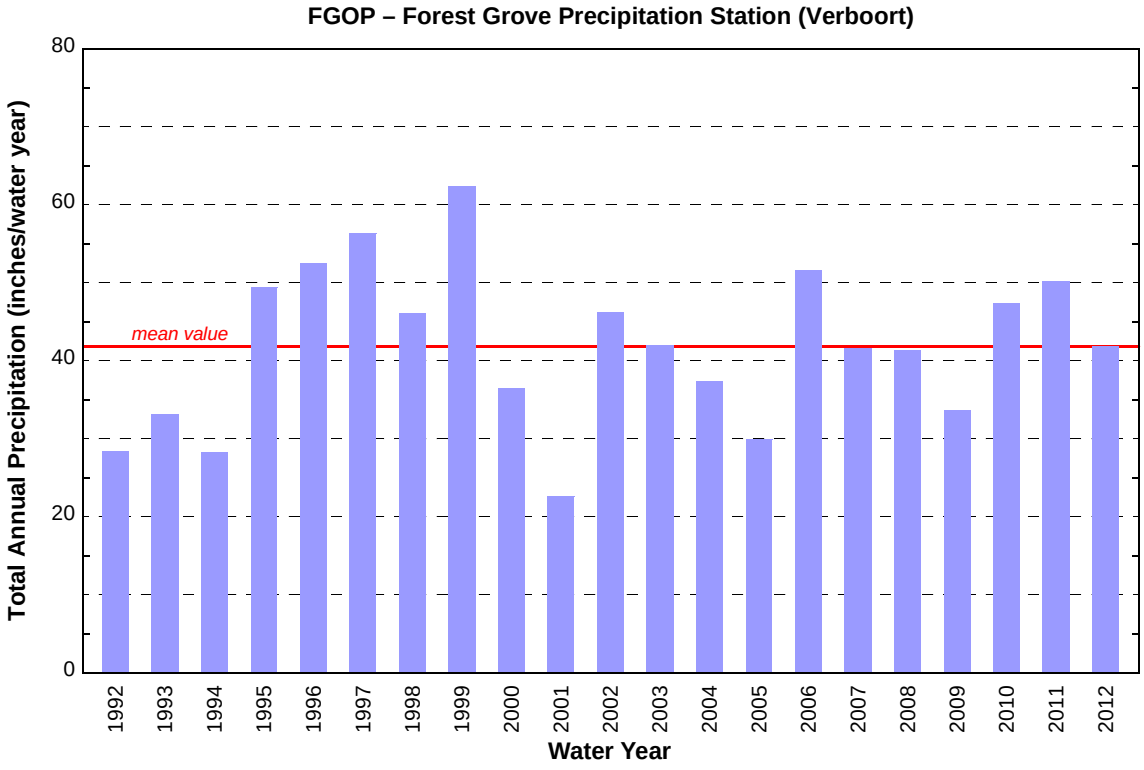
Elevation: 180 ft
Latitude: 45 33 11 Longitude: 123 05 01

Source Agency: US Bureau of Reclamation – Agrimet
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	1.50	5.10	3.68	5.93	3.56	1.56	4.35	0.10	0.94	0.26	0.28	1.08
1993	2.41	4.17	6.00	3.20	2.22	4.15	4.88	4.22	0.57	1.09	0.14	0.00
1994	1.08	1.68	7.61	4.95	5.75	2.34	1.49	1.31	1.04	0.02	0.23	0.77
1995	6.26	7.51	7.56	9.72	4.05	5.78	3.09	1.57	1.23	0.53	0.50	1.62
1996	3.08	11.72	8.55	9.06	3.63	2.33	6.37	4.14	0.85	0.48	0.26	1.99
1997	4.53	7.99	14.96	7.64	1.78	7.76	3.27	1.83	1.80	0.18	1.32	3.25
1998	6.99	7.08	3.47	9.12	7.20	4.57	1.44	4.28	1.06	0.07	0.00	0.80
1999	3.44	13.67	9.83	9.65	14.97	5.39	1.69	1.68	0.98	0.35	0.66	0.02
2000	2.78	7.84	5.89	7.72	3.99	2.37	1.05	2.06	1.58	0.09	0.13	0.92
2001	3.08	2.63	4.30	1.66	1.74	2.13	1.68	1.07	2.11	0.44	1.15	0.63
2002	2.79	11.22	9.74	9.30	3.45	4.60	1.61	1.16	1.20	0.20	0.03	0.90
2003	0.43	3.02	12.24	10.06	3.18	6.19	5.13	0.55	0.07	0.00	0.35	0.73
2004	3.49	4.62	7.87	6.09	5.23	1.93	2.55	1.10	0.81	0.00	2.08	1.50
2005	3.80	2.78	4.38	2.47	0.67	6.00	2.60	4.08	1.56	0.21	0.11	1.28
2006	4.32	7.44	11.35	15.24	2.15	4.38	2.19	2.91	0.69	0.20	0.07	0.58
2007	0.95	15.55	8.57	3.88	4.24	2.45	2.12	0.78	0.59	0.57	0.50	1.32
2008	3.14	4.51	13.01	8.81	2.70	4.13	2.46	0.71	0.78	0.01	0.97	0.11
2009	2.66	5.69	4.73	6.06	1.91	3.69	1.77	3.43	1.17	0.13	1.06	1.28
2010	3.78	7.70	5.34	7.44	4.78	5.28	4.24	3.37	3.23	0.51	0.23	1.46
2011	4.39	7.42	11.53	5.08	5.52	7.35	4.38	2.37	0.62	1.05	0.00	0.48
2012	2.75	8.28	2.66	7.25	4.17	10.00	2.16	2.15	2.22	0.08	0.08	0.02
MIN	0.43	1.68	2.66	1.66	0.67	1.56	1.05	0.10	0.07	0.00	0.00	0.00
MAX	6.99	15.55	14.96	15.24	14.97	10.00	6.37	4.28	3.23	1.09	2.08	3.25
MEAN	3.22	7.03	7.77	7.16	4.14	4.49	2.88	2.14	1.20	0.31	0.48	0.99

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


FGOP – Forest Grove Precipitation Station (Verboort)
Monthly Precipitation (inches)
20
16
12
8
4
0
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
Statistics
(period of record: 1992–2012)
Maximum
Mean
Minimum
WY 2012


FGOP – Forest Grove Precipitation Station (Verboort)
Total Annual Precipitation (inches/water year)
80
60
40
20
0
mean value
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Water Year

DURP – DURHAM WASTEWATER TREATMENT PLANT PRECIPITATION STATION

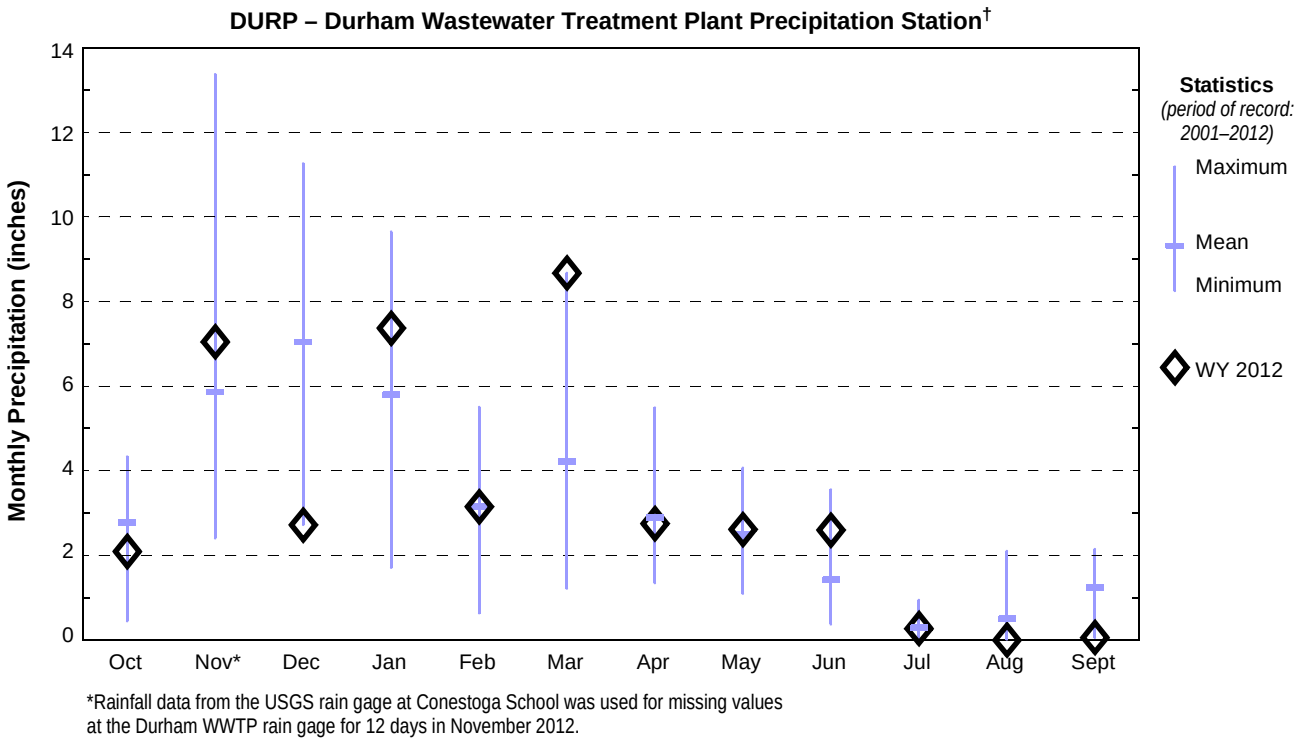
Elevation: 140 ft — Source Agency: US Geological Survey
Latitude: 45 23 59 Longitude: 122 45 45 — http://or.water.usgs.gov/cgi-bin/grapher/table_setup.pl

Water Year*	Total Monthly Precipitation (inches)†											
	OCT	NOV[a]	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
2001									1.46	0.76	0.74	0.69
2002	3.76	6.93	5.85	5.42	3.42	3.49	2.08	1.60	1.27	0.47	0.20	2.16
2003	0.35	2.55	10.36	8.13	3.19	4.72	5.49	1.30	0.37	0.00	0.38	0.94
2004	2.51	4.71	8.94	4.83	4.69	1.22	1.34	1.10	1.32	0.01	2.11	1.82
2005	3.10	2.41	3.70	1.71	0.64	3.52	3.06	4.07	1.59	0.37	0.03	1.75
2006	2.90	5.83	9.73	9.65	2.07	2.73	2.09	2.97	0.92	0.01	0.02	0.64
2007	1.14	13.38	7.54	3.59	5.51	3.24	2.58	1.62	0.87	0.54	0.71	1.98
2008	3.85	4.13	11.27	6.90	2.37	4.35	2.80	1.58	1.15	0.10	1.27	0.33
2009	3.23	5.44	3.72	5.49	1.90	3.13	1.83	3.72	0.80	0.09	0.74	1.38
2010	3.29	6.32	4.68	6.30	3.37	4.80	3.45	3.91	3.55	0.30	0.04	2.06
2011	4.24	5.69	8.95	4.34	4.33	6.44	4.37	2.89	1.17	0.94	0.00	0.49
2012	2.09	7.05	2.72	7.37	3.14	8.68	2.75	2.61	2.60	0.27	0.00	0.06
MIN	0.35	2.41	2.72	1.71	0.64	1.22	1.34	1.10	0.37	0.00	0.00	0.06
MAX	4.24	13.38	11.27	9.65	5.51	8.68	5.49	4.07	3.55	0.94	2.11	2.16
MEAN	2.77	5.86	7.04	5.79	3.15	4.21	2.89	2.49	1.42	0.28	0.50	1.24

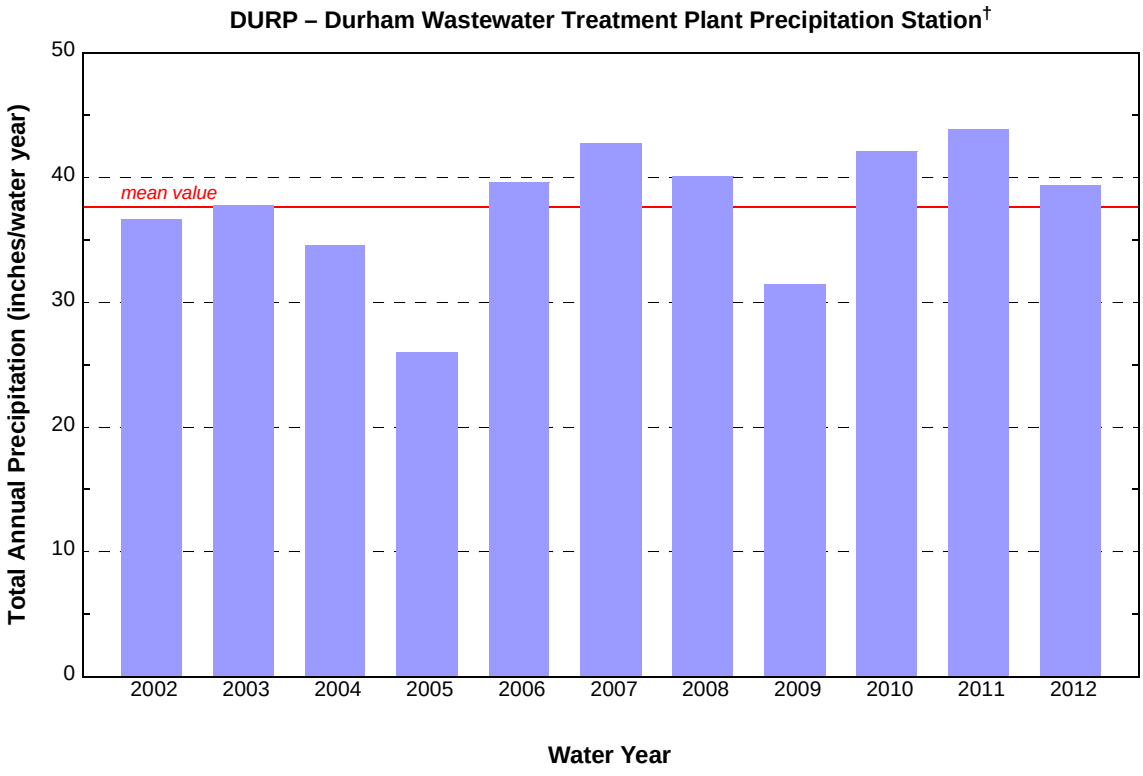
*Water Year (WY) begins October 1st of the previous calendar year and ends September 30th of current year.

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

[a]Rainfall data from the USGS rain gage at Conestoga School was used for missing values at the Durham WWTP rain gage for 12 days in November 2012



*Rainfall data from the USGS rain gage at Conestoga School was used for missing values at the Durham WWTP rain gage for 12 days in November 2012.



†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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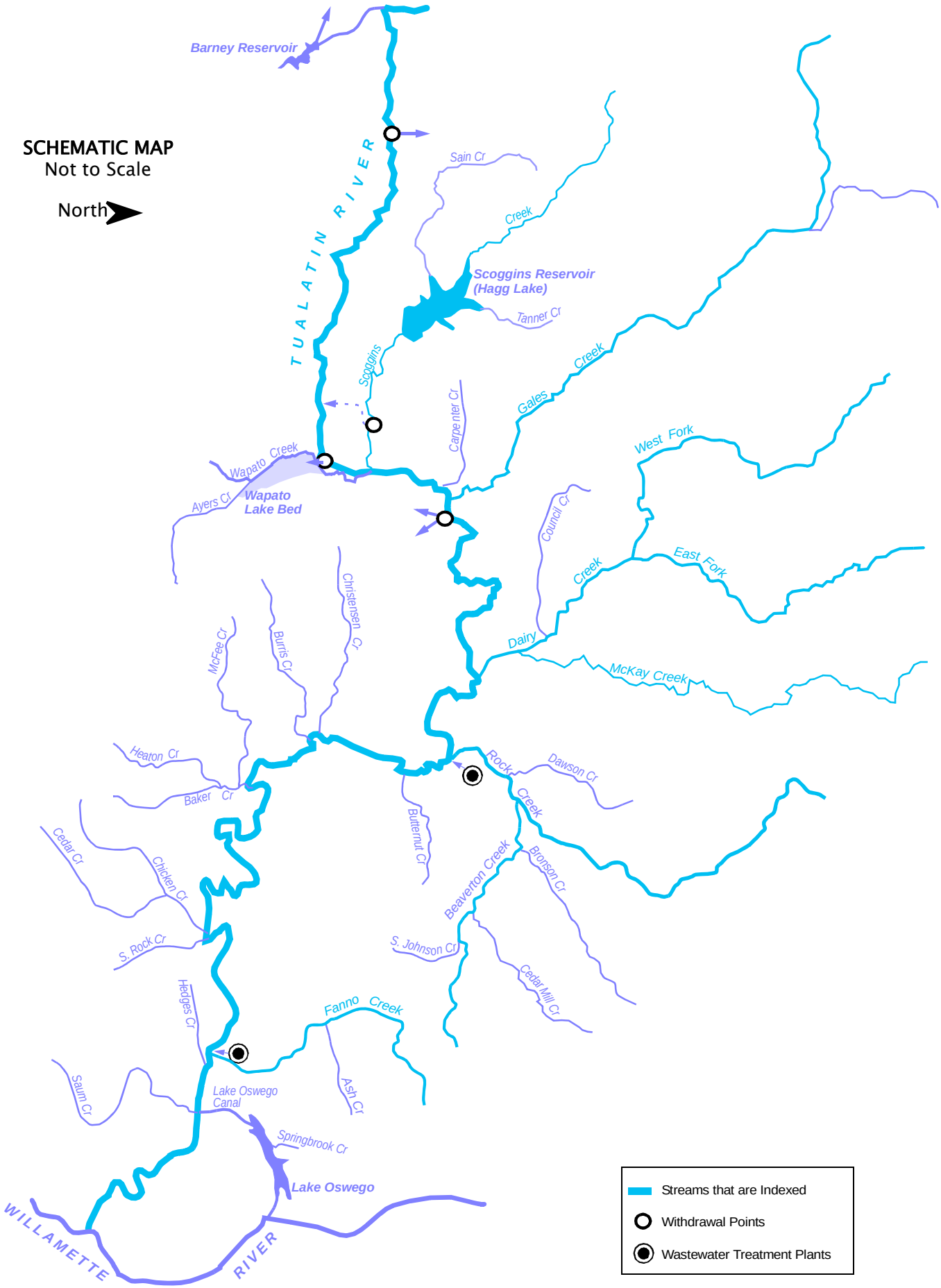
Appendix I

River Mile Indices


SCHEMATIC MAP
Not to Scale
North
Barney Reservoir
TUALATIN RIVER
Sain Cr
Creek
Scoggins Reservoir
(Hagg Lake)
Tanner Cr
Scoggins
Carpenter Cr
Gales Creek
West Fork
Wapato Creek
Ayers Cr
Wapato
Lake Bed
Council Cr
East Fork
Creek
Dairy
McKay Creek
Christensen Cr
McFee Cr
Burris Cr
Heaton Cr
Baker Cr
Rock Creek
Dawson Cr
Buttermut Cr
Cedar Cr
Chicken Cr
Beaverton Creek
Bronson Cr
S. Rock Cr
S. Johnson Cr
Cedar Mill Cr
Hedges Cr
Fanno Creek
Saum Cr
Lake Oswego
Canal
Ash Cr
Springbrook Cr
Lake Oswego
WILLAMETTE
RIVER
Streams that are Indexed
Withdrawal Points
Wastewater Treatment Plants

STREAMS INDEXED

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) *[Index on page I-13]*	26.8	
9.33	LB	Durham Wastewater Treatment Plant Outfall (9.2 on NPDES permit)		
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	Burris 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 (37.7 on NPDES permit)		
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 (42.9 and 43.3 on NPDES permit)		
44.40		State Highway 219 Bridge		
	RB	Recording Stream Gage #14206241		
44.73	LB	Dairy Creek (HUC: 02114003000480) *[Index on page I-9]*	226	
		McKay Creek (LB) (HUC: 02114003000480020) *[Index on page I-10]*	63.4	
		East Fork Dairy Creek (HUC: 02114003000480080) *[Index on page I-11]*		
		West Fork Dairy Creek (HUC: 02114003000480090) *[Index on page I-12]*		
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 (53.8 on NPDES permit)		
		Fern Hill Wetlands		
55.32		Fernhill Road Bridge		
56.10		Springhill Pump Plant Intake		
56.80	LB	Gales Creek (HUC: 02114003000560) *[Index on page I-8]*	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) *[Index on page I-7]*		
60.80	RB	Wapato Creek (HUC: –02114003000670)		
		Wapato Creek Improvement District Return 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)
62.00	RB	Wapato Improvement District Headgate)		
62.24		Southern Pacific RR Bridge		
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		***ISWR:*** C–59525 5/25/66
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) ***ISWR:*** C–59527 5/25/66
16.52	RB	Denny Creek (HUC: 02114003000480080210) ***ISWR:*** C–59526 5/25/66
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 ***ISWR*: C–59523 5/25/66**
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		***ISWR:* C–59509 5/25/66 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)
		***ISWR:* C–59512 5/25/66**
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 ***ISWR:* C–59524 5/25/66**
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) ***ISWR:* C–59514 5/25/66**
21.60	LB	North Fork Gales Creek (HUC: 02114003000560320) ***ISWR:* C–59513 5/25/66**
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)