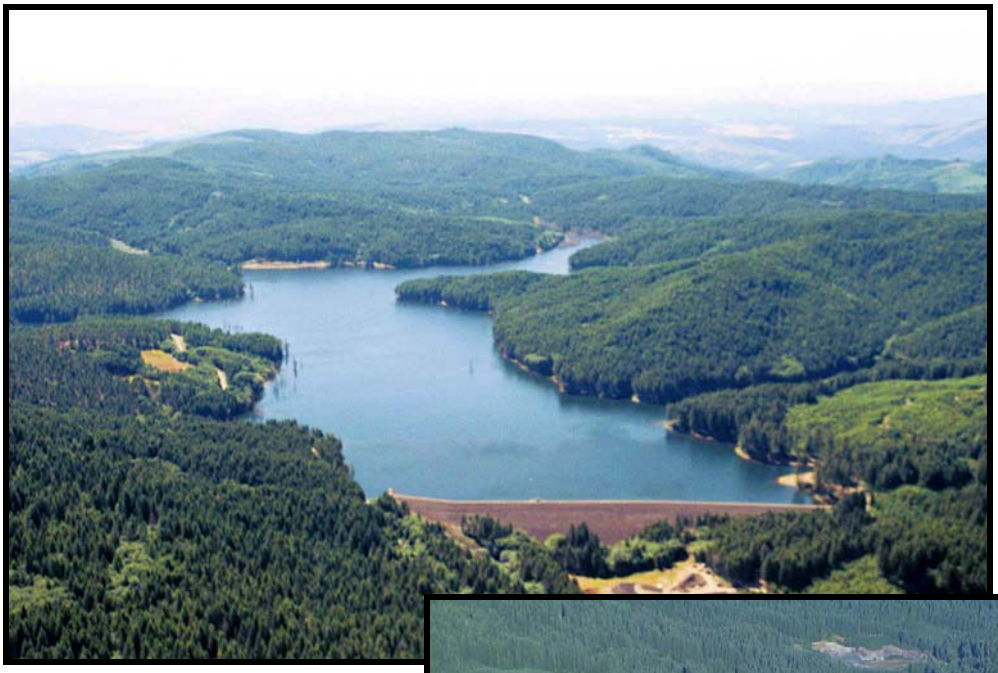
TUALATIN RIVER FLOW MANAGEMENT TECHNICAL COMMITTEE

Barney Reservoir, full pool



Barney Reservoir, after drawdown, September 2011

2011 Annual Report

prepared by
Bernie Bonn for

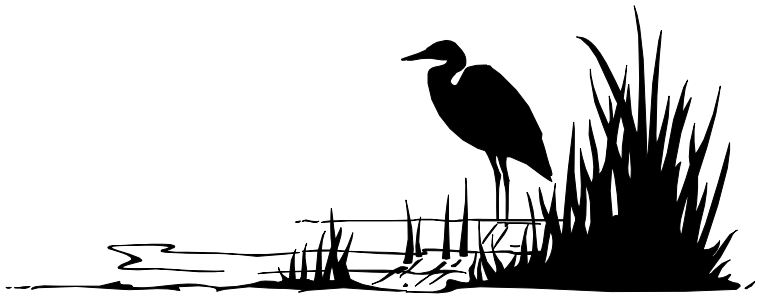
Clean Water Services

Photo Credits:
top left: Barney Reservoir, full pool
bottom right: Barney Reservoir, after drawdown, September 2011

all photographs from Joint Water Commission

TUALATIN RIVER FLOW MANAGEMENT TECHNICAL COMMITTEE

2011 Annual Report



Prepared by:

Bernie Bonn

For:

Clean Water Services

In cooperation with:

Oregon Water Resources Department, District 18 Watermaster

FLOW MANAGEMENT TECHNICAL COMMITTEE MEMBERS

Darrell Hedin, Secretary	*Oregon Water Resources Department*
Kevin Hanway	*City of Hillsboro Water Department*
Niki Iverson, Chair	*City of Hillsboro Water Department*
Raj Kapur	*Clean Water Services*
Wally Otto	*Tualatin Valley Irrigation District*
Scott Porter	*Washington County — Emergency Management System*
Mark Rosenkranz	*Lake Oswego Corporation*
Chris Wayland	*Washington County Parks — Hagg Lake*
Randy Smith	*City of Forest Grove*
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 (formerly Unified Sewerage Agency)	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

TABLE OF CONTENTS

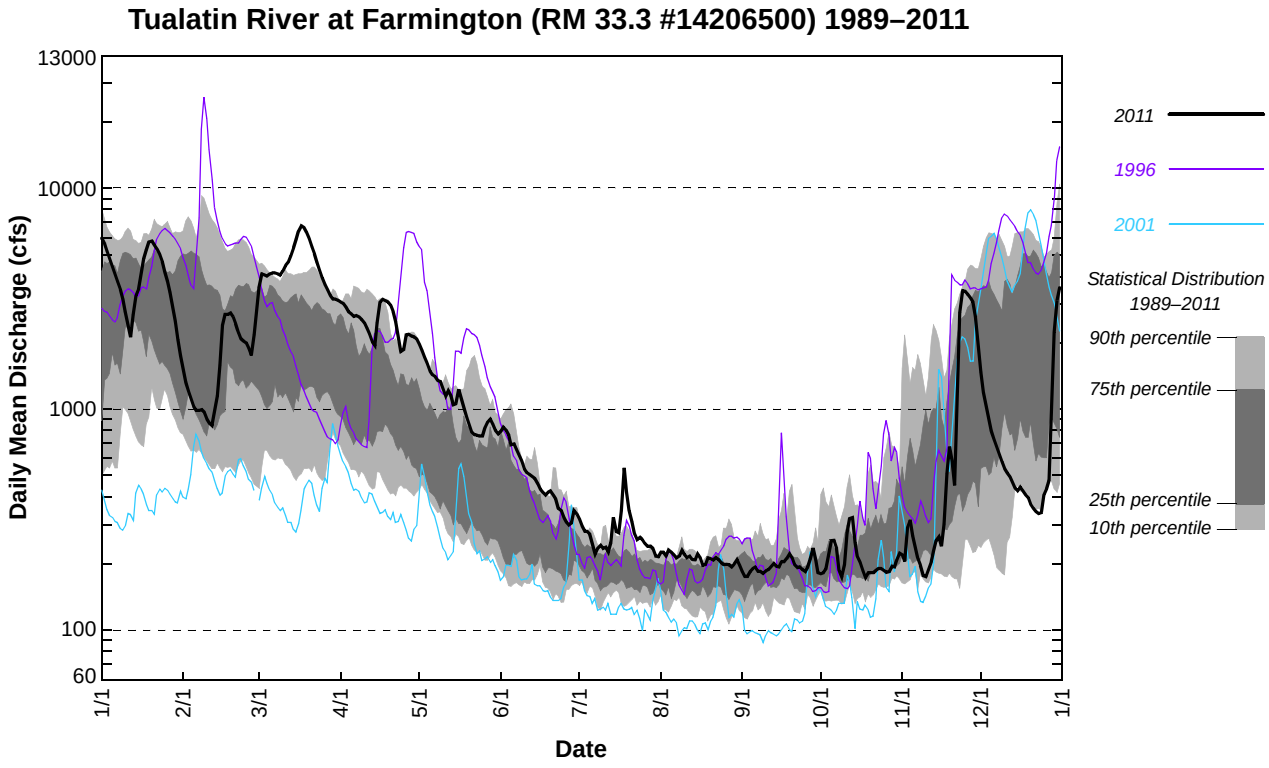
Appendices

2011 SUMMARY

This is the twenty-third 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 2011 include:

- Both Barney and Scoggins Reservoirs filled.
- Barney Reservoir was drawn down beginning in April to the lowest level since 1998 to allow repair of a hydraulic actuator in the fall of 2011. Compared with other years, water from Barney Reservoir was released earlier in the season. Later in the season, water from Scoggins Reservoir met needs until the use of natural flow resumed. Overall in 2011, a greater proportion of the municipal needs were met using water from Barney Reservoir rather than Scoggins Reservoir.
- Although June 2011 was not as wet as June 2010, a cool, wet spring and summer delayed regulation of river flow until late June (municipal use) and early July (irrigation).



- As in 2010, the wet spring affected agricultural activities, causing planting delays and some crop changes. Use of irrigation water was about the same as 2010 which was the lowest since 2001, when Scoggins Reservoir did not fill and extra conservation measures were implemented.
- Higher than normal minimum releases were maintained in Scoggins Creek to protect the Coho redds that were first reported in November 2006.
- Jan Miller, longtime chair of the Tualatin River Flow Management Technical Committee, retired from Clean Water Services in July 2011. The new committee chair is Niki Iverson.

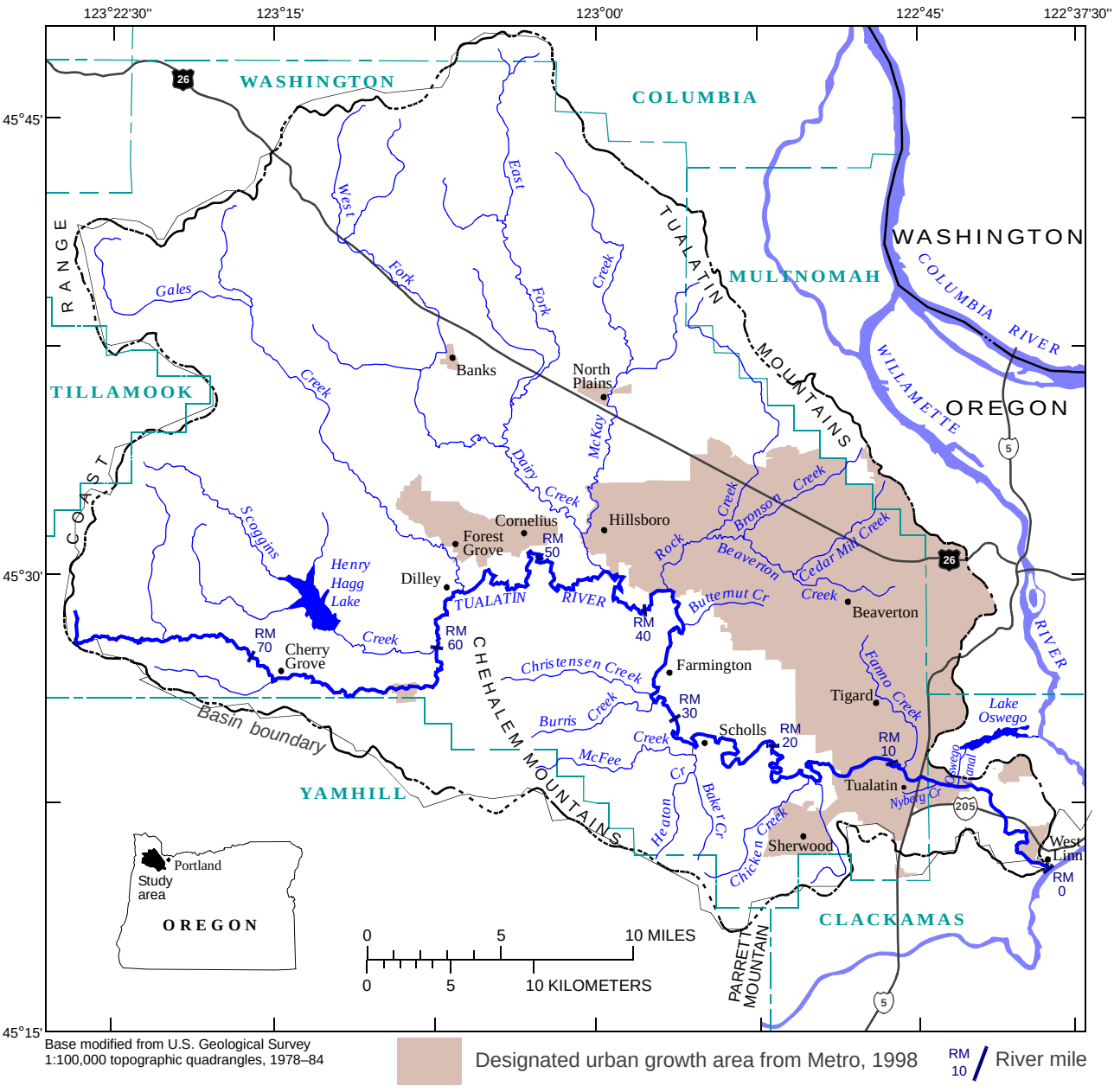
BACKGROUND

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. 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 in 2009 and East Fork Dairy Creek in 2010. In 2011, flow restoration was added to two sites on West Fork Dairy Creek. 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 operated jointly by the Tualatin Valley Irrigation District (TVID) and the Joint Water Commission (JWC). TVID, with a pumping capacity of approximately 90 MGD (140 cfs), delivers water to about 12,000 acres of irrigated cropland via a pressure pipeline. JWC, with a pumping capacity of approximately 60 MGD (90 cfs), delivers water to the Cities of Beaverton, Hillsboro, Forest Grove and to the Tualatin Valley Water District. Both TVID and JWC have natural flow water rights that are used when natural flow is adequate; they release contracted stored water from Scoggins and Barney Reservoirs to augment low natural flow in the summer. Pumping rates are monitored by TVID and JWC using telemetry-equipped flow meters. Additional monitoring is provided by real-time stream gages on the Tualatin River located above and below the pumping plant and on Gales Creek.

Wapato Canal Diversion: The Wapato Improvement District has a natural flow water right (priority date: 1928) to divert water from the Tualatin River at the Wapato Canal Diversion, near RM 62. This water is used for irrigation. The USGS began monitoring discharge in Wapato Creek in June 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:

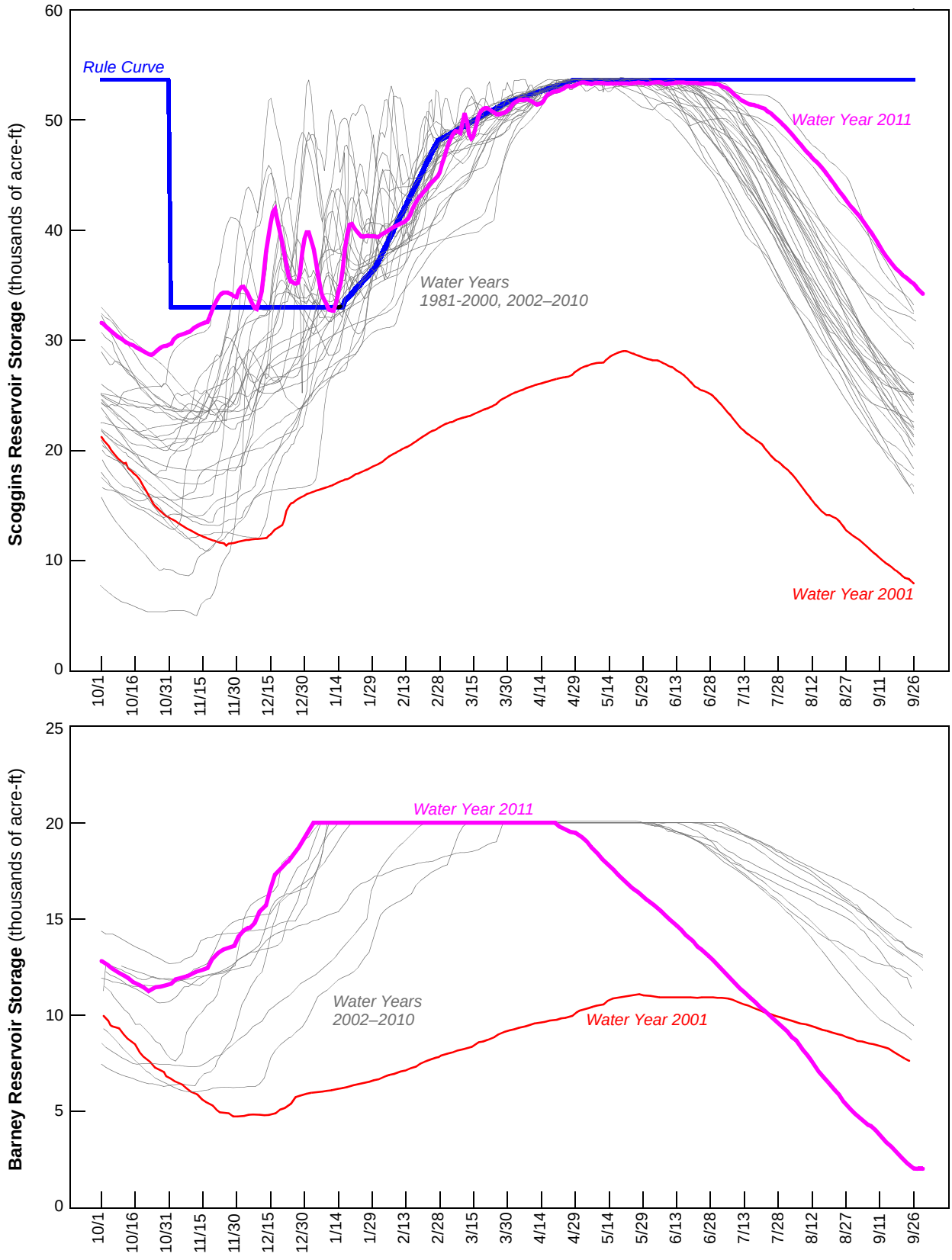
- Bureau of Reclamation data:
  http://www.usbr.gov/pn-bin/rtindex.pl?cfg=tual
- Jackson Bottom Wetlands Center data:
  http://www.jacksonbottom.org/monitoring-restoration/water-quality-tualatin-river-data/
- Oregon Water Resources Department data:
  http://apps.wrd.state.or.us/apps/sw/hydro_near_real_time/
- 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 2011. The reservoir levels for 2011 and the reservoir filling histories are shown below.



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.

2011 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 2011, flow augmentation releases began on July 1 and ended on November 18 when Tualatin River flow at Farmington exceeded 500 cfs and winter flow conditions started.

In most years, Clean Water Services does not begin releasing from Barney Reservoir until September. In 2011, however, that time period was shifted earlier because of the drawdown of Barney Reservoir; the allocation was also reduced. Clean Water Services released water from Barney Reservoir at a constant rate of 9 cfs beginning on July 1, 2011 and continuing through August 30, 2011. Clean Water Services used a total of 1,089 acre-feet from Barney Reservoir which was the entire reduced allocation.

Because of the early releases of water from Barney Reservoir, Clean Water Services did not begin releasing water from Scoggins Reservoir until July 23, 2011. An average of 20.1 cfs was released during the July–August time period. Clean Water Services release of Scoggins Reservoir water averaged 53.2 cfs from September 1, 2011 through November 18, 2011. Clean Water Services released a total 11,464 acre-feet from Scoggins Reservoir for the summer. This was 83% of its allocation.

Clean Water Services released flow augmentation water for a total of 119 days in 2011. The combined average daily release (for days with releases) was 41.3 cfs. The amount of water available to and released by Clean Water Services during 2011 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 — 2011

Reservoir		Maximum Available (acre-ft)	Available (acre-ft)	Total CWS Release (acre-ft)
Scoggins Reservoir	Storage	12,618	12,618	10,464
	Natural flow credit	4,282	0	
Barney Reservoir	Storage	2,000	1,089	1,089
	Summer storage	—	0	
Total		**18,900**	**13,707**	**11,553**
Percent of available				**84.3%**

CLEAN WATER SERVICES WATER RELEASE SUMMARY 2011

	Units	May	June	July	Aug	Sept	Oct	Nov 1-18	Total
Scoggins Release	acre-ft	0	0	357	2,111	3,849	2,718	1,428	10,464
	days	0	0	9	31	39	31	18	119
Barney Release	acre-ft	0	0	554	536	0	0	0	1,089
	days	0	0	31	30	0	0	0	61
Total Release	acre-ft	0	0	911	2,647	3,849	2,718	1,428	11,553
Daily Average Release (for days with releases)	cfs	0	0	15	43	65	44	40	41

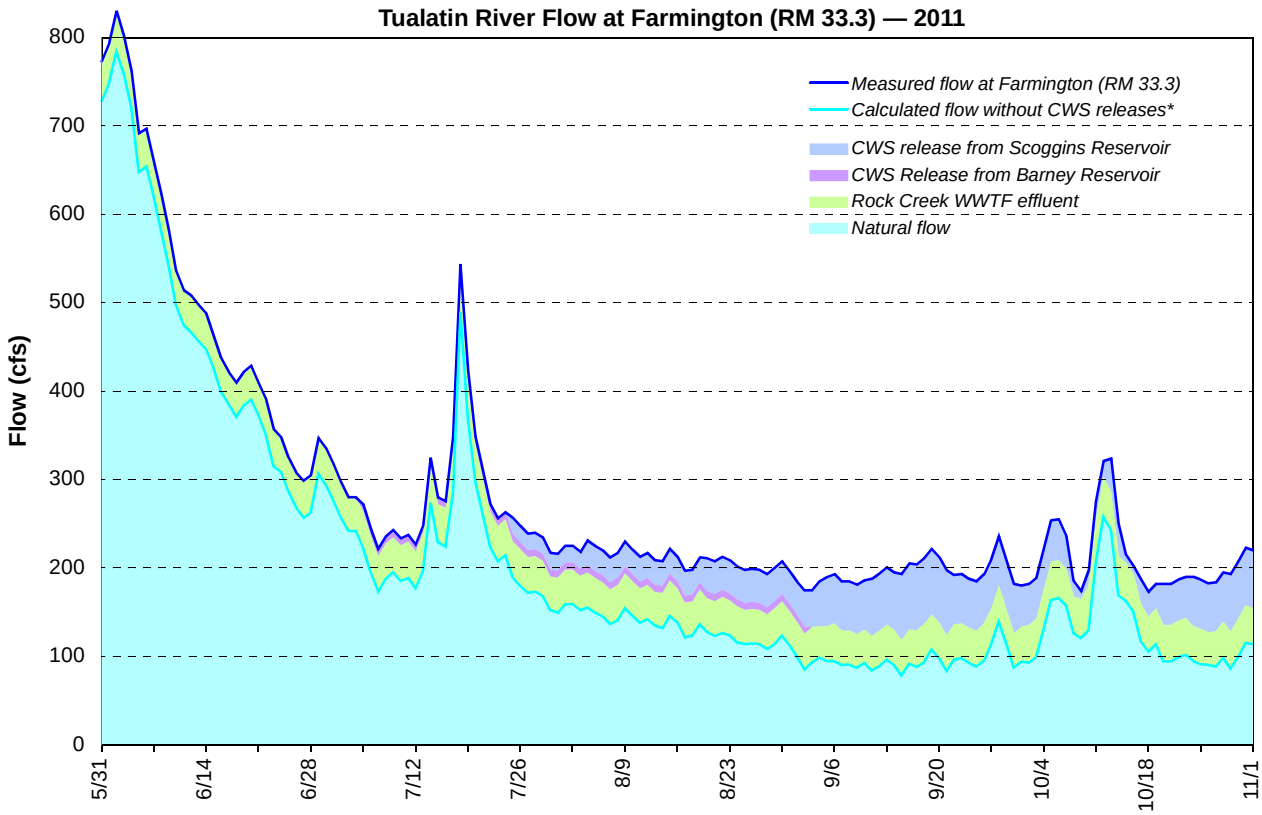
Measured Flows for Tualatin River at Farmington (RM 33.3) – based on daily average									
Measured minimum	cfs	754	299	216	193	175	173	205	—
Measured mean	cfs	1,129	500	279	211	195	210	259	—
Measured maximum	cfs	1,970	830	544	231	236	324	316	—

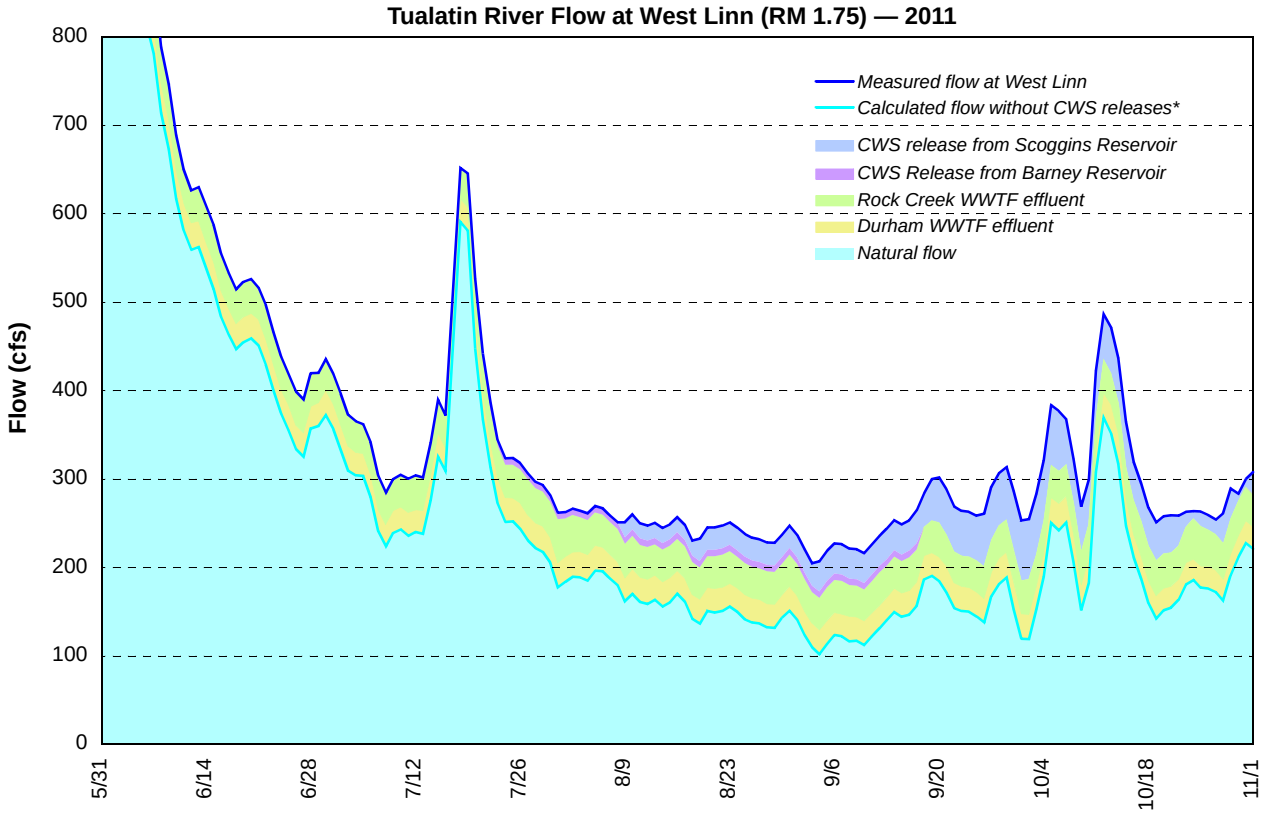
Natural flow credit

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 2011.

BUREAU OF RECLAMATION NATURAL FLOW CREDIT 2011

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	1,350	0	1,350	85	13	*[798]*	0
June	645	0	645	140	21	*[1250]*	0
October	312	44	268	95	16	*[984]*	0
November	1,222	40	1,182	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

*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. Each year the Joint Water Commission decides how much water is to be released for the Department of Fish and Wildlife. This, plus the dead pool, is subtracted from the available water. The remainder is allocated to the owners.

CLEAN WATER SERVICES — BARNEY RESERVOIR RELEASES

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

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.

Historically, JWC's water production averages approximately 31 to 33 MGD. However, the last two years have had lower production rates due to higher than average precipitation. In 2011 the JWC annual average water production was 27.1 MGD. Water demand increases substantially during the peak periods of the summer. In September 2011, daily production peaked at 54.2 million gallons. JWC's highest peak production of 66.8 MGD occurred in 2008.

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.

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.

2011 Operations

Barney Drawdown: Beginning the spring of 2011, Barney Reservoir was drawn down to the lowest level since 1998 to facilitate repairs which were conducted in the fall of 2011. To facilitate the drawdown, water from Barney Reservoir was released earlier in the season than usual. Once the drawdown was achieved, releases to the Tualatin River ended and all municipal needs were met using water from Scoggins Reservoir until the use of natural flow resumed. Overall in 2011, a greater proportion of the municipal needs were met using water from Barney Reservoir rather than Scoggins Reservoir. Details concerning the drawdown, repairs and subsequent inspection can be found on page 18.

Source Water Capture Efficiency: Even with the excess releases from Barney Reservoir for emergency repairs, 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 2011:

- An electrical assessment of the water treatment plant was completed which initiated development of a replacement schedule for several major equipment components.
- 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 design of a backup power generation facility with funding assistance provided by a Department of Homeland Security grant continued from 2010.
- As part of an ongoing JWC Aquifer Storage and Recovery (ASR) Feasibility Study, the OWRD approved JWC's application for an ASR Limited License. JWC began identifying potential ASR well locations in the Cooper Mountain area and conducted feasibility tests at two sites (see photograph at right).
- A disinfection alternatives analysis began in 2011.
- Preliminary design for a 10 MGD treatment plant expansion also began in 2011.

Drill rig used during Aquifer Storage and Recovery (ASR) Feasibility Study in Spring 2011.

JWC appreciates 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 2011 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	3,945.18	9,554.82	29.89
Barney (M&I)	9,598.32	8,848.39	749.93	67.03
Total	**23,098.32**	**12,793.58**	**10,304.75**	**96.92**
Breakdown by Agency – Including Leased Allocations				
Hillsboro	8,306.09	5,276.37	3,029.72	39.97
Forest Grove	4,766.62	847.89	3,918.73	6.42
Beaverton	6,292.93	3,571.93	2,721.00	27.06
TVWD	3,732.68	3,097.38	635.00	23.47
Total	**23,098.32**	**12,793.58**	**10,304.75**	**96.92**

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	3,126.23	2,150.14	5,276.37	39.97
Forest Grove	529.51	318.38	847.89	6.42
Beaverton	2,095.27	1,476.66	3,571.93	27.06
TVWD	3,097.38	—	3,097.38	23.47
Total	**8,848.39**	**3,945.18**	**12,973.58**	**96.92**
North Plains usage is reflected in the figures for JWC partners:			96.67	0.73

COMPARISON OF STORED WATER RELEASES— 2008–2011

Year	Begin Date	End Date	Days Regulated Use	Stored Water Release (acre-ft)			Average Release (acre-ft/day)
				Barney	Scoggins	Total	
2011	6/28/2011	11/7/2011	132	8,848.39	3,945.18	12,793.58	96.92
2010	6/30/2010	10/22/2010	114	5,647.02	5,170.98	10,818.01	94.89
2009	6/14/2009	10/26/2009	134	4,722.71	9,203.44	13,926.15	103.93
2008	6/18/2008	10/31/2008	135	4,407.34	10,163.45	14,570.79	107.93

ESTIMATED WATER CAPTURE RATES (THROUGH 11/7/2011)

Peak production for season:	166.21	acre-ft/day	
Average production for season:	105.34	acre-ft/day	
Stored water released:	12,793.58	acre-ft	
WRD loss factor:	573.46	acre-ft	
Natural flow:	3,060.54	acre-ft	
Total water available to be pumped:	15,280.66	acre-ft	
Raw water pumped at Spring Hill Pump Station:	13,718.35	acre-ft	= 89.78% of available
Water produced through Slow Sand Filter Plant:	368.74	acre-ft	
Total water pumped for regulated season:	14,087.09	acre-ft	= 92.19% of available
Finished water produced:	14,009.95	acre-ft	= 93.95% of available
Total production:	14,378.68	acre-ft	= 94.10% of available

2011 DRAWDOWN OF BARNEY RESERVOIR

BY NIKI IVERSON, WATER RESOURCES MANAGER, CITY OF HILLSBORO,
TYLER WUBBENA, ENGINEERING MANAGER, CITY OF HILLSBORO AND
KRISTEL FESLER, WATER RESOURCES TECHNICIAN II, CITY OF HILLSBORO

Barney Reservoir is located in the Trask River basin in the Coast Range. During the summer low-flow period, water from Barney Reservoir is conveyed to the Tualatin River and used as a source of the municipal water supply for customers of the Joint Water Commission and for Tualatin River flow augmentation by Clean Water Services. At full pool, Barney Reservoir contains 20,000 ac-ft of water.

Identification of the problem

During annual testing of the Barney Reservoir equipment in November 2010, an oil leak was detected on the hydraulic actuator for the sluice gate to the dam outlet. By design, the oil used in the hydraulic actuators is non-toxic and biodegradable; therefore an accidental release such as this did not pose a threat to water quality. The hydraulic actuators that control discharge to the Trask River and to the pipe to the Tualatin River were installed during the dam raise project which was completed in 1998. Although the affected sluice gate was still operational at the time of testing, failing to fix the leak or replace the faulty hydraulic actuator could have resulted in loss of the sluice gate function and the ability to fully control water releases. Since maintaining operability is critical for emergency dam operations, a repair project was scheduled for September 2011, when the reservoir water elevation could be lowered to a level that exposed the valve assembly for repair.

The drawdown

In order to repair the actuators, the water level in the reservoir needed to be lowered to an elevation of 1,580 ft. To reach the needed water elevation level by September, releases from Barney Reservoir began on April 18, 2011. Releases to the Tualatin River averaged 50 cfs. Releases to the Trask River averaged 35 cfs from April to June and were lowered to approximately 8 cfs through September. The required elevation was reached on September 22nd, at which time releases to the Tualatin River ceased. Releases to the Trask River benefiting fish and wildlife continued during repair work, with the exception of a few hours during which flow to the Trask was interrupted while repairing the leaking hydraulic cylinder.

Barney Reservoir drawn down to a surface water elevation of 1,580 ft. At this level, the reservoir contains approximately 2,000 ac-ft of water.

The water elevation resulting from the drawdown was the lowest since the height of the Eldon S. Mills Dam was raised in 1998. During repair the reservoir contained approximately 2,000 ac-ft of water, about 2,700 ac-ft less than the lowest amount during the drought of 2001.

Repairs and safety inspection

To perform the replacement and repair work, a work pad and access road to the outlet structure was built. Additional road work on Arm 4 and maintenance of the Howell-Bunger valve and the Tualatin flume was also performed during this time.

Active leak from actuator valve as seen during dive inspection before repair.

A dive inspection of the outlet, sluice gates, stem guides, and other submerged hardware was performed. Divers reported very little siltation at the outlet and the pipeline. The submerged sluice gates and related equipment appeared to be in good condition and showed very little rust.

During replacement of the actuators, it was discovered that one of the hydraulic lines running from the hydraulic power unit in the block house to the actuator at the outlet structure had developed a leak. Upon inspection it was found that all the hydraulic lines were constructed of 20-ft lengths of stainless steel tubing, providing multiple locations for potential leaks. To prevent future problems, all of the segmented hydraulic lines were replaced with new continuous stainless steel hydraulic lines.

The replacement actuators and hydraulic lines are expected to last 30 to 50 years. Equipment testing will continue annually. Dive inspection will continue approximately every two years.

The outlet structure (at bottom left) houses the actuator valves and connections to the hydraulic lines as well as sluice gates, a trash rack, and the beginning of the outlet pipes. The outlet structure is 60 feet below the block house (at right) that contains operational and control equipment. The hydraulic lines run underneath the rip-rap of the dam face between the two structures.

Since the water elevation was so low, the opportunity was taken to perform a thorough safety inspection of the Eldon S. Mills Dam. Staff from Cornforth Consultants involved in the 1998 dam raise and Oregon Water Resources Department's Dam Safety Program performed the assessment.

The downstream face of the dam is in nearly new condition, with no evidence of slope instability or erosion. No seepage or other signs of distress were seen in the abutments, the upstream or downstream faces of the dam, or the Arm 2 or Arm 4 wetland abutments. Terraces seen in the upper part of the reservoir were created by the action of waves that redistributed soil and are not an indication of serious erosion problems.

Terracing of soil due to wave action at Arm 2.

LiDAR

A LiDAR (light detection and ranging) survey of Barney Reservoir and Eldon S. Mills Dam was completed during the actuator replacement work. This aerial work included high-resolution topographic mapping of the exposed reservoir surface and high resolution photography of the entire drainage basin feeding the reservoir. Since this technology does not have the ability to 'see' through water, it was important to complete this survey during the low water elevation.

Three image types collected in the LiDAR survey: hillshade (left), air photo at 0.5 ft resolution (center), and bare earth image (right). Images by Watershed Sciences.

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.

2011 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. River water contains high concentrations of phosphorus and sediment, making reduced river flow into Oswego Lake desirable.

Oswego Lake Watershed Council: The newly formed Oswego Lake Watershed Council has been active since the middle of 2011. They received a few grants to fund outreach and watershed enhancement projects. They put together a web page (www.oswegowatershed.org) describing the organization and its mission. In the future the watershed council will be focusing on educating residents about the benefits of a healthy watershed, and as money is available, funding watershed improvement projects.

Portland State University MOU: In 2011 the Lake Oswego Corporation, the City of Lake Oswego, the Lake Oswego School District, the Oswego Lake Watershed council, and PSU entered into a research agreement that will provide the basic framework for future watershed and lake studies. The agreement was in the formative stages by the end of 2011, but will be signed by all parties in 2012. There are several large capital improvement projects slated for the watershed and this arrangement will provide a basis for collaborative research on the impacts these capital projects have on lake and stream health.

City MS4 Permit: The City of Lake Oswego adopted MS4 permit guidelines that states any new construction must capture and treat 80% of the annual average runoff volume. Over time this will reduce the amount of stormwater that enters the conveyance system, and reduce the amount of erosion experienced in many of the open stream channels in the Oswego Lake watershed.

Water Quality

During the drawdown we undertook several tasks to improve water quality. We hand pulled Brazilian elodea in an effort to reduce herbicide use and installed weed barriers in several shallow areas around the shoreline that historically grew a lot of vegetation. We dredged in several locations, taking a total of 32,000 cubic yards of sediment from the lake bottom. Finally, we modified our main dam spillway to lower the FEMA base flood elevation by 3.5 feet.

The water sampling season on Oswego Lake was cut short due to the lengthy drawdown begun in 2010. Since the lake was drawn down 24 feet it was difficult to get to the pool for weekly sampling. Sampling resumed in spring once the lake was starting to fill and was more easily accessible.

In 2011, the long drawdown delayed the algae growing season and prevented the normal March bloom of filamentous algae from becoming a problem in the Oswego Canal. Because of the drawdown, the canal functioned as a shallow stream and even though algae were present, the impact on residents bordering the Canal was minimal. In addition, water clarity remained high well into June when the Seccchi clarity was 8.34 meters. This was probably due to a delay in the normal growth schedule for algae. The akinetes that seed the following season's algal growth were also on dry ground for most of the winter.

Data in the following table represent summer only. Because the Lake was not full until May 25th no spring sampling was done, so annual averages would not be comparable to other years. The summer data collection season was complete. Monitoring was conducted weekly from June through September.

2011 OSWEGO LAKE WATER QUALITY
SUMMER AVERAGES OF WEEKLY SAMPLING JUNE–SEPTEMBER

Location (depth)	Chlorophyll-a (µg/L)	Total P (µg/L)	SRP (µg/L)	Total N (µg/L)	Secchi (m)	Turbidity (NTU)
Lakewood Bay (3.2 m)	6.7	28	<1	400	1.8	3.2
Main Lake (16 m)	10	18	<1	577	**4.3**	1.9
West Bay (1.4 m)	**12**	52	4	870	1.1	**5.9**
Oswego Canal (1.2 m)	3.6	**98**	**54**	**3665**	1.2	3.1
Blue Heron Canal (1.3 m)	4.3	30	5	470	1.3	2.7
Outlet (6 m)	7.8	17	1	564	3.9	1.8

Bold = highest average; Underline = lowest average
Abbreviations: Total P = Total Phosphorus, SRP = Soluble Reactive Phosphorus, Total N = Total Nitrogen, Secchi = Secchi depth, Turb = Turbidity; m-meters, ug/L = micrograms per liter, 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.

Surface Water Diversions

The Oregon Water Resources Commission endorsed a strategy on improving statewide surface water measurement. This strategy involved identifying and inventorying surface water diversions that OWRD determined were significant based on certain water right criteria. Progress made by the District 18 Watermaster in 2011 included the installation of measuring devices for significant diversions within high priority water availability basins.

Surface water diversion metering on Gales Creek, a high priority stream for flow restoration.

Streamflow and Regulatory Overview 2011

According to the National Climatic Data Center, Oregon's spring of 2011 was the second wettest of 117 years of record keeping for rainfall. Only the spring of 1993 was wetter. In addition, below average temperatures allowed the snowpack to keep growing well into May. The weather allowed streamflows to be at record levels throughout this period and regulation did not occur until late June and early July. With a relatively late regulation season, total water usage throughout the summer months was below normal and storage supplies going into fall were above average.

Regulatory activity for 2011 is summarized in the table on the following page.

2011 WATER RIGHTS REGULATION SUMMARY

Date	On/Off	Regulatory Activity	River Mile	Priority Date
6/27/2011	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
7/6/2011	Off	TVID (P-35792, 2/20/2963) – Scoggins Creek	n/a	2/20/1963
7/6/2011	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
8/29/2011	Off	City of Hillsboro (P-2443, 5/15/1915) – Sain Creek		
9/8/2011	Off	City of Hillsboro (P-1136, 1/22/1912) – Sain Creek		
11/7/2011	On	TVID (P-3579, 2/20/1963) – Scoggins Creek	n/a	2/19/1963
11/7/2011	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
11/7/2011	On	City of Hillsboro (P-2443, 5/15/1915) – Sain Creek City of Hillsboro (P-1136, 1/22/1912) – Sain Creek		

WATERMASTER DISTRICT 18 GAGING STATIONS FOR 2011

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, AND TOM VANDERPLAAT

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.

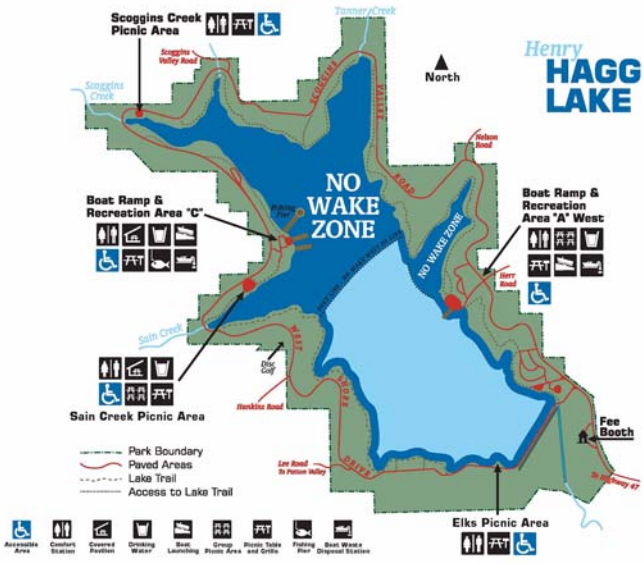
ALLOCATION OF WATER FROM SCOGGINS RESERVOIR

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

2011 Water Use

Water year 2011 marks 37 years since Scoggins Dam began storing and releasing water for downstream beneficial use. A total of 27,656 acre-feet were delivered in 2011 bringing the total delivery from the Project to more than 1,150,444 acre-feet.

Above average spring rainfall in 2011 resulted in higher than normal June streamflows which delayed the implementation of natural flow regulation. Flow regulation began on July 6 for the Joint Water Commission and TVID, although TVID had begun to augment flows on June 27 with 20 cfs. With the exception of TVID extended season irrigators, all users were permitted to return to natural flow use in the Tualatin River on November 7, 2011. 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 Commission.

2011 WATER DELIVERIES FROM SCOGGINS RESERVOIR

Delivered to	Volume (ac-ft)
Tualatin Valley Irrigation District	12,078
Clean Water Services	10,250
City of Beaverton	1,176
City of Forest Grove	1,449
City of Hillsboro	1,449
Lake Oswego Corporation	500
Other (includes two golf courses, from TVID allocation)	874
Total	**27,656**

Record Carry-over

In 2011 Scoggins Dam set a new record for the amount of water in storage during the late season. Typically the amount of water in storage in mid to late September ranges from 17,000 to 25,000 ac-ft. On September 21, 2011, the water surface elevation was 286.69' with 35,971 ac-ft in storage—a new high for late in the season. Only once before, in 1977, did the reservoir contain more water for that date. The reason for the large amount of storage water in 1977 was because the Tualatin project had not yet been completely "built out" and the Joint Water Treatment Plant now serving most of Washington County was not fully complete. Several factors influenced the situation in 2011, including a very wet and cold June which delayed agricultural use and the drawdown of Barney Reservoir which augmented the Tualatin River flows.

Events in 2011

Recreation: In 2011, there were 690,490 user-days recorded at Scoggins Valley Park/Henry Hagg Lake. The park and lake opened on March 5th and closed November 19st. In addition to the usual recreational uses, numerous races were held throughout the year including triathlons.

AT&T Tower: On July 12th, AT&T installed a new cell phone tower on Hankins Road. For the first time, there is now reliable mobile phone service out of Scoggins Valley. Service is welcomed for emergency use from the Scoggins and Sain Creek recreational areas. There is now service at the dam, not just from isolated areas. Most calls can be made and received from the Control House office and yard area below the spillway. Successful phone calls have even been made from the right abutment drain which is located in a heavily wooded area.

Lost Hunter: In October 2011, a deer hunter became disoriented and lost in the upper Sain Creek watershed. Fortunately, he found logging roads and began walking out. He was picked up on the Stimson mainline haul road by a log truck driver the next day and delivered safely to the sawmill. It was determined that he had traversed between 15 and 20 miles by foot between his vehicle just above the Forest Grove watershed and his point of discovery.

Coho Salmon: Five “jacks” and one female Coho were spotted in Scoggins Creek below the dam on November 14th. All water right regulations were lifted on the Tualatin River on November 14 so the discharge was decreased to 40 cfs to begin the Conservation Fill Season for 2012.

Lake Fish Habitat: The Oregon Panfish Club obtained permission to secure 100 structures (8' diameter) in the upper reaches of Henry Hagg Lake. This was in addition to 30 that had been previously placed and anchored. The structures were put in place in August 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: During 2011 and early 2012, extra effort was put into providing protection and care for the increasing number of resident elk in Scoggins Valley. The number of elk in the herd was counted at over 160 at one time. On December 15, 2010, a large herd was “bedded down” at the Washington County Disposal site located between the Fee Collectors Booth and the entry road to the Control House. After several vehicles stopped to look, the herd got up and migrated south across the elk pasture towards the sawmill property. Elk were in the same area or closer to the Control House at least six other times. In the fall of 2011, the designated elk pasture was plowed and reseeded according to the Oregon Department of Fish and Wildlife recommendations. During the winter, the field was occasionally crossed by the herd even though the new grass remained low. They continued to find good feeding grass and protection in the Stimson Lumber fields both south and east of the sawmill. In early 2012, 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 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 March 8 and 9th, 2011. The primary operator, Wally Otto and the back-up operator, John Goans were trained and tested for their knowledge and proficiency in operating skills of Scoggins Dam. Trainers included Mark Healy of the Bend Field Office, Chris Regilski, and Jill Armer-Brinkman of the Regional Office and John Suggs from the Denver Technical Service Center.

Inspections: The stilling basins are inspected on a six year rotation by Reclamation divers. Damage to the concrete structures occurs when rocks become trapped and continuously roll back and forth. No such damage was found in either the outlet works or the spillway stilling well basins at Scoggins Dam.

The first successful inspection of the intake structure was completed using an remote operated vehicle. The tower and associated works were all found to be in good condition and all screens were in place. Previous inspection attempts by divers had not succeeded because the water was too turbid or because the area was too dangerous. New BOR safety protocols now prohibit divers from getting near and inspecting structures unless the flow is completely shut off.

Spills and Water Quality: No spills or accidents that jeopardized the water quality in Henry Hagg Lake occurred in 2011 and the BOR on-site Response Trailer was not needed for emergency response. No containment booms were deployed to contain any contaminant spills during 2011.

Drownings: Thankfully, no drownings were reported in Henry Hagg Lake in 2011.

Functional Exercise: On May 10th, the Tualatin Valley Irrigation District and BOR participated in a countywide functional exercise named "Shear Dynamics 11." Two BOR personnel, Kathy Kihara and Megan McKay, were on site to observe how both TVID management and TVID operators responded to a developing condition and adhered to the Emergency Action Plan for Scoggins Dam. The exercise posed a threat to the safety of the dam and observers were pleased with all responses and communications. The next required exercise is scheduled for 2014 and should be a table top exercise. All players are typically in the same room making decisions and communicating with one another. This venue provides good opportunity for interaction and feedback.

Monitoring Seismic Activity: The Strong Motion Acceleragraph located on the Right Abutment received a major rehabilitation by BOR in March 2011.

Structural Concerns about Scoggins Dam : The BOR's Safety of Dams work on a Corrective Action Study continued in 2011. The concern is what effect a subduction zone earthquake of magnitude 9 or greater would have on Scoggins Dam. When Scoggins Dam was built in the early 1970s, the required standards were based on an earthquake of much lower magnitude than one that would result from the Cascadia Subduction Zone. BOR completed field investigations in 2009; onsite inspections and a review were made in September 2010. BOR also conducted two assessments of the potential for embankment or spillway failures in the event of a magnitude 9.0 earthquake with a 200 second duration. Based on new information about subduction zone earthquakes, the duration has now been lengthened to 400 seconds and some even suggest it could be longer!

The conclusion is that structural integrity of Scoggins Dam would be at risk from a subduction zone earthquake especially during full pool and that some action will be necessary to assure the safety of Scoggins Dam. The Corrective Action Study which is currently underway assesses the impact of potential actions. Any response, including no action, could have huge financial implications. As the owner of the Project, BOR (part of the federal government) is responsible for the population at risk downstream, as well as their contractual obligation to provide annual storage water to the Project lands.

On site, preparations for "sheltering in place" have been stepped up at the recommendation of the Forest Grove Fire District Chief. If a dam failure were to occur due to a major earthquake, it could be 1–2 weeks before emergency personnel could reach the site. Bridges probably would be impassable and the attention of emergency personnel would be directed to devastation within the community.

Earthquakes in 2011: There were no earthquakes in the region of Scoggins Dam during 2011. Had there been significant seismic activity below or near the dam, a complete inspection of the facility and adjacent areas would have been required.

On March 10, 2011 at 9:45 pm (PDT), Japan experienced a magnitude 8.9 earthquake that caused severe devastation and more than 15,000 deaths. A tsunami generated by the Japan earthquake affected the Oregon and Northern California coast but damage was light compared to what Japan suffered. It did provide a real life opportunity for the coastal communities to exercise their emergency tsunami warnings and evacuation plans. Nothing extra was needed for Scoggins Dam according to Reclamation officials. A routine "Ongoing Visual Inspection" of the toe, embankments, crest, spillway and outlet works was conducted with no visible signs of damage expected or found.

Scoggins Dam Security

Security at Scoggins dam remains a priority. A Site Security Review that was conducted in October 2010, gave high marks for all procedures and equipment. The Washington County Sheriff's Office was commended for their assistance in security matters.

Increased Patrols: Although there was no site specific threat to Scoggins Dam in 2011, increased security measures were implemented in mid-May as the reservoir neared full pool. At about the same time, BOR required increased and regular patrols in response to an unknown male scaling the perimeter fence of a Corps of Engineers dam less than 100 miles away. The intruder took numerous photos of spillway operating gear at that facility. When finished, he scaled back over the fence and left on a motorcycle. All of these actions were recorded on security cameras and the intruder was eventually apprehended; the purpose of the midnight intrusion into a well-marked secure no-trespass area is unknown. As a result, several precautionary measures were taken including increased monitoring (by the Washington County Sheriff, park staff, and TVID staff) and the use of surveillance cameras. BOR discontinued these extra measures on August 19, 2011. On October 21st, following a breach of security that occurred in the Portland metro area, BOR instituted a watch for a specific vehicle, but it was not seen at Scoggins Dam.

Property Damage: On December 13th, there was a incident at the gate leading to the viewpoint. A vehicle being pursued by a deputy Sheriff intended to go across the dam, but mistakenly missed the turn onto South Shore Drive. They turned instead onto the viewpoint road which leads directly into the lake. Fortunately, they crashed into the closed and locked gate. The gate was badly damaged but repaired by the WACO Parks staff.

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 2011 due to any specific terrorist alerts.

A new two tier alert system is taking the place of the old five level color alert. The two new levels are: Elevated Threat Alert (low or general risk in the old system) and Imminent Threat Alert (significant, high or severe risk in the old system). The transition of the Site Security Plan to the new system alerts has not been finalized.

National Terrorism Advisory System Alerts : NTAS Alerts will be issued only when credible information is available. These alerts will include a clear statement that there is an Imminent or an Elevated Threat. Using available information, the alerts will provide a concise summary of the potential threat, information about actions being taken to ensure public safety, and recommended steps that individuals, communities, businesses, and governments can take to help prevent, mitigate, or respond to the threat.

The NTAS Alerts will be based on the nature of the threat. In some cases alerts will be sent directly to law enforcement or affected areas of the private sector, while in others, alerts will be issued more broadly to the American people through both official and media channels. NTAS Alerts contain a sunset provision indicating a specific date when the alert expires—there will not be a constant NTAS Alert or blanket warning that there is an overarching threat. If threat information changes for an alert, the Secretary of Homeland Security may announce an updated NTAS Alert. All changes, including the announcement that cancels a NTAS Alert, will be distributed the same way as the original alert. For more information regarding the NTAS Alerts, please see the official DHS NTAS webpage at: http://www.dhs.gov/alerts.

Future of the Project

Tualatin Basin Water Supply Partnership: Water resource agencies in the Tualatin Basin have sought a sustainable source of water that would supply the region's homes, farms, businesses, and environment for the next 50 years. As Washington County continues to grow and develop, demand for water in the Tualatin Basin is expected to double by 2050, which would require an additional 50,000 ac-ft of water for a total of 100,000 acre-ft of water per year.

In 2001, the water resource agencies 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 are delayed until the Corrective Action Study by the BOR is completed. It is expected that the Scoggins Dam Seismic Corrective Action Study will be completed by the fall of 2012.

More information: More information about the Tualatin Basin Water Supply Project is available at:
www.tualatinbasinwatersupply.org

TUALATIN VALLEY IRRIGATION DISTRICT

BY WALLY OTTO, RESERVOIR SUPERINTENDENT

Tualatin Valley Irrigation District Overview

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

Most of the water supplied by TVID is pumped from the Tualatin River at the Spring Hill Pump Plant and delivered to TVID patrons via approximately 120 miles of pressurized pipeline. Additionally, water in both Scoggins Creek and the Tualatin River is withdrawn by irrigators 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.

2011 TVID Water Use

For the 2011 irrigation season (March through the end of November), TVID took delivery of 12,078 acre-feet of water from storage in Henry Hagg Lake—down 3,754 ac-ft from 2010. In 2010, however, 3,904 ac-ft had been released for an emergency flow augmentation project not related to irrigation so 2010 and 2011 required very similar amounts of storage for irrigation. The 12,078 ac-ft was 70.4% of the average TVID use over the past 10 years and 74.2% of the average use over 20 years. The least amount was 8,333 ac-ft in 1993 and the largest was 22,188 ac-ft in 2007.

Weather conditions

Weather conditions determine many of the operations of TVID. If spring is wet and cold, crop planting is delayed and water delivery is delayed as well. That was the case in 2011 when rainfall in March-May was greater than average and temperatures were lower than average through June. Some plantings were delayed or even cancelled. The low need for irrigation combined with higher than average river flows meant that natural flow in the Tualatin River provided adequate flow for all irrigation activity until June 28th when use of stored water for irrigation began.

In western Washington County, where TVID customers are located, conditions during the 2011 planting and growing seasons for many crops were less than ideal. The cool, wet spring combined with cooler than average temperatures during the peak growing season resulted in less demand for irrigation in 2011 compared to more typical years. Peak use for TVID from storage was 84 cfs on August 18th, less than that of recent years (99 cfs on August 16, 2010 and 125 cfs on June 30, 2009). Rainfall and temperature conditions in the Scoggins basin are shown below; a description of the weather conditions in 2011 is at the bottom of the following page.

WEATHER STATISTICS AT SCOGGINS DAM 2011

Month	Description	Precipitation		Average Temperature		Other
		2011	[average 1970-2011]	Low	High	
March	wet	9.67”	[5.50”]	38 ºF	50 ºF	
April	wet	5.35”	[3.51”]	36 ºF	54 ºF	
May	cool	2.96”	[2.20”]	41 ºF	60 ºF	last frost May 12th
June	dry, cool	0.78”	[1.48”]	49 ºF	68 ºF	only 1 day 80 ºF or higher
July	wet, cool	1.11”	[0.46”]	50 ºF	75 ºF	only 9 days 80 ºF or higher; lowest temperature only 39 ºF
August	dry	0	[0.70”]	52 ºF	80 ºF	2 days 90 ºF or higher
September	dry, warm	0.35	[1.45”]	51 ºF	79 ºF	5 days 90 ºF or higher
October	dry, cool	2.29	[3.40”]	45 ºF	61 ºF	

2011 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 2011.

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.

In 2011, Clean Water Services installed pressure recoding sensors on the West and North primary pipelines to help measure the negative consequences of low water pressure.

A pipeline relocation project along Glencoe Road was completed in preparation for the Glencoe/Hwy 26 overpass replacement. About 800' of 6" pipe and two turnout boxes were included in the work. All costs associated with this relocation were 100% reimbursable to TVID by ODOT.

Tributary Flow Restoration Projects: TVID and Clean Water Services continue their cooperative effort using the TVID water distribution network to supply water to several tributaries. Two new sites on West Fork Dairy Creek were added in 2011 for a total of six sites. The remaining four sites are located in 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.

....The Portland Climate Summary for the year of 2011...

January...rather uneventful...as la nina conditions continued across the east pacific. After a brief dry cool start to the month...mild and moist conditions developed. Several strong pacific fronts moved across the region...bringing rain and breezy conditions. After the 5th...temperatures did not drop below freezing.

February...mild conditions continue through much of the month. A strong cold front plowed across the region on the 24th...ushering in cold air...and snow. Generally one to two inches of snow fell on the 24th with temperatures dropping into the teens. More wet mild weather returned to close the month...when 1.50 to 2.25 inches of rain fell across the metro region.

March...this was a very damp month. Rain fell on all but one day. Monthly rainfall totals were more than twice that of normal...with 6.5 to 8 inches of rain across the metro area. It was the 5th wettest March in Portland since 1940. Due to persistent cloudiness...maximum temperatures closed about 4 degrees below normal. On the flip side overnight lows remained mild...and never dropped below freezing.

April...very similar to March...with plenty of damp and cloudy days. Again...monthly rainfall totals were over twice that of normal. April 2011 was the 3rd coolest and 3rd wettest April on record.

May and **June**...cool spring weather continued. Plagued by above normal cloud cover...the monthly average day time highs were below normal by about 5.5 degrees in May...and about 3.5 degrees in June. The spring season ended as the 3rd coolest since 1940.

July...finally...drier weather arrived...but it was still on the cool side for July. High pressure offshore dominated the weather pattern with more persistent onshore flow. As a result...there were many days with morning clouds and afternoon sunshine. A strong front passed across the region on the 17th...providing about two thirds of the rain for month.

August...ahh...summer arrived...albeit rather late. Daily high temperatures finally warmed into the 80s. The warmest of the month occurred on 20th and 21st as the mercury climbed into the mid 90s. The warmest day of 2011 was on the 20th...with 96 deg at Portland Airport and 92 deg in downtown Portland.

September...warm weather continued into September. The warmest stretch of days for 2011 occurred from the 6th through the 11th as daily highs reached into the 90s. Then a strong but dry cold front arrived with highs cooling back into the 60s and 70s. September 2011 was tied with 1991 as the 2nd warmest September on record (warmest is 1994).

October...rather benign month...but slightly cooler and drier than normal.

November...typical November...with rain and clouds. Temperatures did trend slightly cooler than normal. A series of fronts between the 21st and 24th brought rounds of heavy rain and wind to the metro area. Well over 2 inches of rain fell on the 22nd...with 3 to 5 inches of rain falling during this time frame across the metro.

December...a very dry month...as offshore flow dominated the weather pattern for the first three weeks of the month. Significantly less cloud cover allowed for very cool nights and fog. After the 25th a more steady stream of fronts brought much needed rainfall and milder conditions. Still...December closed as tied with 1978 as the 6th driest December since 1940.

The preceding information is from Annual Climate Report, National Weather Service, Portland, OR, used with permission from Steve Pierce, President of the Oregon Chapter of the American Meteorological Society and not endorsed by any organization.

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.

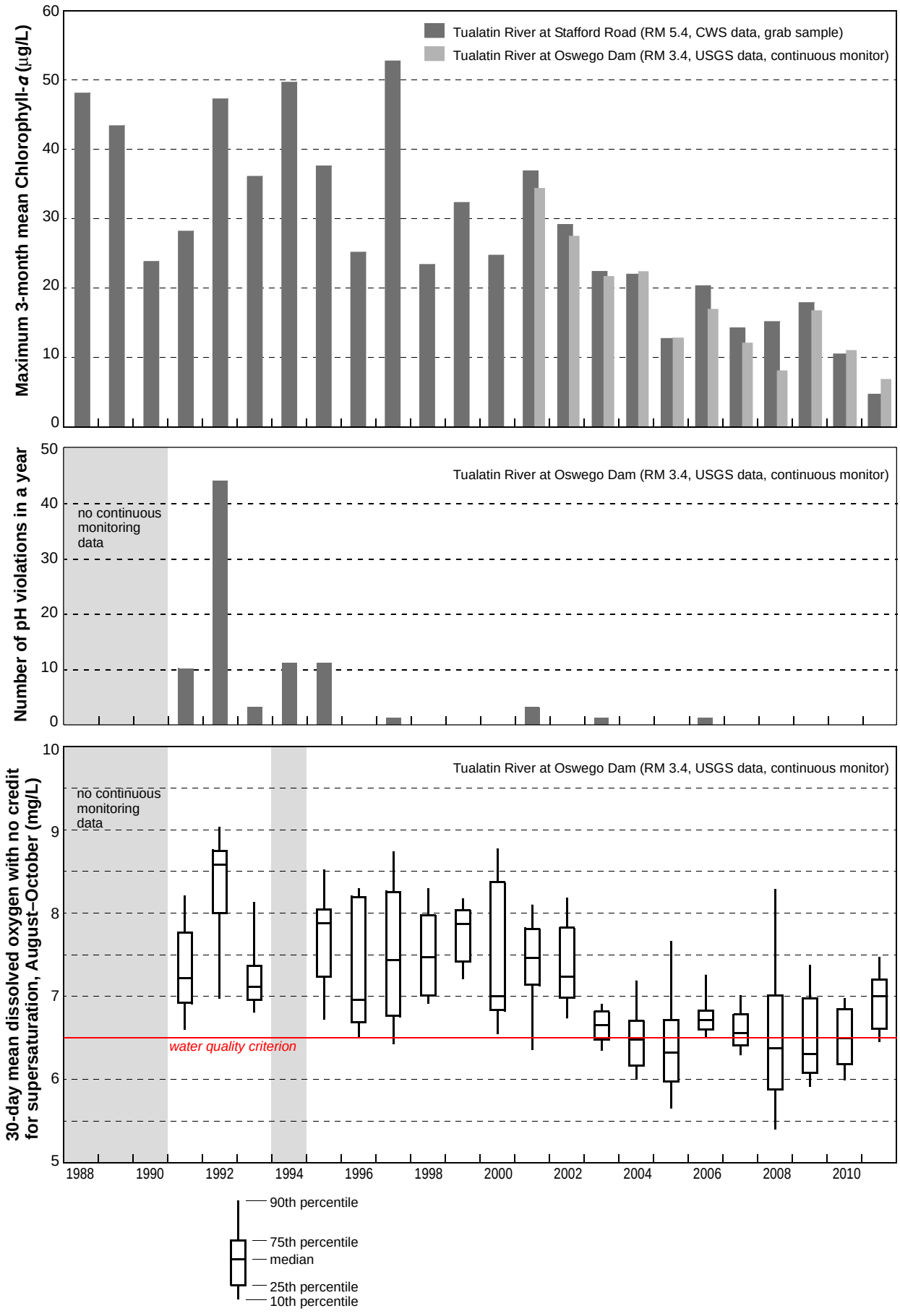
In the 1980s the lower section of the Tualatin River was listed by the ODEQ for elevated pH (>8.5) and degraded aesthetics due to nuisance algal growth. To address these water quality problems, the ODEQ developed a TMDL for phosphorus to limit nutrient availability. Since then, advanced wastewater treatment 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) and in 2011 were the lowest measured over the period of record for either Clean Water Services or USGS data. This may be due to a sunlight limitation from the rather cloudy weather in 2011, higher than average flows due to the wet spring, or an increased fraction of the flow attributable to the drawdown of Barney Reservoir.

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 2011, 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


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
Tualatin River at Oswego Dam (RM 3.4, USGS data, continuous monitor)
no continuous monitoring data
30-day mean dissolved oxygen with no credit for supersaturation, August–October (mg/L)
Tualatin River at Oswego Dam (RM 3.4, USGS data, continuous monitor)
no continuous monitoring data
water quality criterion
90th percentile
75th percentile
median
25th percentile
10th percentile

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.

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 2011 were better than those in most recent years. 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 2011

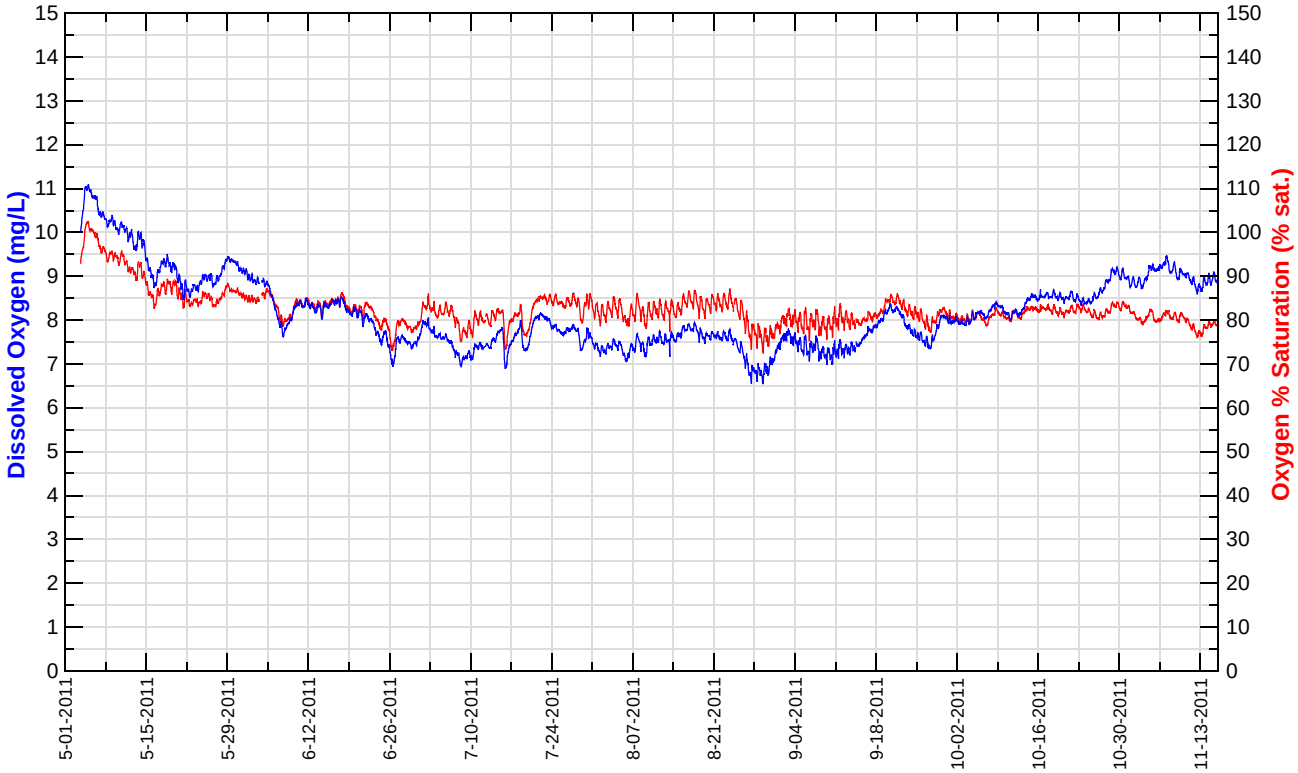
Criterion	May	June	July	Aug	Sept	Oct	May–October Percentage
Tualatin River at RM 24.5							
30 day	0	0	0	0	0	0	0%
7 day	0	0	0	0	0	0	0%
Daily	0	0	0	0	0	0	0%
Tualatin River at Oswego Dam (RM 3.4)							
30 day	0	0	0	0	3	13	9%
7 day	0	0	0	0	0	0	0%
Daily	0	0	0	0	0	0	0%

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

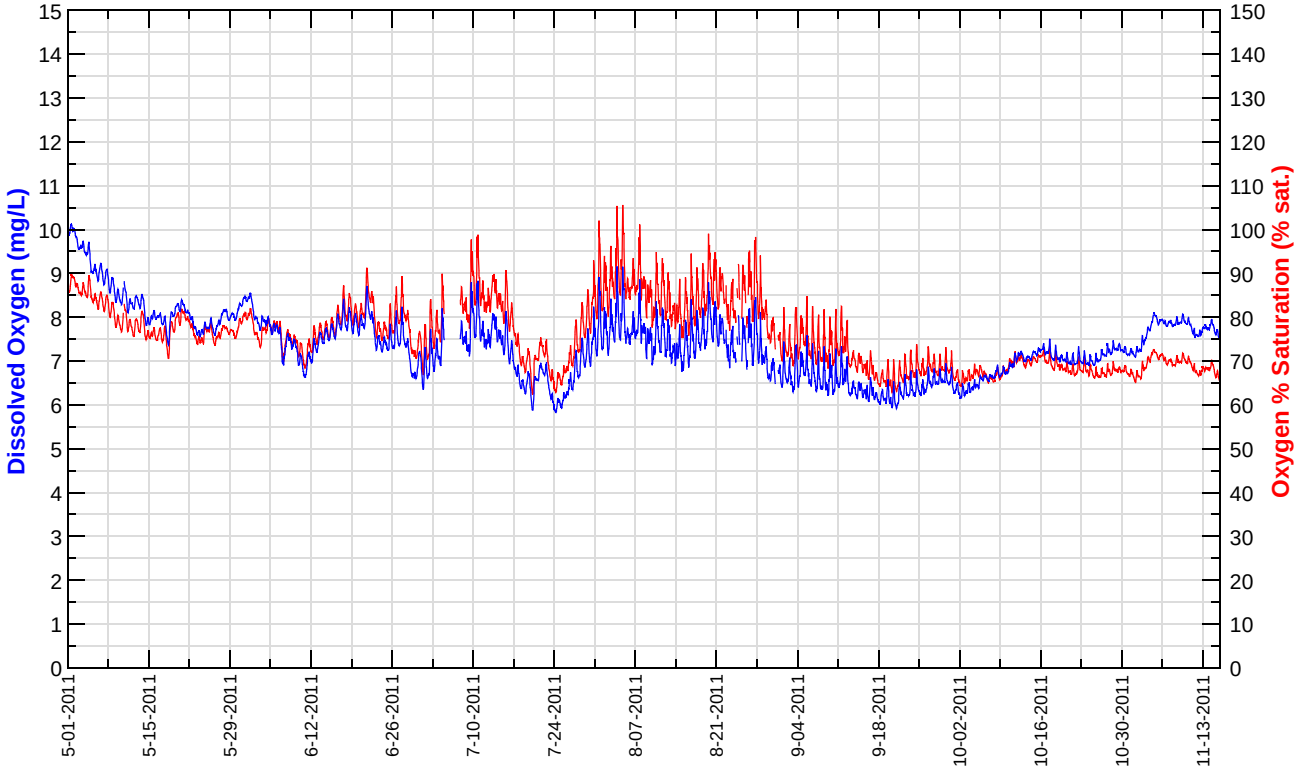
Tualatin River at River Mile 24.5 (14206694)

Data from U.S. Geological Survey



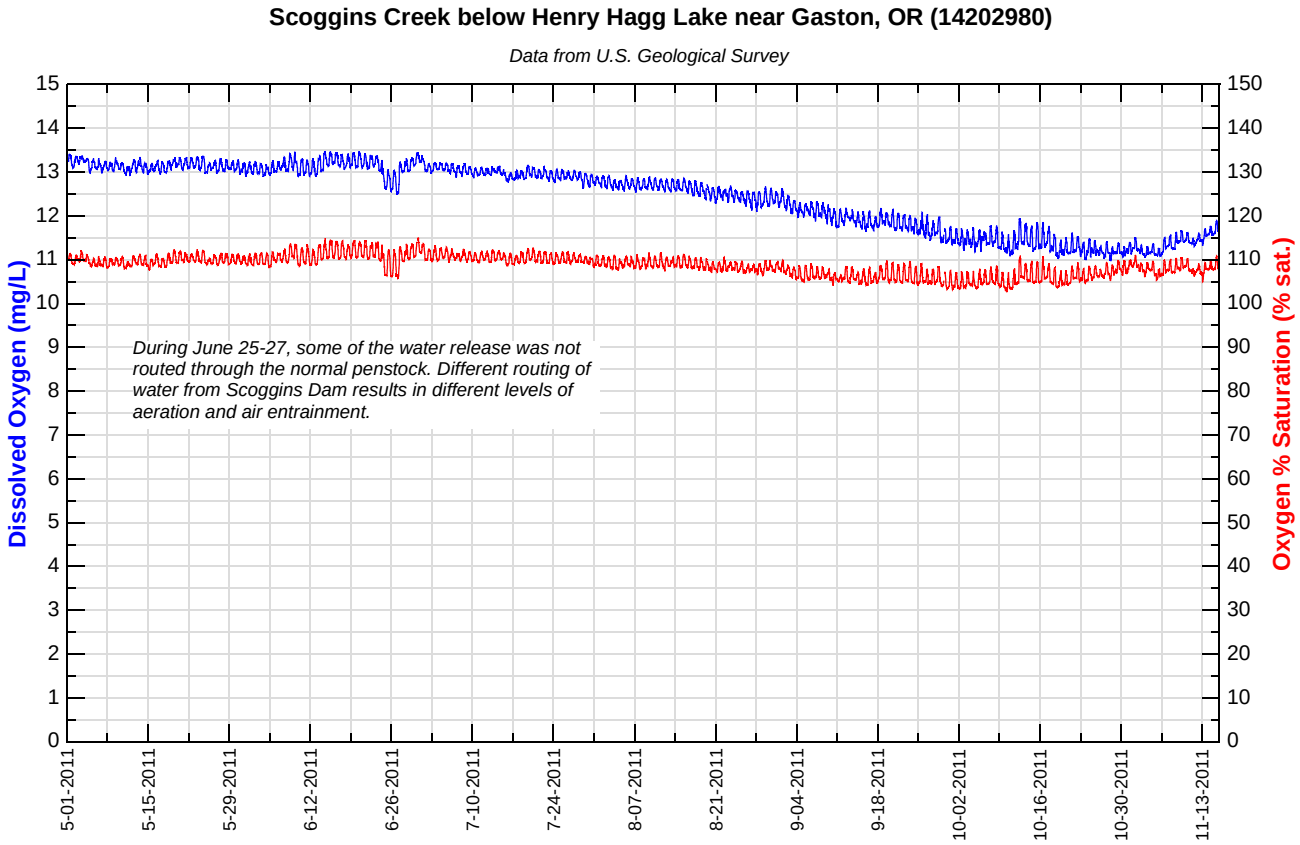
Tualatin River at Oswego Diversion Dam (14207200)

Data from U.S. Geological Survey



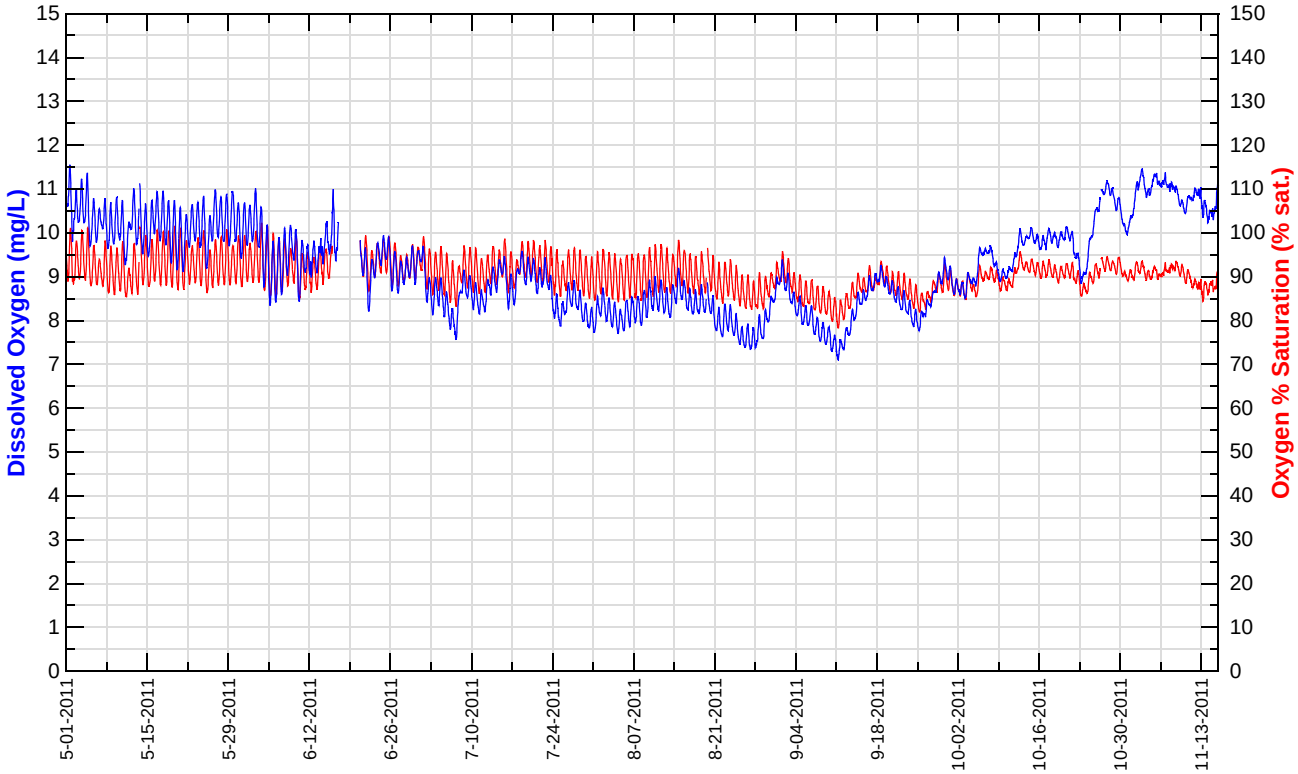
Dissolved Oxygen Status in Tributaries

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.



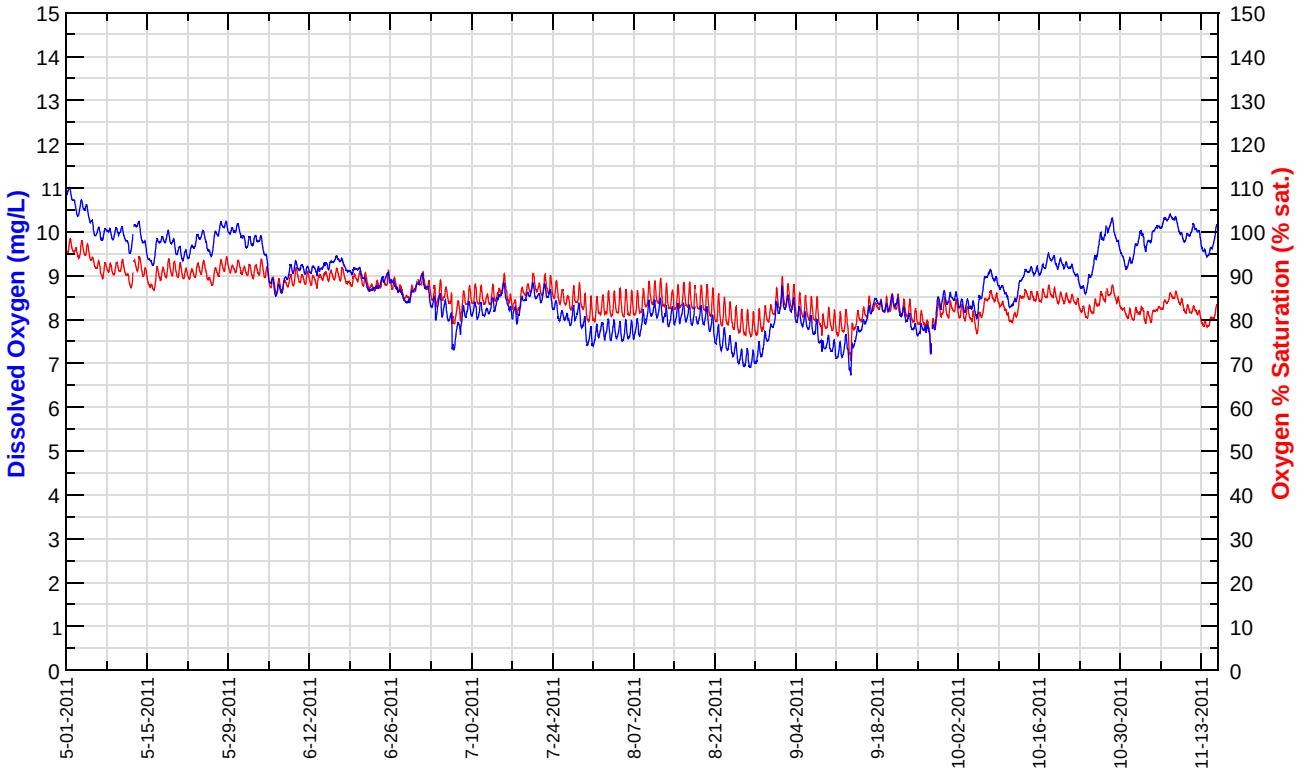
Gales Creek at Old Hwy 47, Forest Grove, OR (453040123065201)

Data from U.S. Geological Survey



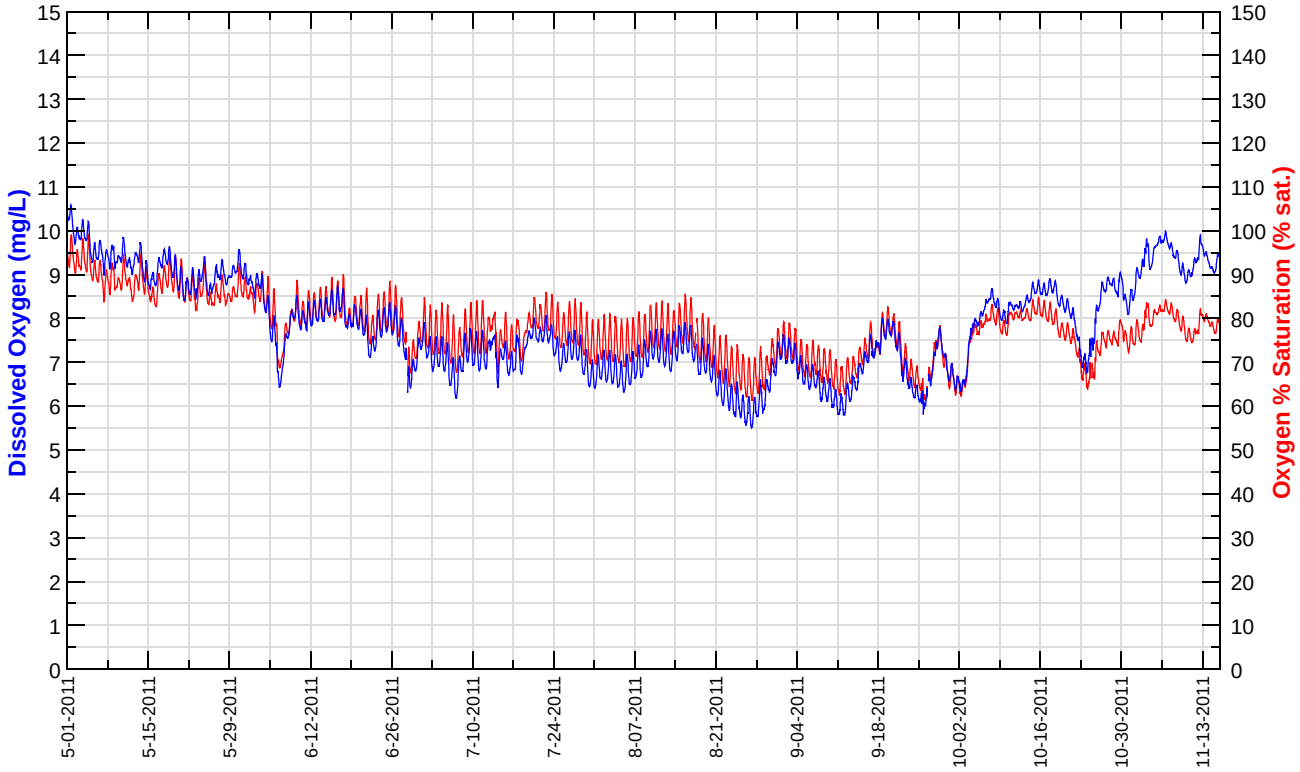
Dairy Creek at Hwy 8, Hillsboro, OR (453113123003501)

Data from U.S. Geological Survey



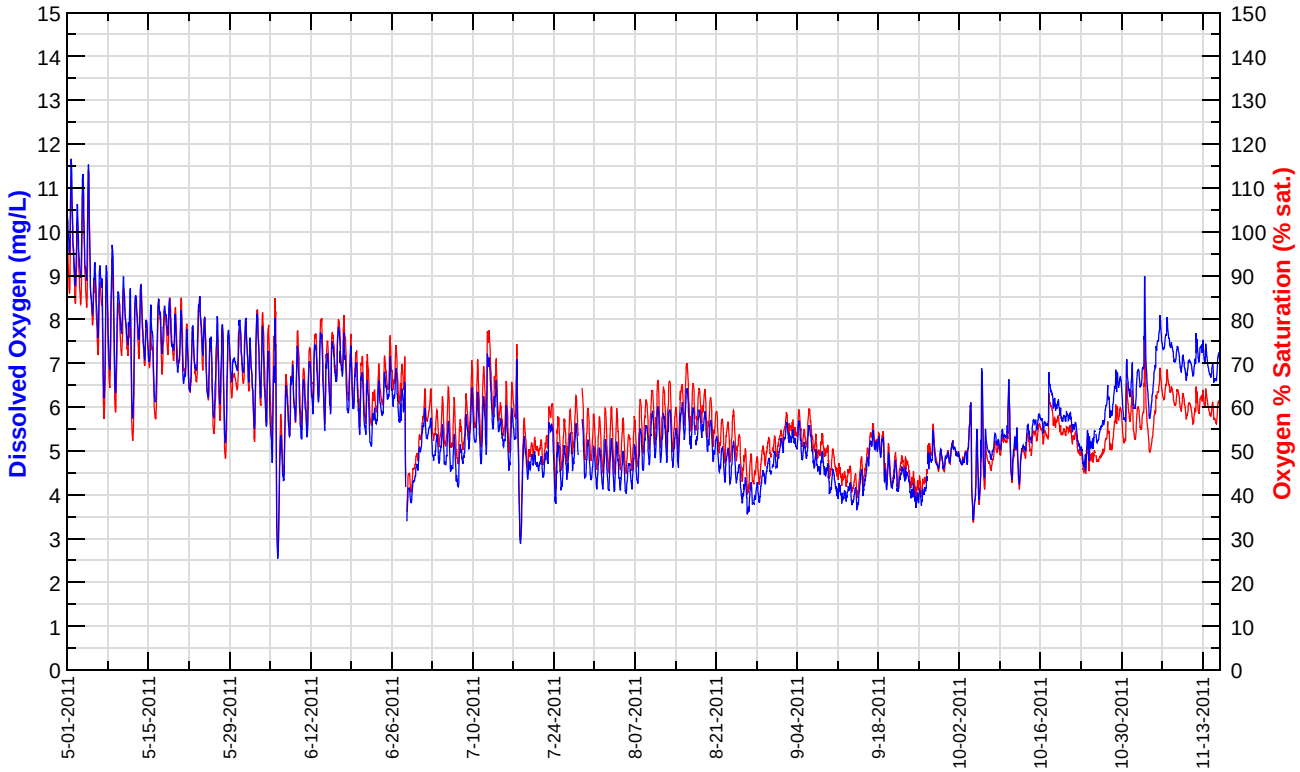
Rock Creek at Brookwood Ave, Hillsboro, OR (453030122560101)

Data from U.S. Geological Survey



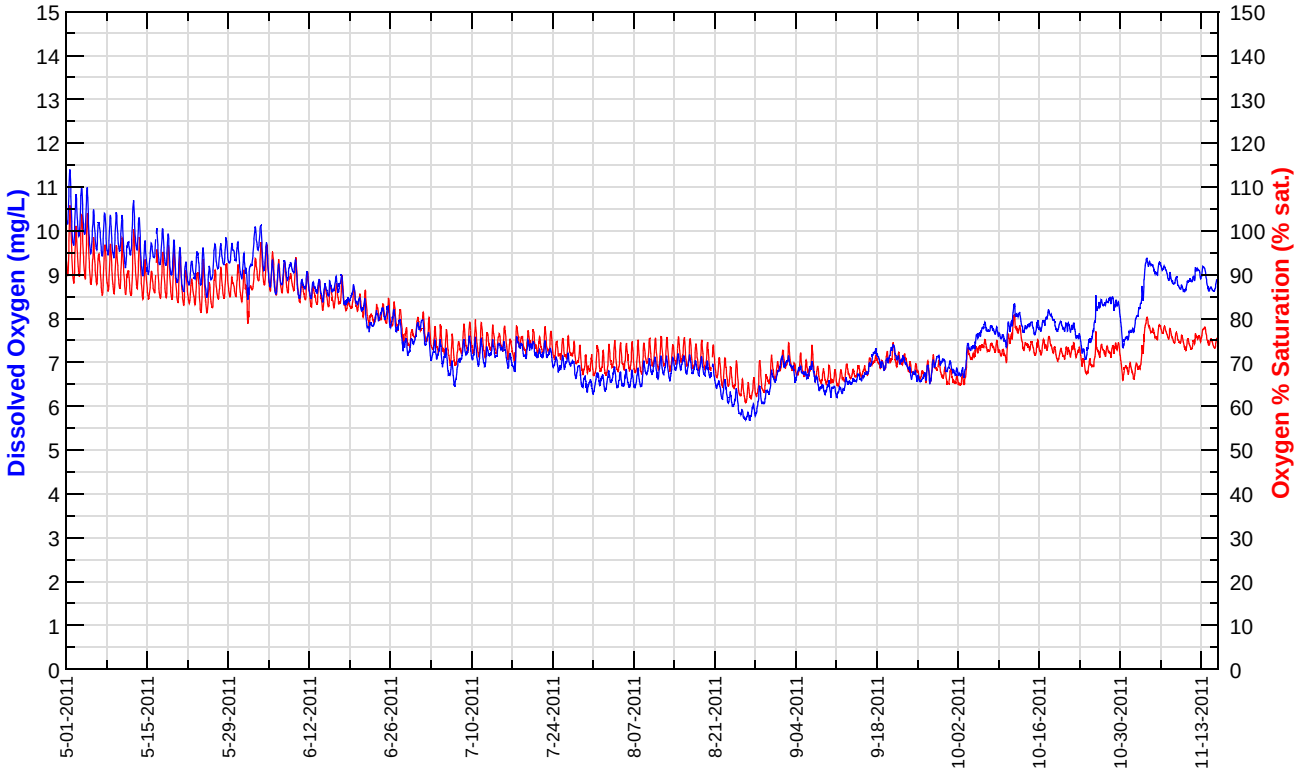
Beaverton Creek at 170th Ave, Beaverton, OR (453004122510301)

Data from U.S. Geological Survey



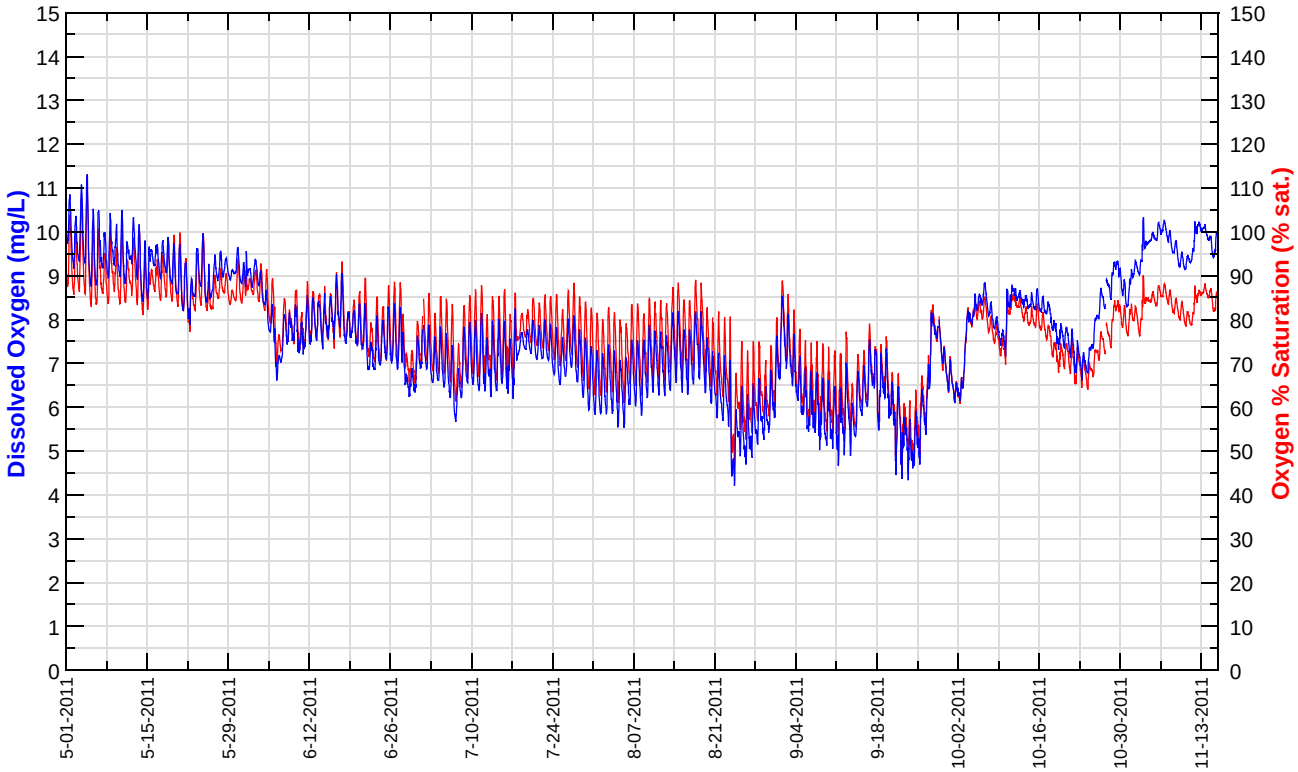
Chicken Creek at Roy Rogers Road, Sherwood, OR (452230122512201)

Data from U.S. Geological Survey



Fanno Creek at Durham Road (14206950)

Data from U.S. Geological Survey

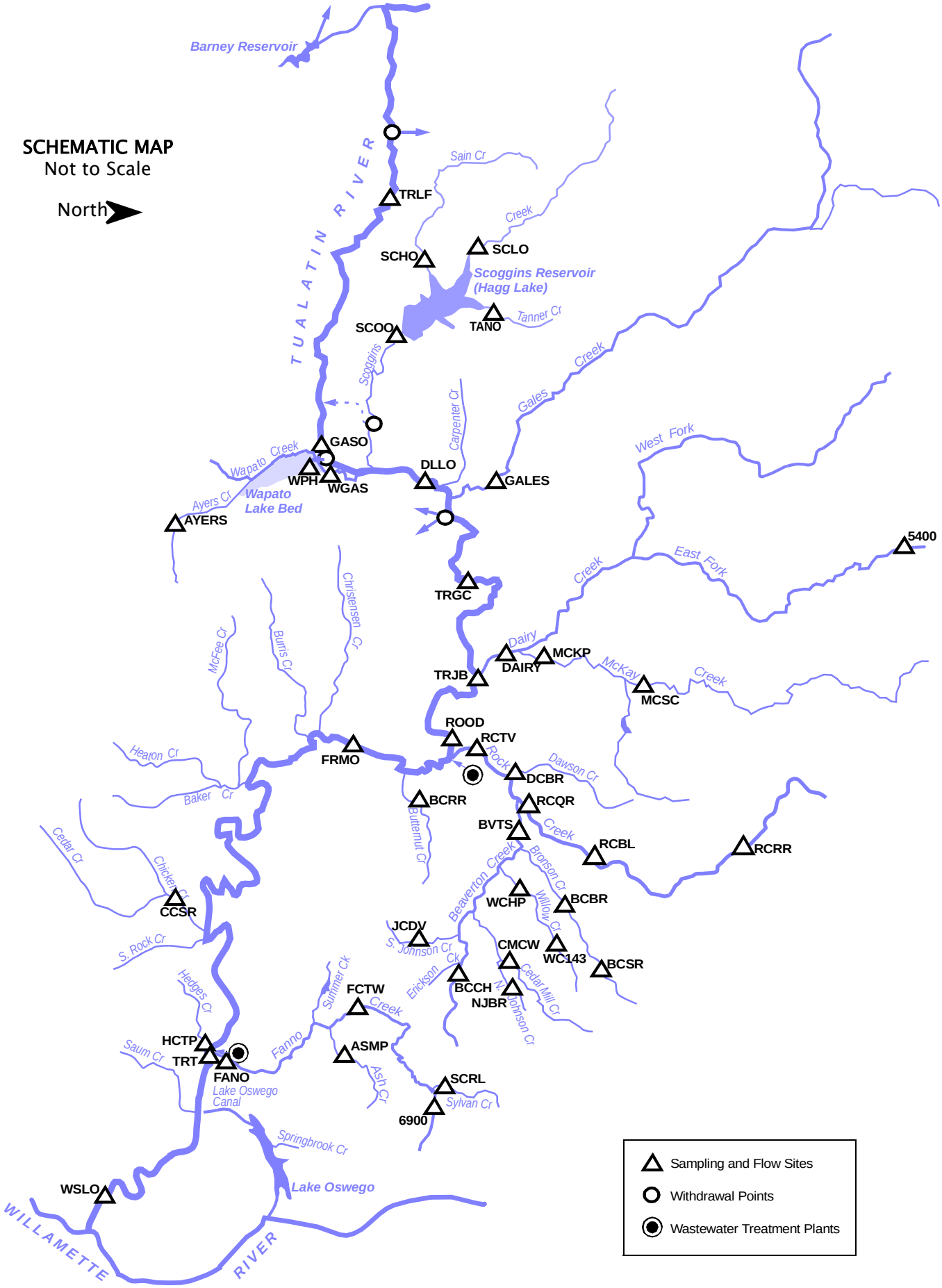


(this page intentionally blank)

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-39
ASMP	Ash Creek at Metzger Park at Metzger, Oregon	1.25	14206933	A-42
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-32
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-35
BCSR	Bronson Creek at Saltzman Road	5.1	14206419	A-31
BVTS	Beaverton Creek at NE Guston Court near Orenco, Oregon	1.2	14206435	A-33
CCSR	Chicken Creek at Roy Rogers Road near Sherwood, Oregon	2.3	14206750	A-38
CMCW	Cedar Mill Creek above Johnson Creek	2.1	14206385	A-27
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-34
DLLO	Tualatin River at Dilley, Oregon	58.8	14203500	A-13
FANO	Fanno Creek at Durham Road near Tigard, Oregon	1.2	14206950	A-43
FCTW	Fanno Creek at Tuckerwood	7.3	14206927	A-41
FRMO	Tualatin River at Farmington, Oregon	33.3	14206500	A-37
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-44
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
NJBR	North Johnson Creek at Butner Road	1.0	14206392	A-28
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-36
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-40
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-45
WC143	Willow Creek at 143rd Avenue near Beaverton, Oregon	3.5	14206410	A-29
WCHP	Willow Creek at Heritage Parkway near Beaverton, Oregon	0.75	14206413	A-30
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-46

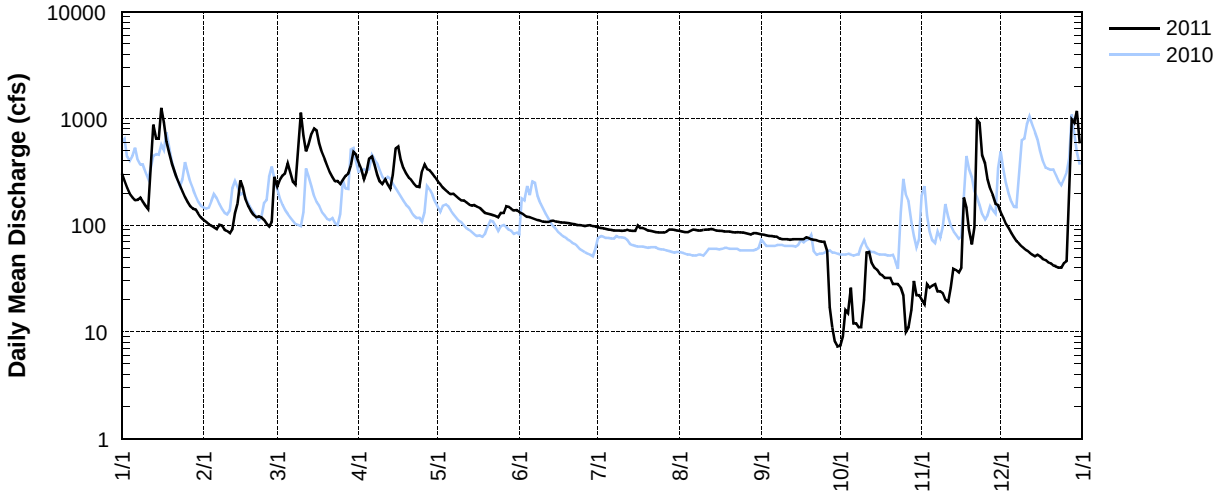
TRLF – 14202450 – TUALATIN RIVER BELOW LEE FALLS NEAR CHERRY GROVE, OREGON [RM 70.7]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	303	112	230	388	260	133	95	88	82	7.4	20	132
2	259	107	267	333	244	129	94	87	81	9	18	117
3	225	102	292	270	226	124	93	86	80	16	28	103
4	198	99	304	314	212	120	92	86	79	15	26	93
5	182	96	379	420	202	119	91	88	79	26	27	84
6	171	92	311	443	195	116	90	91	78	12	28	77
7	173	101	255	368	197	114	89	90	78	12	24	71
8	181	99	240	299	186	112	89	89	75	11	24	67
9	166	91	507	257	177	110	89	89	74	11	23	63
10	151	88	1140	244	170	108	88	90	74	20	20	60
11	141	84	691	268	170	107	89	91	74	55	19	58
12	359	92	494	241	163	107	91	91	73	56	26	55
13	876	129	575	220	156	109	89	92	74	44	39	53
14	645	159	719	295	152	110	88	91	74	40	38	51
15	645	263	804	523	155	108	88	89	74	38	36	53
16	1260	224	772	547	149	107	100	88	74	35	40	51
17	924	174	587	408	145	106	94	88	74	34	181	48
18	610	151	488	341	137	106	94	87	77	32	146	47
19	471	136	418	307	130	105	92	87	76	32	90	45
20	378	125	359	278	128	104	89	87	74	32	66	44
21	321	119	312	264	126	103	88	86	73	28	96	42
22	272	121	282	245	124	102	87	85	72	28	976	41
23	236	119	258	230	122	100	86	86	71	28	914	40
24	207	112	260	227	119	100	85	85	70	26	454	40
25	182	103	244	322	130	99	85	85	70	22	382	44
26	164	97	266	372	130	98	85	84	57	10	269	46
27	150	108	289	334	150	99	87	83	17	11	220	158
28	142	283	303	328	148	100	91	82	11	16	193	985
29	140	—	361	304	142	98	91	84	8.1	30	159	914
30	128	—	486	281	137	97	90	84	7.3	22	155	1180
31	119	—	461	—	138	—	89	83	—	22	—	585
TOTAL	10379	3586	13354	9671	5020	3250	2788	2702	1980.4	780.4	4737	5447
MEAN	335	128	431	322	162	108	89.9	87.2	66.0	25.2	158	176
MAX	1260	283	1140	547	260	133	100	92	82	56	976	1180
MIN	119	84	230	220	119	97	85	82	7.3	7.4	18	40
AC-FT	20590	7110	26490	19180	9960	6450	5530	5360	3930	1550	9400	10810

† Provisional data–subject to revision

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



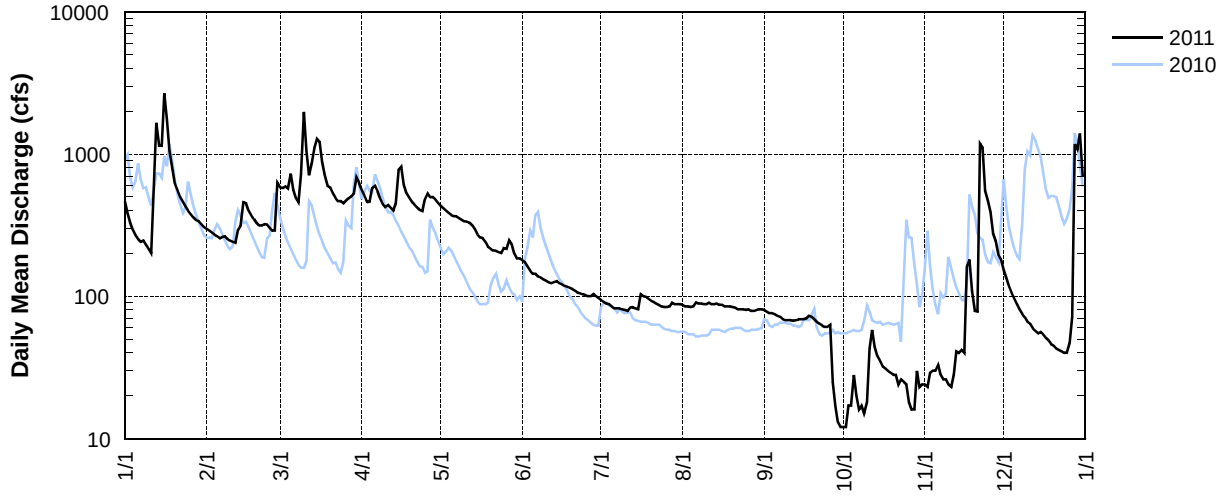
GASO – 14202510 – TUALATIN RIVER AT GASTON, OREGON [RM 62.3]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	463	298	579	561	434	179	94	87	80	12	24	153
2	385	289	578	509	416	173	91	85	78	12	23	135
3	332	280	591	460	400	162	89	85	76	17	29	118
4	294	272	e570	462	385	151	88	84	76	17	30	105
5	268	265	e727	576	374	144	85	85	75	28	30	96
6	252	256	559	597	365	144	82	90	73	20	33	88
7	242	261	488	548	365	138	82	89	72	16	28	81
8	247	264	457	486	355	136	82	89	69	17	26	75
9	231	253	e725	444	345	132	81	88	68	15	26	71
10	214	247	e1980	424	337	129	80	88	68	18	24	66
11	200	241	e1050	439	334	126	79	90	68	43	23	64
12	e585	238	e710	421	330	124	83	88	67	58	28	60
13	e1660	293	e849	401	315	126	84	88	68	44	41	57
14	e1140	313	e1110	450	295	128	82	89	69	38	40	55
15	e1140	459	e1280	e777	272	124	81	87	69	35	42	56
16	e2670	453	e1220	e814	260	122	103	87	69	32	40	54
17	e1770	399	e878	e607	256	119	100	85	70	31	164	51
18	e1060	371	e712	530	241	117	99	85	73	30	182	49
19	e788	350	e598	495	222	115	96	85	72	29	110	46
20	e616	328	583	461	216	113	93	84	69	28	79	45
21	556	315	530	443	210	110	91	83	66	28	78	43
22	500	314	494	423	209	106	89	81	64	24	e1180	42
23	460	321	466	406	205	105	87	81	62	26	e1110	41
24	427	320	466	398	201	103	85	81	61	25	e551	40
25	400	303	450	484	218	102	84	80	61	24	e467	40
26	379	290	469	528	215	100	84	81	63	18	389	47
27	359	290	489	497	246	100	85	79	25	16	276	72
28	344	e626	504	499	232	104	90	79	17	16	245	e1170
29	339	—	528	479	199	100	88	80	13	30	193	e1080
30	322	—	e684	454	184	97	88	81	12	23	180	e1400
31	308	—	e631	—	184	—	88	81	—	24	—	e693
TOTAL	18951	8909	21955	15073	8820	3729	2713	2625	1873	794	5691	6193
MEAN	611	318	708	502	285	124	87.5	84.7	62.4	25.6	190	200
MAX	2670	626	1980	814	434	179	103	90	80	58	1180	1400
MIN	200	238	450	398	184	97	79	79	12	12	23	40
AC-FT	37590	17670	43550	29900	17490	7400	5380	5210	3720	1580	11290	12290

† 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.

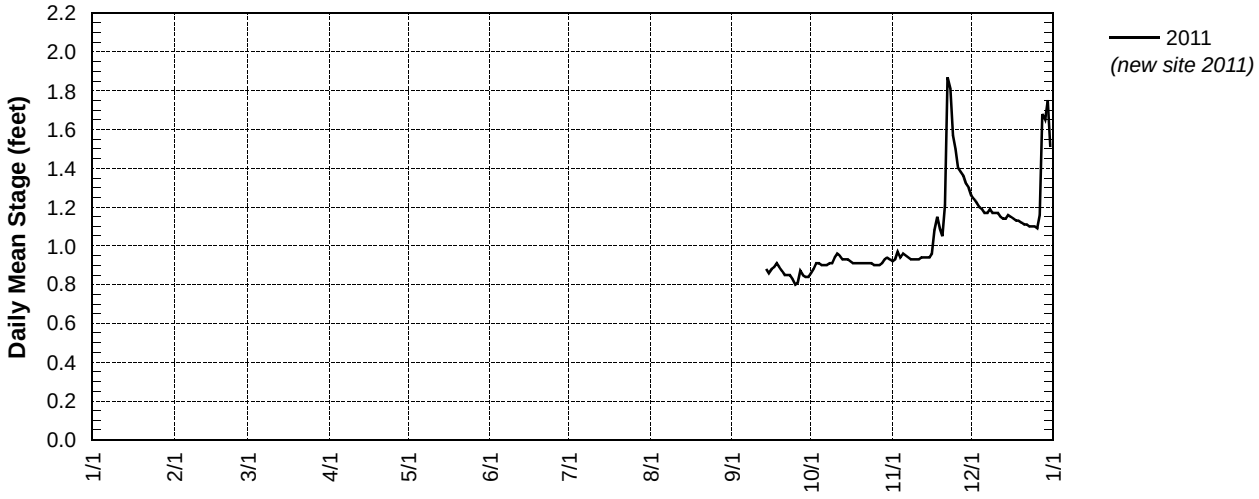
LATITUDE: 452245 LONGITUDE: 1230546

Stage, in feet, Calendar Year January to December 2011 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP*	OCT†	NOV†	DEC†
1										0.86	0.92	1.26
2										0.88	0.93	1.24
3										0.91	0.97	1.22
4										0.91	0.94	1.20
5										0.90	0.96	1.19
6										0.90	0.95	1.17
7										0.90	0.94	1.17
8										0.91	0.93	1.19
9										0.91	0.93	1.17
10										0.94	0.93	1.17
11										0.96	0.93	1.17
12										0.95	0.94	1.15
13										0.93	0.94	1.14
14									0.88	0.93	0.94	1.14
15									0.86	0.93	0.94	1.16
16									0.88	0.92	0.96	1.15
17									0.89	0.91	1.08	1.14
18									0.91	0.91	1.15	1.13
19									0.89	0.91	1.09	1.13
20									0.87	0.91	1.05	1.12
21									0.85	0.91	1.21	1.11
22									0.85	0.91	1.87	1.11
23									0.85	0.91	1.81	1.10
24									0.83	0.91	1.57	1.10
25									0.80	0.90	1.50	1.10
26									0.81	0.90	1.40	1.09
27									0.87	0.90	1.38	1.16
28									0.85	0.91	1.36	1.68
29		—							0.84	0.93	1.32	1.65
30		—							0.84	0.94	1.30	1.75
31		—		—		—			—	0.93	—	1.51
MEAN										0.91	1.14	1.22
MAX										0.96	1.87	1.75
MIN										0.86	0.92	1.09

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

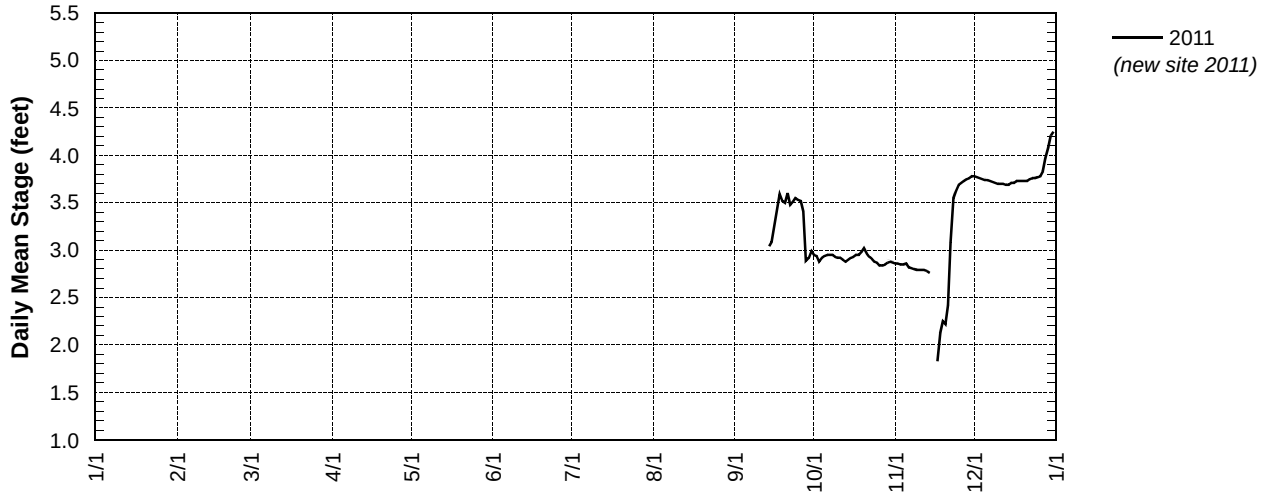
LATITUDE: 452625 LONGITUDE: 1230731

Stage, in feet, Calendar Year January to December 2011 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP*	OCT†*	NOV†*	DEC†
1											2.86	3.78
2											2.86	3.77
3											2.85	3.76
4											2.85	3.75
5											2.86	3.74
6										2.95	2.82	3.74
7										2.95	2.81	3.73
8										2.95	2.80	3.72
9										2.93	2.79	3.71
10										2.92	2.79	3.70
11										2.92	2.79	3.70
12										2.90	2.79	3.70
13										2.88	2.78	3.69
14										2.90		3.69
15										2.92		3.71
16										2.93		3.71
17										2.95		3.73
18										2.95		3.73
19										2.98	2.25	3.73
20										3.02	2.22	3.73
21										2.97	2.42	3.73
22										2.93	3.07	3.75
23										2.91	3.55	3.76
24										2.88	3.63	3.76
25										2.87	3.69	3.77
26										2.84	3.71	3.78
27										2.84	3.73	3.83
28										2.85	3.75	3.97
29		—								2.87	3.76	4.08
30		—								2.88	3.78	4.21
31		—		—		—			—	2.87	—	4.25
MEAN										2.91	3.05	3.79
MAX										3.02	3.78	4.25
MIN										2.84	2.22	3.69

*Incomplete record (monthly statistics were computed when at least 80% of the record was complete for the month); † Provisional data–subject to revision

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.

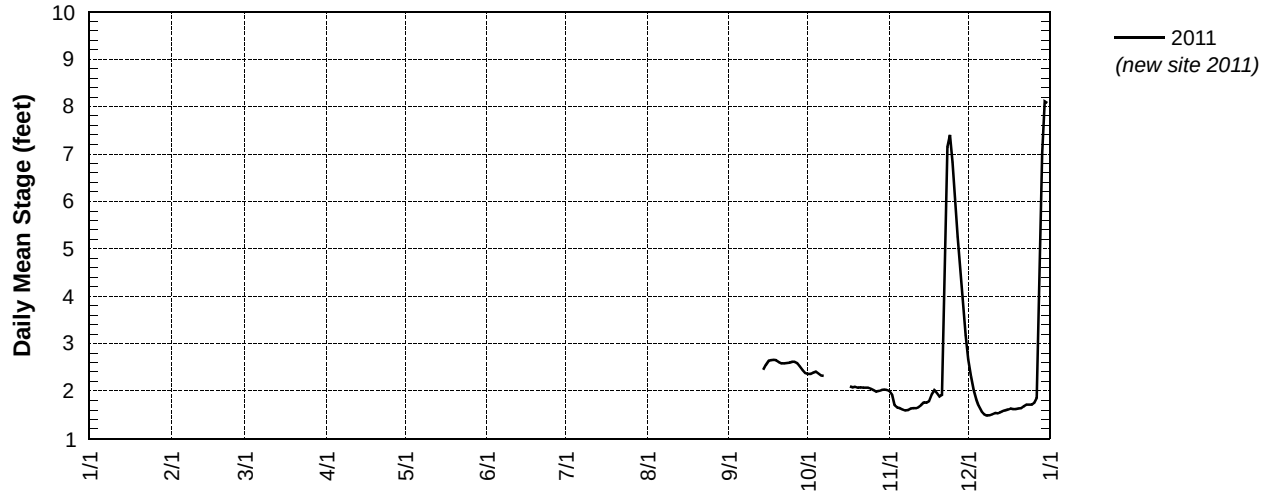
LATITUDE: 452626 LONGITUDE: 1230730

Stage, in feet, Calendar Year January to December 2011 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP*	OCT†*	NOV†	DEC†
1										2.36	2.00	2.67
2										2.36	1.93	2.30
3										2.39	1.70	2.02
4										2.41	1.65	1.83
5										2.37	1.64	1.68
6										2.33	1.61	1.58
7										2.32	1.59	1.51
8											1.60	1.48
9											1.63	1.49
10											1.64	1.51
11											1.64	1.54
12											1.66	1.53
13											1.70	1.55
14									2.45		1.76	1.58
15									2.55		1.75	1.59
16									2.64		1.79	1.61
17									2.65	2.10	1.92	1.63
18									2.66	2.08	2.02	1.62
19									2.65	2.09	1.96	1.62
20									2.61	2.07	1.89	1.63
21									2.58	2.08	1.92	1.64
22									2.58	2.07	3.89	1.68
23									2.59	2.07	7.15	1.71
24									2.60	2.07	7.40	1.71
25									2.62	2.05	6.83	1.71
26									2.62	2.02	6.05	1.75
27									2.59	1.99	5.26	1.86
28									2.52	2.00	4.55	4.67
29		—							2.44	2.02	3.82	7.01
30		—							2.38	2.03	3.18	8.11
31		—		—		—			—	2.02	—	8.08
MEAN											2.84	2.19
MAX											7.40	8.11
MIN											1.59	1.48

*Incomplete record (monthly statistics were computed when at least 80% of the record was complete for the month); † Provisional data–subject to revision

14202650 — Wapato Creek at Gaston Road at Gaston, Oregon



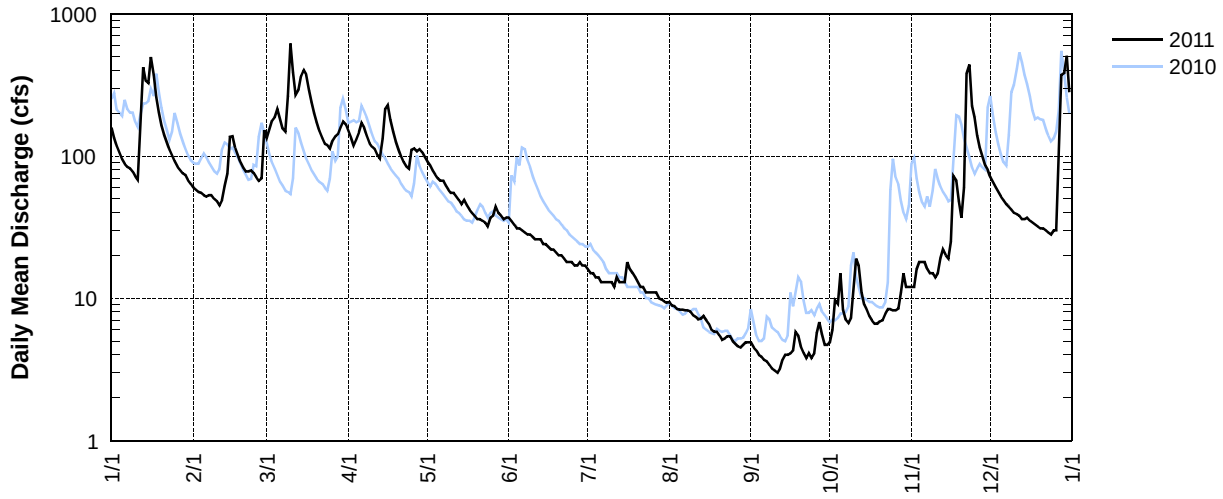
SCLO – 14202850 – SCOGGINS CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 9.3]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	158	60	134	150	92	37	16	9.4	4.9	4.9	12	71
2	134	58	154	135	86	35	15	8.9	4.5	6.0	12	65
3	118	56	177	119	79	33	15	8.8	4.3	9.7	16	60
4	105	55	188	131	74	31	14	8.4	4.0	9.1	18	56
5	95	53	214	147	70	31	14	8.3	3.9	15	18	52
6	88	52	184	170	67	30	13	8.3	3.7	8.3	18	49
7	84	53	157	158	67	29	13	8.2	3.6	7.1	16	46
8	82	53	149	139	62	28	13	8.2	3.4	6.7	15	44
9	78	50	264	123	58	28	13	8.1	3.2	7.3	15	42
10	72	48	618	116	55	27	13	7.6	3.1	12	14	40
11	68	45	388	112	55	26	12	7.4	3.0	19	15	39
12	151	49	270	102	52	26	14	7.1	3.2	17	19	38
13	422	61	293	96	49	26	13	7.2	3.7	11	22	36
14	337	75	366	133	46	24	13	7.5	4.0	9.0	20	36
15	325	136	403	215	49	24	13	7	4.0	8.3	19	37
16	497	138	374	229	45	23	18	6.6	4.1	7.5	25	35
17	372	114	290	180	42	22	16	6	4.3	7.0	72	34
18	259	101	238	148	40	22	15	5.8	5.8	6.6	67	33
19	202	90	200	127	38	21	14	5.8	5.5	6.6	48	32
20	164	83	172	112	36	20	13	5.5	4.5	6.9	37	31
21	142	78	150	100	36	20	12	5.1	4.1	7.0	60	31
22	125	78	134	91	35	19	12	5.2	3.8	7.8	380	30
23	111	79	122	84	34	18	11	5.4	4.1	8.4	440	29
24	101	76	120	81	32	18	11	5.4	3.8	8.4	225	28
25	92	71	113	111	37	18	11	5	4.1	8.2	187	30
26	84	67	128	113	38	17	11	4.8	5.7	8.2	140	30
27	80	70	138	108	44	17	11	4.6	6.8	8.5	115	81
28	76	152	143	112	40	18	10	4.5	5.6	11	99	372
29	74	—	159	107	38	17	9.8	4.7	4.7	15	86	385
30	68	—	175	99	36	17	9.5	4.9	4.7	12	80	508
31	64	—	167	—	37	—	9.3	4.9	—	12	—	281
TOTAL	4828	2101	6782	3848	1569	722	397.6	204.6	128.1	291.5	2310	2681
MEAN	156	75	219	128	50.6	24.1	12.8	6.6	4.27	9.4	77	86
MAX	497	152	618	229	92	37	18	9.4	6.8	19	440	508
MIN	64	45	113	81	32	17	9.3	4.5	3	4.9	12	28
AC-FT	9580	4170	13450	7630	3110	1430	789	406	254	580	4580	5320

† Provisional data–subject to revision

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



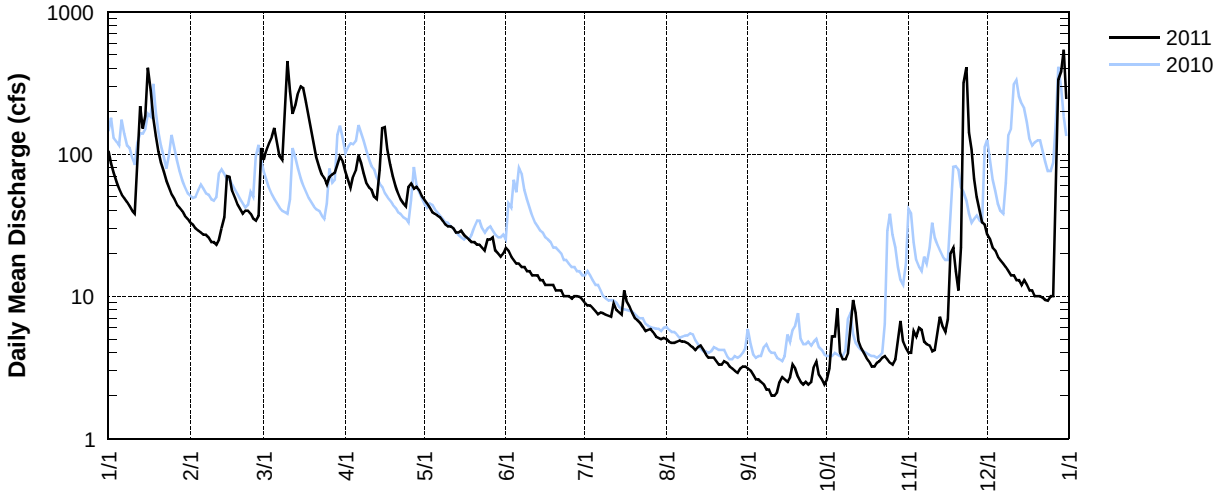
SCHO – 14202920 – SAIN CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 1.6]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	105	33	91	75	48	22	9.0	5.0	3.1	2.6	4.0	27
2	86	32	107	66	45	21	8.6	4.8	3.0	3.1	4.0	25
3	74	30	119	58	42	19	8.6	4.7	2.8	5.2	5.7	22
4	64	29	132	70	39	18	8.3	4.7	2.6	5.2	5.2	21
5	57	28	153	78	38	17	7.9	4.8	2.6	8.2	6.0	19
6	52	27	121	98	37	17	7.5	4.9	2.5	4.0	5.8	18
7	49	27	97	87	36	16	7.7	4.8	2.4	3.6	4.8	17
8	46	26	91	73	34	16	7.6	4.8	2.2	3.6	4.6	16
9	43	24	203	62	32	15	7.4	4.7	2.2	4.0	4.5	15
10	40	24	450	58	31	15	7.3	4.5	2.0	6.3	4.1	14
11	38	23	277	56	31	14	7.2	4.4	2.0	9.4	4.2	14
12	82	25	192	50	30	14	8.9	4.2	2.1	7.6	5.5	13
13	217	30	222	48	28	14	8.0	4.4	2.5	4.8	7.2	13
14	151	36	270	77	28	13	7.7	4.5	2.7	4.3	6.1	12
15	185	70	299	153	29	13	7.4	4.2	2.6	4.0	5.6	13
16	404	69	292	155	27	12	11	3.9	2.5	3.7	6.9	12
17	280	55	231	108	26	12	9.1	3.7	2.7	3.5	20	11
18	179	49	184	84	25	12	8.4	3.7	3.3	3.2	22	11
19	134	44	146	70	24	12	7.6	3.7	3.1	3.2	15	10
20	104	41	117	60	24	11	7.0	3.5	2.7	3.4	11	10
21	87	38	95	53	23	11	6.8	3.3	2.5	3.5	22	10
22	75	40	81	48	23	11	6.5	3.3	2.4	3.7	317	9.8
23	65	40	72	45	22	10	6.1	3.5	2.5	3.8	408	9.4
24	58	38	68	43	21	10	5.7	3.4	2.4	3.6	142	9.3
25	52	35	61	59	25	10	5.8	3.2	2.5	3.4	108	10
26	48	34	69	62	25	9.6	5.9	3.1	3.2	3.3	67	10
27	44	37	72	57	26	10	5.6	3.0	3.5	3.6	50	39
28	42	110	74	59	21	10	5.2	2.9	2.8	4.9	40	334
29	40	—	84	56	20	9.9	5.1	3.1	2.6	6.7	33	383
30	37	—	96	51	19	9.5	5.0	3.2	2.4	4.8	32	540
31	35	—	88	—	20	—	5.1	3.2	—	4.3	—	244
TOTAL	2973	1094	4654	2119	899	404	225	123.1	78.4	138.5	1371.2	1911.5
MEAN	95.9	39.1	150	70.6	29	13.5	7.26	3.97	2.61	4.5	46	62
MAX	404	110	450	155	48	22	11	5	3.5	9.4	408	540
MIN	35	23	61	43	19	9.5	5	2.9	2	2.6	4	9.3
AC-FT	5900	2170	9230	4200	1780	801	446	244	156	270	2720	3790

† Provisional data–subject to revision

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



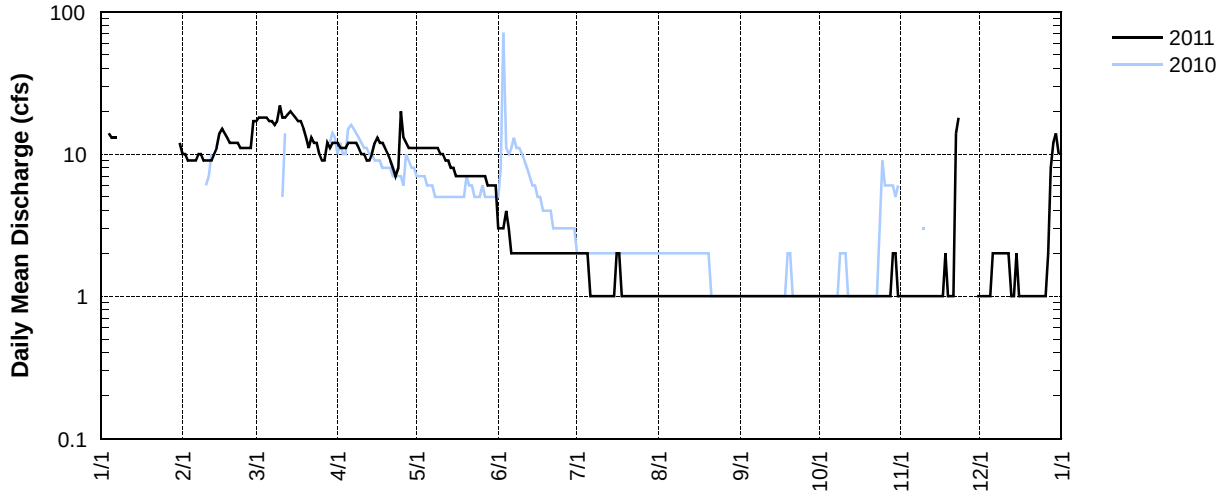
TANO – 14202860 – TANNER CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 1.6]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second[a]											
	JAN*	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV*	DEC
1		10	17	12	11	3	2	1	1	1	1	1
2		10	18	11	11	3	2	1	1	1	1	1
3		9	18	11	11	3	2	1	1	1	1	1
4	14	9	18	11	11	4	2	1	1	1	1	1
5	13	9	18	12	11	3	2	1	1	1	1	1
6	13	9	17	12	11	2	1	1	1	1	1	2
7	13	10	17	12	11	2	1	1	1	1	1	2
8		10	16	12	11	2	1	1	1	1	1	2
9		9	17	11	11	2	1	1	1	1	1	2
10		9	22	10	10	2	1	1	1	1	1	2
11	12	9	18	10	10	2	1	1	1	1	1	2
12		9	18	9	9	2	1	1	1	1	1	2
13		10	19	9	9	2	1	1	1	1	1	1
14	20	11	20	10	8	2	1	1	1	1	1	1
15		14	19	12	8	2	1	1	1	1	1	2
16		15	18	13	7	2	2	1	1	1	1	1
17		14	17	12	7	2	2	1	1	1	1	1
18	20	13	17	12	7	2	1	1	1	1	2	1
19		12	15	11	7	2	1	1	1	1	1	1
20		12	13	10	7	2	1	1	1	1	1	1
21	16	12	11	9	7	2	1	1	1	1	1	1
22		12	13	8	7	2	1	1	1	1	14	1
23		11	12	7	7	2	1	1	1	1	18	1
24	14	11	12	8	7	2	1	1	1	1		1
25		11	10	20	7	2	1	1	1	1		1
26		11	9	13	7	2	1	1	1	1		1
27		11	9	12	7	2	1	1	1	1		2
28	14	17	12	11	6	2	1	1	1	1	3	8
29		—	11	11	6	2	1	1	1	2		12
30		—	12	11	6	2	1	1	1	2	1	14
31	12	—	12	—	6	—	1	1	—	1	—	10
TOTAL		309	475	332	261	66	38	31	30	33	58	80
AC-FT		613	942	659	518	131	75	61	60	65	115	159

*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]

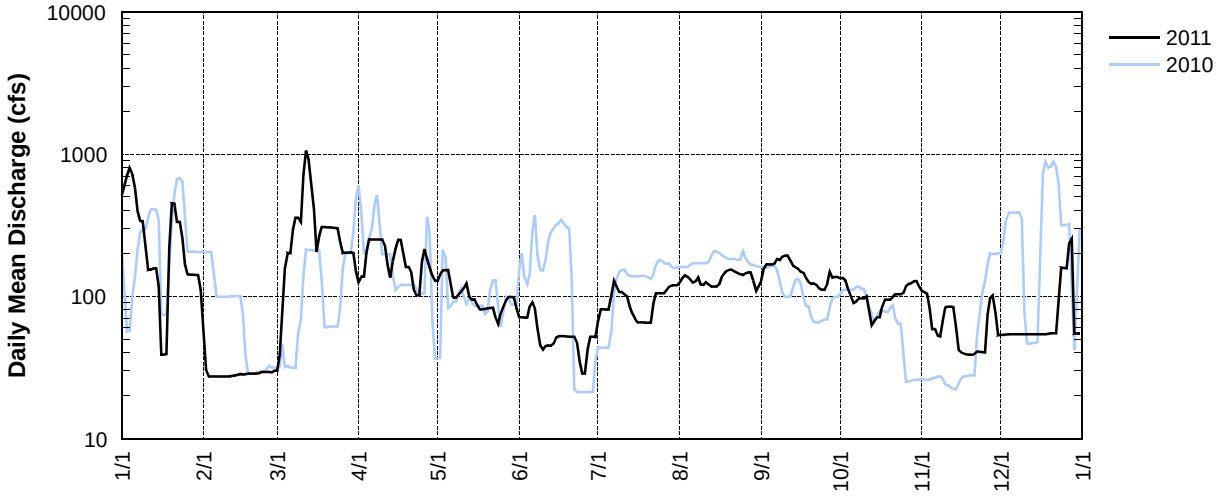


SCOO – 14202980 – SCOGGINS CREEK BELOW HENRY HAGG LAKE NEAR GASTON, OREGON [RM 4.8]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	518	52	30	126	129	71	67	125	130	134	109	53
2	600	30	39	137	143	71	81	134	157	134	107	53
3	710	27	83	137	152	71	81	140	168	129	104	54
4	800	27	157	205	152	71	81	137	167	112	83	54
5	712	27	201	251	153	85	81	131	167	100	59	54
6	572	27	200	251	122	91	102	125	170	90	59	54
7	396	27	290	251	97	82	128	128	182	92	53	54
8	338	27	356	251	98	60	117	136	180	97	52	54
9	336	27	357	250	103	45	107	121	190	97	67	54
10	225	27	332	250	108	42	107	120	193	97	84	54
11	153	27	716	225	115	45	102	125	193	100	84	54
12	154	27	1055	165	123	45	99	121	179	79	84	54
13	157	28	918	135	99	45	85	117	164	63	84	54
14	157	28	595	175	95	47	76	117	160	67	62	54
15	117	28	408	216	95	51	69	117	157	71	42	54
16	39	28	204	249	87	53	65	122	149	71	40	54
17	39	28	264	249	81	52	65	137	146	85	40	54
18	39	29	307	198	81	52	65	145	134	95	39	54
19	222	29	307	160	81	52	65	151	126	94	39	54
20	449	29	306	160	82	52	65	154	122	95	39	55
21	446	29	304	147	83	52	65	153	123	99	39	55
22	334	29	303	110	83	52	89	149	120	103	41	55
23	333	29	301	101	71	47	105	146	114	103	41	94
24	255	29	300	102	64	35	105	143	111	103	40	159
25	167	29	239	174	76	29	105	141	111	106	40	158
26	142	29	201	214	86	29	105	145	123	118	74	157
27	142	29	202	183	94	43	111	147	148	122	97	236
28	141	30	203	159	99	52	117	147	135	124	101	254
29	141	—	203	139	99	52	119	129	136	128	76	55
30	141	—	202	128	98	52	119	110	136	128	53	55
31	111	—	150	—	82	—	119	118	—	117	—	55
TOTAL	9086	814	9735	5497	3131	1621	2867	4132	4492	3151	1933	2412
MEAN	293	29	314	183	101	54	92	133	150	102	64	78
MAX	800	52	1055	251	153	91	128	154	193	134	109	254
MIN	39	27	30	101	64	29	65	110	111	63	39	53
AC-FT	18023	1615	19310	10903	6211	3215	5687	8196	8910	6249	3834	4783

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.

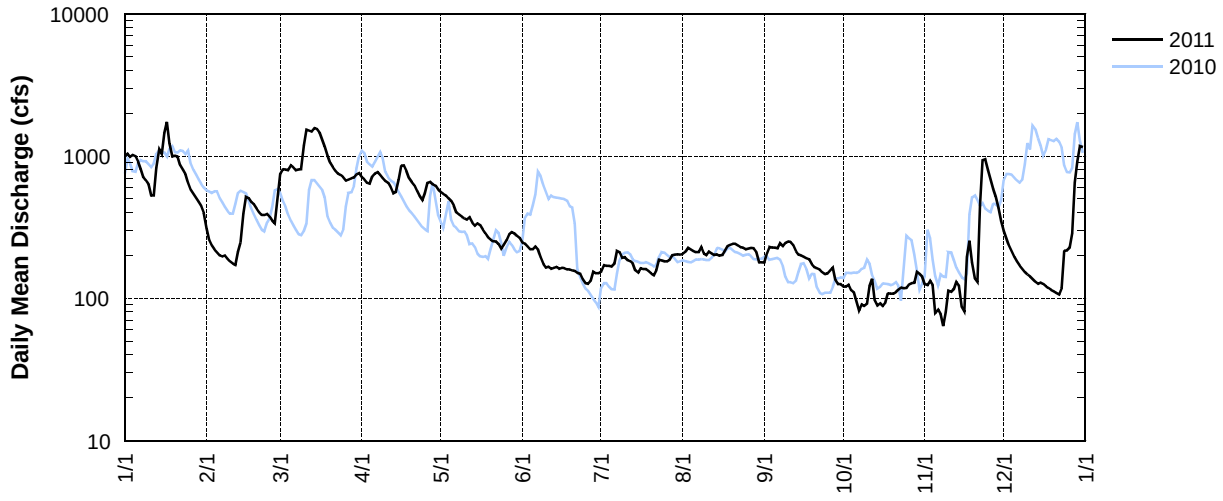
LATITUDE: 452830 LONGITUDE: 1230723 DRAINAGE AREA: 125.00 DATUM: 147.57

Discharge, Cubic Feet per Second, Calendar Year January to December 2011 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	1000	310	749	712	559	246	153	206	177	120	126	299
2	1040	258	809	685	541	242	172	212	207	121	124	266
3	988	236	803	650	529	233	169	226	229	125	132	235
4	1020	221	796	638	505	221	169	221	227	114	124	213
5	997	212	858	716	484	221	167	216	227	110	79	195
6	914	201	835	756	450	232	175	211	225	95	83	182
7	811	198	796	770	402	221	215	211	244	82	77	171
8	714	201	805	739	388	195	212	230	232	90	64	162
9	679	190	807	703	376	174	192	207	246	88	80	153
10	630	181	1190	672	367	164	194	201	251	92	113	147
11	529	175	1530	648	357	166	186	213	249	122	111	143
12	527	171	1520	606	372	161	183	207	238	137	116	137
13	823	212	1490	548	341	164	176	201	215	97	130	130
14	1110	246	1570	559	325	166	157	203	202	89	123	126
15	1030	392	1550	681	336	161	152	200	201	92	87	129
16	1440	516	1470	852	328	164	162	201	196	88	81	126
17	1740	507	1310	861	303	163	161	217	191	93	193	121
18	1230	476	1170	787	286	160	160	233	188	108	256	118
19	995	458	1000	702	268	160	156	238	174	108	180	114
20	1000	428	899	658	258	157	150	241	166	108	138	112
21	997	403	838	623	252	156	146	241	163	110	130	109
22	864	384	791	571	250	151	157	236	160	115	445	106
23	798	385	755	526	240	148	186	228	152	119	935	117
24	742	392	735	492	223	136	185	228	148	118	955	216
25	648	375	710	550	238	128	181	222	149	118	796	217
26	581	350	675	648	257	127	181	223	157	125	687	227
27	545	336	685	660	282	133	186	226	165	128	590	284
28	507	498	699	633	293	154	201	224	135	128	521	650
29	476	—	705	619	287	150	203	213	126	153	431	918
30	446	—	743	584	275	150	203	179	126	148	348	1170
31	401	—	758	—	266	—	202	179	—	143	—	1160
TOTAL	26222	8912	30051	19849	10638	5204	5492	6694	5766	3484	8255	8453
MEAN	846	318	969	662	343	173	177	216	192	112	275	273
MAX	1740	516	1570	861	559	246	215	241	251	153	955	1170
MIN	401	171	675	492	223	127	146	179	126	82	64	106
AC-FT	52010	17680	59610	39370	21100	10320	10890	13280	11440	6910	16370	16770

† Provisional data–subject to revision

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



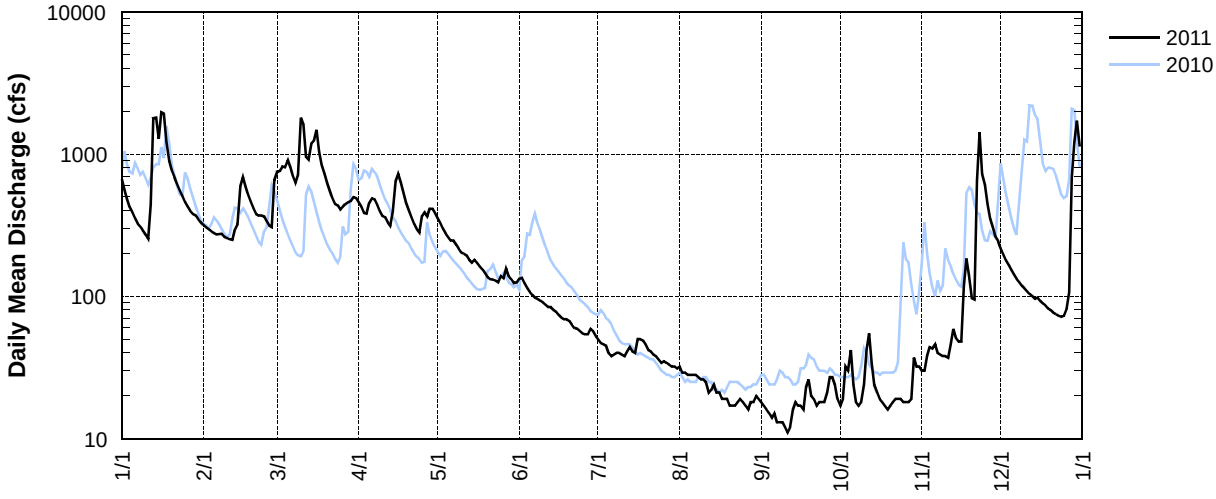
GALES – 14204530 – GALES CREEK AT OLD HWY 47 NEAR FOREST GROVE, OREGON [RM 2.36]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	662	316	753	460	352	133	50	32	18	17	30	215
2	558	305	758	425	328	135	47	29	17	19	30	196
3	481	295	814	384	300	124	46	29	16	32	38	179
4	422	286	807	381	277	114	45	28	15	30	44	165
5	387	279	912	452	261	107	40	28	14	42	43	153
6	353	272	811	488	247	102	38	e28	15	24	46	142
7	324	273	700	480	247	98	39	e28	13	18	40	133
8	309	275	626	440	231	96	40	e27	13	17	39	126
9	290	263	714	398	215	93	40	e26	13	18	38	119
10	270	257	1800	368	203	90	39	e26	12	24	38	114
11	253	252	1620	359	199	87	38	e25	11	42	37	109
12	443	249	960	332	194	84	41	21	12	55	46	104
13	1780	296	914	313	180	84	44	22	16	34	59	100
14	1800	321	1190	394	172	80	41	24	18	24	51	96
15	1280	595	1250	647	181	78	40	21	17	21	48	98
16	1970	687	1480	723	172	74	50	21	17	19	48	93
17	1930	592	1040	632	162	71	50	19	16	18	118	89
18	1220	518	837	536	155	69	49	19	23	17	184	86
19	893	465	725	459	145	69	e46	19	26	16	140	82
20	761	413	625	404	136	67	42	17	20	17	97	80
21	689	379	553	360	132	63	41	17	19	18	95	77
22	615	369	490	324	131	60	39	17	17	19	649	75
23	551	369	447	298	129	59	38	18	18	19	1420	73
24	503	363	436	281	126	57	36	19	18	19	726	72
25	459	337	407	365	139	55	34	18	18	18	603	73
26	426	314	428	389	134	54	35	17	21	18	446	82
27	399	307	446	364	156	54	34	16	27	18	353	107
28	379	657	460	412	139	59	33	18	27	19	308	677
29	372	—	468	411	132	57	32	18	24	37	261	1210
30	348	—	498	382	124	53	32	20	19	32	244	1720
31	331	—	490	—	125	—	31	19	—	32	—	1130
TOTAL	21458	10304	24459	12661	5824	2426	1250	686	530	753	6319	7775
MEAN	692	368	789	422	188	80.9	40.3	22.1	17.7	24.3	211	251
MAX	1970	687	1800	723	352	135	50	32	27	55	1420	1720
MIN	253	249	407	281	124	53	31	16	11	16	30	72
AC-FT	42560	20440	48510	25110	11550	4810	2480	1360	1050	1490	12540	15420

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

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



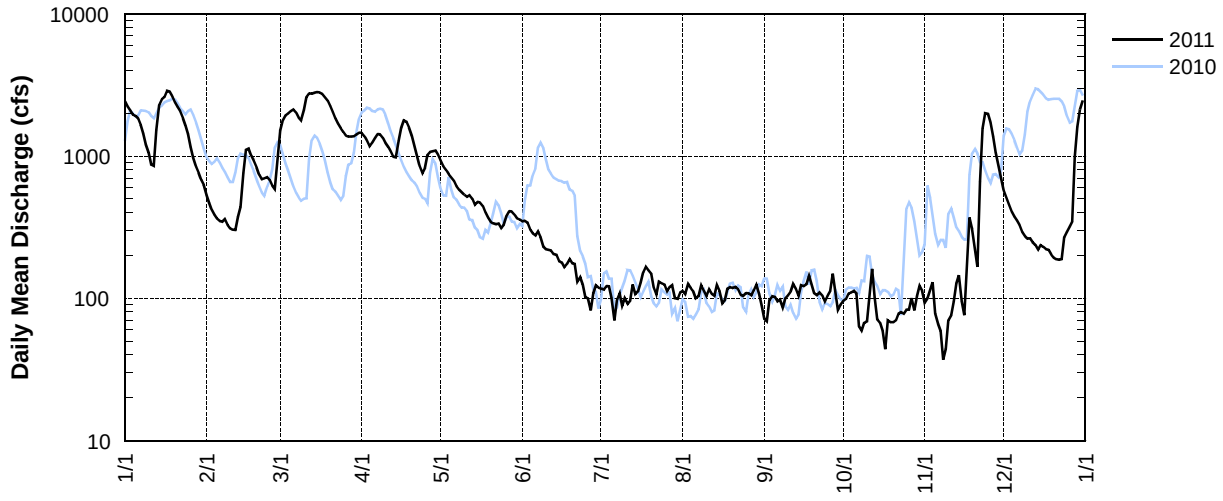
TRGC – 14204800 – TUALATIN RIVER AT GOLF COURSE ROAD NEAR CORNELIUS, OREGON [RM 51.5]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	2420	532	1510	1460	929	347	117	113	72	96	93	571
2	2230	469	1780	1380	850	351	115	107	69	99	100	511
3	2090	418	1930	1280	798	342	122	126	97	108	114	456
4	1960	387	1990	1170	749	303	121	118	103	110	130	406
5	1920	363	2070	1240	711	285	100	112	102	113	78	376
6	1840	349	2130	1340	673	276	70	100	95	108	66	353
7	1660	345	2030	1430	616	295	98	104	98	63	59	328
8	1440	359	1870	1420	579	269	109	123	86	59	37	291
9	1210	329	1780	1350	557	231	89	113	100	67	44	274
10	1060	311	2110	1240	534	221	100	104	105	69	70	263
11	875	304	2610	1160	516	219	91	116	111	106	76	264
12	855	302	2760	1080	530	217	96	107	126	161	95	248
13	1530	374	2740	990	501	205	125	104	116	101	127	236
14	2300	438	2780	978	454	201	107	124	104	71	145	220
15	2510	763	2810	1280	477	183	112	113	124	67	95	236
16	2600	1110	2800	1580	471	179	129	92	122	59	76	230
17	2880	1130	2750	1780	446	165	153	97	126	44	166	221
18	2850	1010	2610	1750	402	175	167	117	144	70	369	219
19	2620	928	2460	1590	369	188	158	120	125	68	308	204
20	2390	831	2250	1390	346	176	149	118	108	68	221	193
21	2220	741	2040	1180	336	174	118	120	105	70	166	188
22	2070	686	1840	998	331	131	106	116	110	78	661	186
23	1850	700	1690	853	334	141	131	106	105	80	1570	188
24	1640	713	1570	760	311	125	128	104	95	78	2000	269
25	1430	679	1480	825	327	102	125	109	104	83	1980	292
26	1160	620	1390	1020	381	100	112	108	113	83	1720	320
27	973	587	1370	1070	409	82	120	105	149	100	1380	347
28	842	918	1370	1080	407	109	124	114	112	82	1060	989
29	764	—	1380	1090	388	123	100	125	83	103	843	1610
30	682	—	1420	1020	366	119	99	107	90	122	688	2120
31	628	—	1460	—	358	—	110	89	—	113	—	2460
TOTAL	53499	16696	62780	36784	15456	6034	3601	3431	3199	2699	14537	15069
MEAN	1726	596	2025	1226	499	201	116	111	107	87.1	485	486
MAX	2880	1130	2810	1780	929	351	167	126	149	161	2000	2460
MIN	628	302	1370	760	311	82	70	89	69	44	37	186
AC-FT	106100	33120	124500	72960	30660	11970	7140	6810	6350	5350	28840	29890

† Provisional data–subject to revision

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

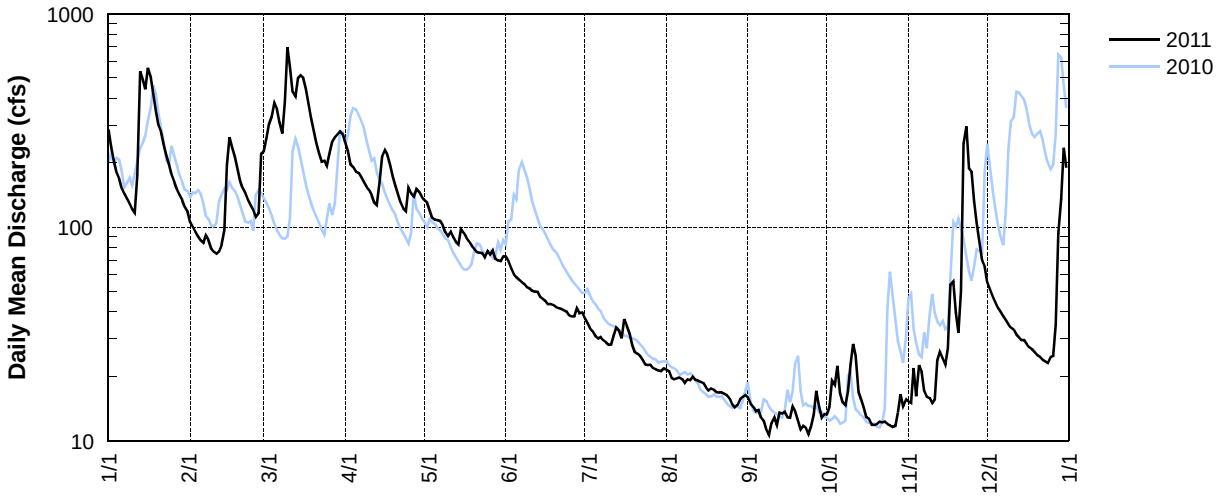
LATITUDE: 454051 LONGITUDE: 1230412 DRAINAGE AREA: 32.92 DATUM: 290

Discharge, Cubic Feet per Second, Calendar Year January to December 2011 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	288	105	227	249	134	73	37	22	16	13	15	55
2	240	100	259	227	131	69	35	21	15	14	15	51
3	207	95	303	197	120	64	34	20	14	19	22	47
4	181	90	330	191	111	60	32	19	14	18	16	44
5	169	86	382	182	108	58	31	20	14	23	22	42
6	152	84	359	180	108	57	30	20	13	17	21	40
7	144	91	311	172	107	55	31	19	12	15	17	38
8	136	87	275	164	102	54	30	19	11	15	16	37
9	129	79	384	155	95	52	29	19	11	17	16	35
10	121	77	696	149	91	52	28	19	12	23	15	34
11	117	75	564	141	95	50	28	20	13	28	15	33
12	174	77	432	130	90	50	31	19	12	25	24	31
13	533	83	408	127	85	50	34	19	13	17	26	30
14	493	96	500	163	83	47	33	19	13	16	24	30
15	443	195	514	216	98	46	30	19	14	14	23	30
16	557	263	502	230	94	45	37	18	13	13	27	28
17	507	237	442	219	89	44	34	17	13	13	54	27
18	422	214	380	195	86	44	32	18	14	12	56	27
19	353	188	324	173	82	43	28	17	14	12	40	26
20	302	165	284	157	79	42	26	17	12	12	32	25
21	280	153	249	143	76	42	26	17	11	12	49	25
22	242	145	221	131	76	41	25	17	12	12	245	24
23	216	134	203	122	76	41	24	17	11	12	298	24
24	197	127	205	119	72	40	23	16	11	12	188	23
25	176	120	194	153	77	39	23	16	12	12	183	25
26	162	112	220	144	74	38	23	15	13	12	133	25
27	150	116	252	139	78	38	22	14	17	12	105	35
28	141	220	264	151	71	42	22	15	15	13	85	93
29	134	—	272	147	70	40	21	16	13	17	70	135
30	125	—	281	139	69	40	21	16	13	15	66	235
31	118	—	272	—	73	—	22	16	—	16	—	191
TOTAL	7609	3614	10509	5005	2800	1456	882	556	391	481	1918	1545
MEAN	245	129	339	167	90.3	48.5	28.5	17.9	13	15.5	63.9	49.8
MAX	557	263	696	249	134	73	37	22	17	28	298	235
MIN	117	75	194	119	69	38	21	14	11	12	15	23
AC-FT	15090	7170	20840	9930	5550	2890	1750	1100	776	954	3800	3060

† Provisional data–subject to revision

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



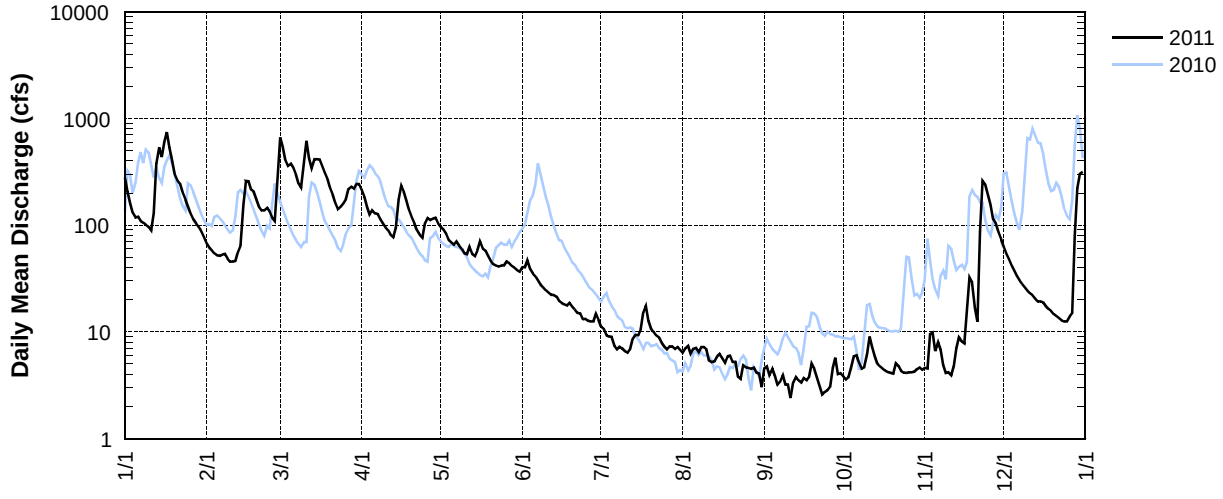
MCSC – 14206070 – MCKAY CREEK AT SCOTCH CHURCH RD ABOVE WAIBLE CREEK NEAR NORTH PLAINS, OREGON [RM 6.3]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	280	67	664	215	97	40	11	6.4	4.5	e3.8	4.6	63
2	206	62	541	184	92	40	11	7.0	4.8	e3.6	4.5	54
3	161	58	405	149	83	47	9.3	7.4	3.9	e3.8	9.6	48
4	131	54	358	126	73	38	9.1	6.3	4.5	e4.6	9.9	42
5	118	52	376	138	69	35	8.9	6.9	3.9	e5.9	6.6	37
6	120	51	344	129	66	33	7.4	7.1	3.2	e6.1	8.0	33
7	109	53	298	127	70	30	6.9	6.4	3.4	e5.1	6.8	31
8	106	54	246	114	64	28	7.2	7.2	3.9	4.5	4.9	28
9	101	49	224	104	60	26	7.0	7.2	3.2	e4.7	4.1	26
10	96	46	394	96	54	24	6.6	6.8	3.2	e6.1	4.2	24
11	90	45	620	90	53	23	6.4	5.4	2.4	e9.0	3.9	23
12	130	46	424	80	63	22	6.9	5.2	3.3	e7.2	4.7	22
13	376	56	341	77	53	22	8.6	5.3	3.8	e5.9	7.0	20
14	535	65	415	94	51	21	9.4	5.8	3.5	e5.1	8.9	19
15	434	155	416	175	58	19	9.3	6.2	3.3	e4.7	8.1	19
16	604	259	412	234	70	19	11	5.6	3.7	e4.5	7.8	19
17	748	257	358	205	60	18	15	5.1	3.5	e4.3	16	17
18	532	215	311	170	58	18	18	5.9	3.8	e4.2	32	16
19	396	206	269	139	52	19	13	6.0	5.0	e4.1	29	16
20	296	172	222	118	46	17	11	5.2	4.5	e4.1	17	15
21	262	148	193	104	43	16	9.9	5.2	3.8	e5.1	12	14
22	245	137	161	90	42	15	9.2	3.8	3.1	e4.8	87	13
23	200	137	141	82	41	15	8.9	3.6	2.6	e4.3	261	13
24	174	145	149	76	42	13	7.9	4.8	2.7	e4.1	242	12
25	149	134	160	104	42	13	7.3	4.6	2.8	e4.1	192	12
26	128	117	175	116	46	13	6.8	4.6	3.1	e4.2	155	14
27	114	109	218	112	44	12	7.3	4.5	4.6	e4.2	113	15
28	104	266	229	115	42	12	7.3	4.6	5.7	e4.2	104	80
29	97	—	220	117	40	15	6.9	4.2	4.0	e4.5	85	223
30	88	—	243	104	38	13	7.2	4.1	e4.1	4.6	74	304
31	78	—	242	—	37	—	6.8	3.0	—	4.4	—	316
TOTAL	7208	3215	9769	3784	1749	676	278.5	171.4	111.8	149.8	1522.6	1588
MEAN	232.5	114.8	315.1	126.1	56.4	22.6	8.9	5.5	3.7	4.8	50.8	51.3
MAX	748	266	664	234	97	47	18	7.4	5.7	9.0	261	316
MIN	78	45	141	76	37	12	6.4	3.0	2.4	3.6	3.9	12
AC-FT	14300	6377	19380	7505	3469	1341	552	340	222	297	3020	3150

e=estimated value

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



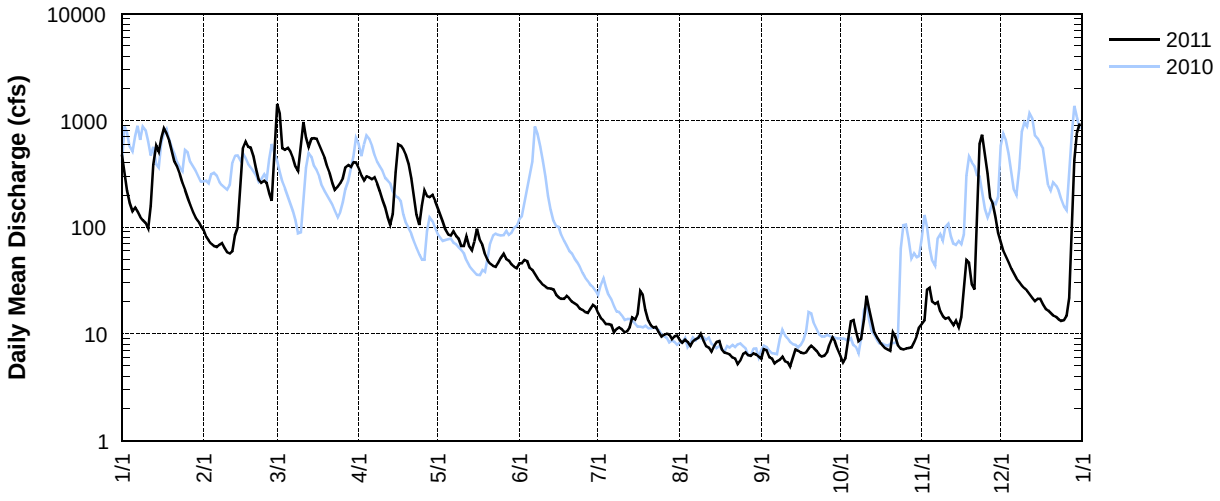
MCKP – 14206190 – MCKAY CREEK AT PADGETT ROAD NEAR HILLSBORO, OREGON [RM 1.31]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e480	94	1430	e359	152	46	16	8.7	5.8	6.2	12	73
2	e324	81	e1160	e303	132	46	14	8.3	7.2	5.4	13	60
3	e220	75	e550	e275	113	50	13	8.8	7.0	5.9	26	53
4	e170	70	e532	300	94	48	12	8.4	6.0	8.8	27	46
5	e141	66	e556	294	85	41	12	7.7	5.9	13	20	41
6	e152	65	e512	282	83	40	12	8.5	5.3	14	19	37
7	e139	69	e446	293	91	36	10	8.9	5.5	10	20	33
8	e125	71	e369	257	83	33	11	9.2	5.7	8.5	16	31
9	e116	64	e336	220	78	31	12	10	6.1	8.9	15	28
10	e109	58	e605	183	66	29	11	8.7	5.5	14	14	27
11	e96	57	e973	154	67	28	10	7.7	5.4	23	14	26
12	e159	60	e691	125	82	27	11	7.4	4.9	17	13	24
13	e386	84	e565	106	66	27	12	6.8	6.0	13	12	22
14	e581	99	e677	133	60	26	14	7.6	7.1	10	13	20
15	e506	256	e680	327	73	23	14	8.4	7.0	9.1	11	21
16	e682	560	e673	600	96	22	15	8.5	6.7	8.4	14	21
17	e840	635	e591	580	75	21	25	7.2	6.6	7.9	27	19
18	e757	567	e517	536	68	21	23	6.7	6.7	7.4	49	17
19	e641	557	e449	472	56	23	17	6.6	7.3	7.2	46	17
20	e513	460	e370	386	49	22	13	6.4	7.7	6.9	29	16
21	e410	352	e320	288	46	20	12	6.0	7.3	10	26	15
22	e370	280	e261	193	43	19	11	5.9	6.9	9.4	158	14
23	e312	262	e224	131	42	19	12	5.2	6.3	7.8	601	14
24	e259	272	e240	105	46	17	10	5.6	6.1	7.3	738	13
25	e225	260	e260	160	52	17	9.4	6.5	6.2	7.1	e469	13
26	e192	209	e287	222	56	16	9.8	6.7	6.8	7.3	e320	15
27	e162	177	e364	196	50	16	10	6.3	8.1	7.4	e188	22
28	e138	496	e382	191	49	17	9.9	6.2	9.3	7.5	e167	111
29	e123	—	e367	201	45	19	8.9	6.5	8.5	8.3	e123	425
30	e114	—	e406	177	43	18	9.5	6.4	7.2	9.5	88	761
31	e103	—	e404	—	41	—	9.6	6.1	—	11	—	939
TOTAL	9545	6356	16197	8049	2182	818	389.1	227.9	198.1	297.2	3288	2974
MEAN	307.9	226.9	522.6	268.4	70.4	27.2	12.6	7.3	6.6	9.6	109.7	95.9
MAX	840	635	1430	600	152	50	25	10	9.3	23	738	939
MIN	96	57	224	105	41	16	8.9	5.2	4.9	5.4	11	13
AC-FT	18930	12610	32130	15960	4328	1622	772	452	393	589	6522	5899

e=estimated value

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



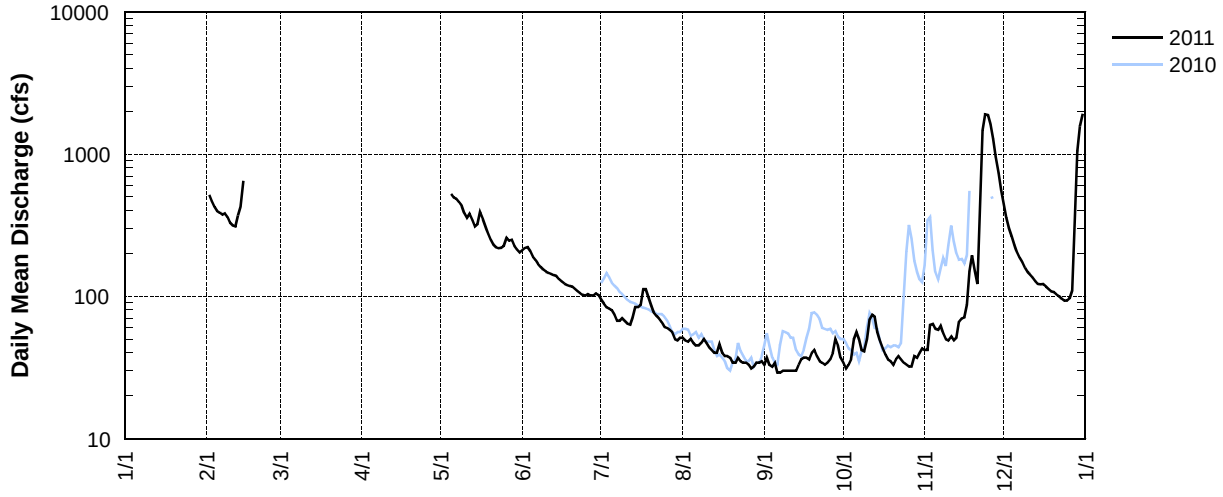
DAIRY – 14206200 – DAIRY CREEK AT HWY 8 NEAR HILLSBORO, OREGON [RM 2.06]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN*	FEB*	MAR*	APR*	MAY*	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1						211	95	51	33	34	42	447
2		e516				219	89	49	37	31	42	358
3		467				222	84	48	33	33	63	304
4		427				208	82	50	32	36	64	264
5		399			e525	190	80	47	34	50	59	230
6		386			497	181	74	45	29	56	58	205
7		375			487	169	67	45	29	50	62	187
8		382			460	161	67	47	30	42	55	173
9		362			431	154	70	50	30	41	50	159
10		330			383	149	67	47	30	50	49	148
11		315			357	146	64	44	30	69	52	142
12		309			381	144	63	42	30	74	49	136
13		369			344	141	71	40	30	72	51	128
14		425			309	139	84	40	33	56	66	122
15		e650			321	132	84	46	36	48	70	121
16					391	127	87	40	37	43	71	122
17					349	123	112	38	37	39	87	117
18					312	120	112	38	36	36	150	112
19					276	118	99	37	40	35	194	108
20					250	117	86	34	42	33	150	107
21					232	113	77	34	38	36	122	103
22					221	109	73	37	35	38	e328	100
23					218	105	70	35	34	36	e1470	96
24					219	102	66	34	33	34	e1900	93
25					226	101	61	34	34	33	e1880	93
26					258	104	60	33	36	32	e1620	97
27					247	101	58	31	40	32	e1280	110
28					250	101	56	32	50	38	e960	e269
29		—			227	105	50	34	45	37	e740	e1050
30		—			214	102	49	34	37	40	e560	e1570
31		—		—	204	—	51	35	—	43	—	e1920
TOTAL					8589	4214	2308	1251	1050	1327	12344	9191
MEAN					318	140	74.5	40.4	35	42.8	411	296
MAX					525	222	112	51	50	74	1900	1920
MIN					204	101	49	31	29	31	42	93
AC-FT					17032	8360	4580	2480	2080	2630	24490	18230

*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]



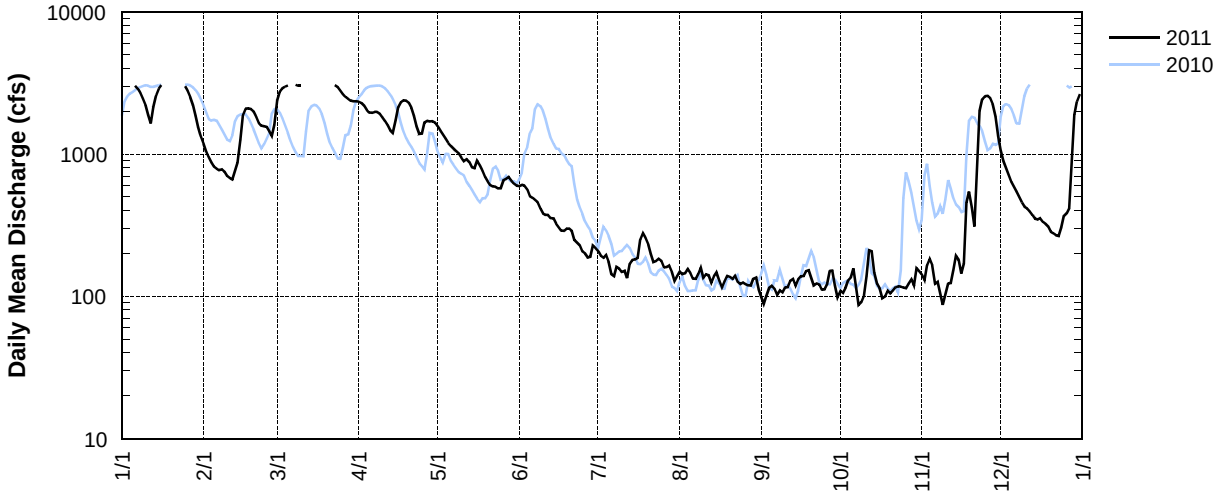
TRJB – 14206241 – TUALATIN RIVER AT HWY 219 BRIDGE [RM 44.4]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN*	FEB	MAR*	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		1178	2391	2335	1576	594	209	149	99	109	143	1062
2		1039	2747	2290	1468	608	192	143	88	105	130	902
3		949	2904	2196	1375	601	186	145	101	115	166	805
4		874	2985	2049	1278	565	195	155	115	129	183	708
5		815	3049	1960	1196	506	175	146	119	136	165	637
6	3029	787		1951	1145	494	143	133	113	157	123	588
7	2889	769		1981	1098	476	138	133	103	118	126	545
8	2699	779	3071	1982	1048	460	161	144	110	87	105	495
9	2463	751	3033	1930	1008	413	157	160	106	91	87	457
10	2193	701	3033	1824	942	382	149	135	115	102	102	427
11	1879	677		1705	890	373	151	143	116	138	123	417
12	1645	663		1589	917	373	134	140	128	211	124	397
13	2144	758		1466	876	353	169	125	133	208	152	373
14	2598	869		1408	807	353	180	139	119	147	193	351
15	2890	1259		1732	796	325	182	147	132	122	180	348
16	3058	1891		2136	894	307	187	128	138	114	145	355
17		2086		2314	828	290	251	116	139	97	169	333
18		2099		2383	764	288	278	128	151	100	455	323
19		2076		2373	692	299	259	139	153	110	545	309
20		1993		2284	644	299	232	137	136	105	421	285
21		1828		2116	608	287	198	133	120	110	309	277
22		1657		1864	592	249	174	140	123	116	673	267
23		1587	3059	1577	589	238	177	126	121	117	2007	265
24		1570	2959	1382	575	228	183	122	111	117	2423	304
25	2999	1548	2803	1393	574	206	177	125	111	115	2545	365
26	2786	1443	2649	1665	657	201	159	122	122	114	2560	384
27	2522	1335	2527	1708	669	187	160	119	151	123	2468	416
28	2210	1600	2440	1690	692	189	165	119	152	132	2242	938
29	1858	—	2378	1706	653	227	148	133	119	119	1831	1894
30	1540	—	2351	1669	619	219	128	136	99	157	1339	2349
31	1336	—	2350	—	598	—	139	112	—	151	—	2646
TOTAL		35579		56659	27063	10590	5536	4171	3641	3869	22235	20222
MEAN		1271		1889	873	353	179	135	121	125	741	652
MAX		2099		2383	1576	608	278	160	153	211	2560	2646
MIN		663		1382	574	187	128	112	88	87	87	265
AC-FT		70571		112384	53680	21004	10980	8274	7222	7675	44104	40110

*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]



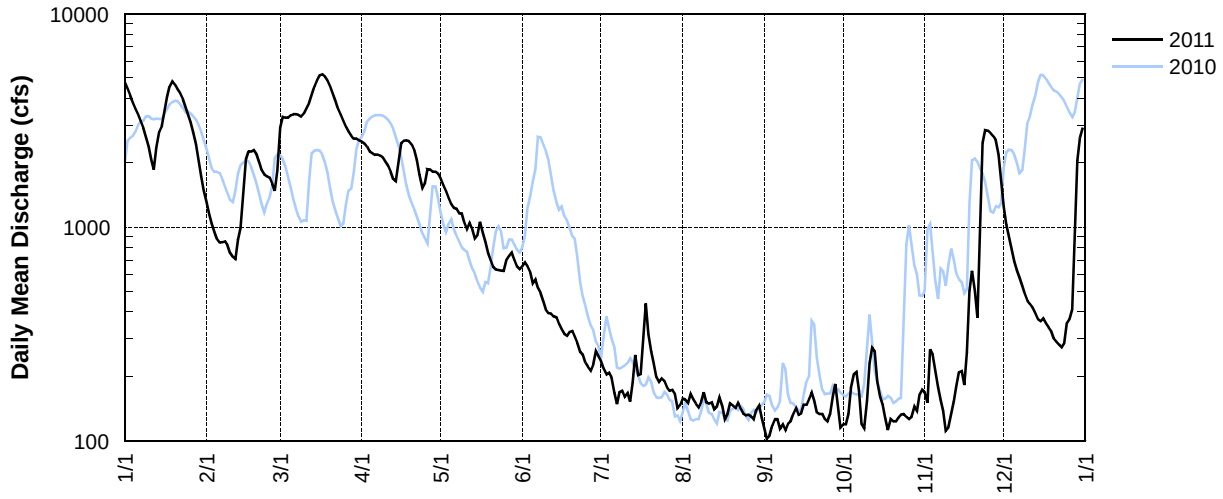
ROOD – 14206295 – TUALATIN RIVER AT ROOD BRIDGE ROAD NEAR HILLSBORO, OREGON [RM 38.4]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	4770	1310	2930	2520	1690	655	235	157	114	119	168	1250
2	4460	1150	3290	2470	1580	683	216	156	102	119	150	1030
3	4160	1040	3260	2390	1470	656	204	150	105	133	267	900
4	3850	954	3260	2270	1370	615	208	165	118	177	253	782
5	3580	882	3350	2230	1280	547	197	156	126	205	214	692
6	3370	846	3380	2180	1230	569	167	149	126	210	178	630
7	3150	850	3390	2190	1220	518	148	143	114	171	155	583
8	2930	860	3360	2170	1160	492	169	152	119	119	137	532
9	2670	823	3300	2120	1160	449	171	168	112	114	111	486
10	2390	759	3420	2030	1050	410	160	151	120	153	115	452
11	2080	724	3620	1940	981	395	167	149	123	230	134	436
12	1860	707	3820	1820	1050	393	152	151	133	273	152	418
13	2360	872	4170	1680	976	381	187	140	142	263	180	393
14	2810	991	4590	1640	886	377	252	144	132	189	209	370
15	2980	1440	4890	2060	916	351	203	159	134	160	212	362
16	3470	2090	5150	2480	1060	332	205	145	147	147	182	374
17	4050	2270	5220	2540	941	317	301	126	147	127	259	354
18	4550	2260	5090	2550	852	310	439	133	157	112	502	339
19	4830	2300	4840	2530	762	323	316	149	168	126	626	327
20	4670	2200	4550	2440	700	326	261	146	154	123	502	302
21	4430	2020	4240	2290	652	307	229	142	136	123	376	291
22	4250	1850	3920	2060	632	286	198	150	133	128	869	281
23	3980	1770	3600	1760	630	260	188	141	133	132	2480	274
24	3680	1730	3360	1530	624	253	195	134	126	133	2850	286
25	3390	1710	3150	1610	623	232	190	131	123	129	2830	355
26	3100	1600	2960	1870	705	222	178	132	134	126	2760	372
27	2790	1480	2810	1860	736	213	171	130	160	129	2680	411
28	2450	1840	2680	1820	760	228	173	126	184	144	2560	934
29	2080	—	2590	1820	704	262	165	139	145	137	2180	2050
30	1740	—	2600	1780	657	248	142	146	115	164	1630	2620
31	1490	—	2560	—	636	—	147	128	—	173	—	2930
TOTAL	102370	39328	113350	62650	29693	11610	6334	4488	3982	4788	25921	21816
MEAN	3302	1405	3656	2088	958	387	204	145	133	154	864	704
MAX	4830	2300	5220	2550	1690	683	439	168	184	273	2850	2930
MIN	1490	707	2560	1530	623	213	142	126	102	112	111	274
AC-FT	203000	78010	224800	124300	58900	23030	12560	8900	7900	9500	51420	43280

† Provisional data–subject to revision

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

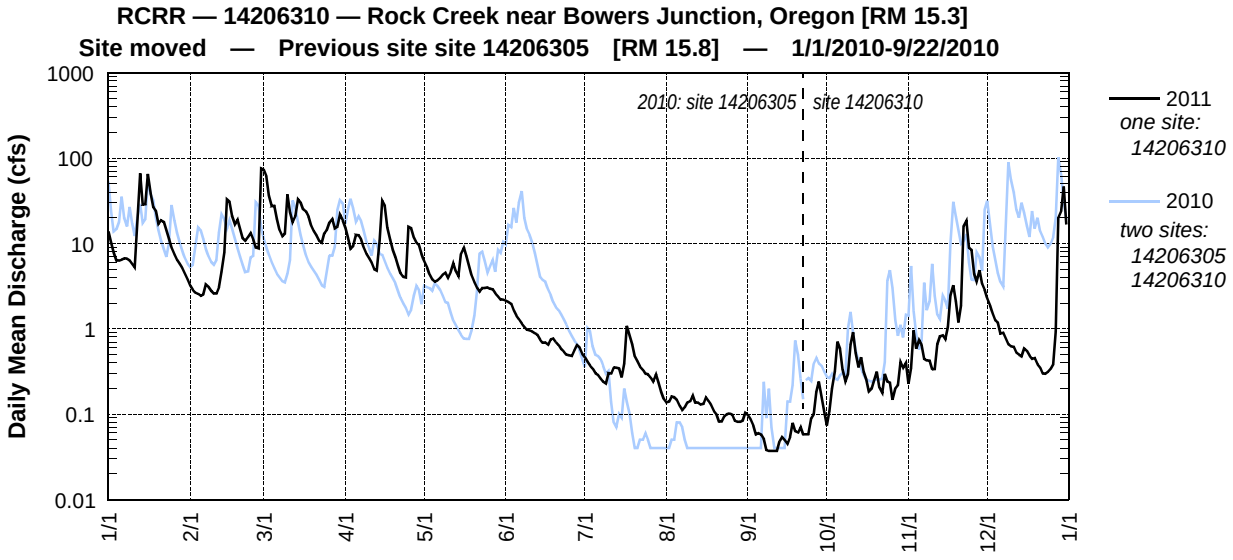


RCRR – 14206310 – ROCK CREEK NEAR BOWERS JUNCTION, OREGON [RM 15.3]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	14	3.2	73	15	6.2	2.1	0.47	0.14	0.10	0.07	0.23	2.3
2	10	2.9	62	12	5.3	2.1	0.41	0.14	0.09	0.11	0.35	1.9
3	7.9	2.7	36	8.6	4.3	2.0	0.37	0.16	0.07	0.20	0.96	1.5
4	6.3	2.6	27	9.3	3.8	1.6	0.34	0.16	0.06	0.32	0.59	1.2
5	6.3	2.4	28	13	3.6	1.4	0.30	0.15	0.06	0.71	0.73	1.2
6	6.5	2.5	19	12	3.7	1.3	0.29	0.13	0.06	0.59	0.64	0.88
7	6.7	3.3	14	11	3.9	1.1	0.26	0.11	0.05	0.34	0.44	0.90
8	6.7	3.1	12	9.0	4.3	1.1	0.24	0.12	0.04	0.24	0.43	0.77
9	6.3	2.8	13	7.5	4.5	0.97	0.23	0.14	0.04	0.30	0.42	0.65
10	5.8	2.6	38	6.7	4.0	0.96	0.30	0.14	0.04	0.65	0.34	0.62
11	5.3	2.6	23	5.9	4.7	0.94	0.30	0.17	0.04	0.91	0.34	0.61
12	20	3.1	18	5.0	5.8	0.89	0.35	0.14	0.04	0.52	0.66	0.53
13	67	4.6	21	4.8	4.7	0.85	0.35	0.14	0.05	0.35	0.81	0.50
14	29	7.9	33	11	4.1	0.75	0.34	0.13	e0.05	0.46	0.83	0.48
15	29	33	30	31	7.6	0.69	e0.27	0.13	e0.05	0.32	0.76	0.59
16	66	31	25	27	9.0	0.69	e0.39	0.16	e0.05	0.26	1.0	0.55
17	38	21	24	15	7.1	0.65	e1.1	0.14	e0.05	0.18	2.5	0.49
18	27	17	21	11	5.5	0.75	e0.83	0.13	e0.08	0.20	3.2	0.45
19	24	19	16	8.5	4.2	0.78	e0.66	0.11	e0.06	0.25	2.1	0.46
20	17	15	14	7.0	3.5	0.71	0.47	0.10	e0.06	0.32	1.2	0.38
21	19	11	13	5.5	3.0	0.65	0.42	0.08	0.07	0.20	1.9	0.35
22	18	11	11	4.5	2.7	0.58	0.36	0.08	0.06	0.18	16	0.30
23	14	12	10	4.1	3.0	0.54	0.33	0.09	0.06	0.30	19	0.30
24	11	13	13	4.0	3.0	0.50	0.30	0.10	0.06	0.24	8.9	0.31
25	8.9	11	14	16	3.1	0.49	0.29	0.10	0.09	0.23	8.4	0.34
26	7.4	9.0	18	15	3.0	0.48	0.27	0.10	0.10	0.15	4.4	0.39
27	6.4	8.8	19	12	2.9	0.56	0.24	0.08	0.18	0.20	3.6	0.94
28	5.8	76	15	10	2.6	0.65	0.29	0.08	0.24	0.22	4.9	20
29	5.2	—	16	9.5	2.4	0.61	0.23	0.08	0.16	0.41	3.4	24
30	4.5	—	22	7.5	2.2	0.51	0.18	0.08	0.11	0.35	2.8	47
31	3.8	—	18	—	2.2	—	0.15	0.10	—	0.40	—	17
TOTAL	502.8	334.1	716	318.4	129.9	27.9	11.33	3.71	2.27	10.18	91.83	127.89
MEAN	16.2	11.9	23.1	10.7	4.2	0.93	0.37	0.12	0.075	0.33	3.0	4.1
MAX	67	76	73	31	9.0	2.1	1.1	0.17	0.24	0.91	19	47
MIN	3.8	2.4	10	4.0	2.2	0.48	0.15	0.08	0.04	0.07	0.23	0.30
AC-FT	997	663	1420	632	258	55	22	7.4	4.5	20	182	254

e=estimated value



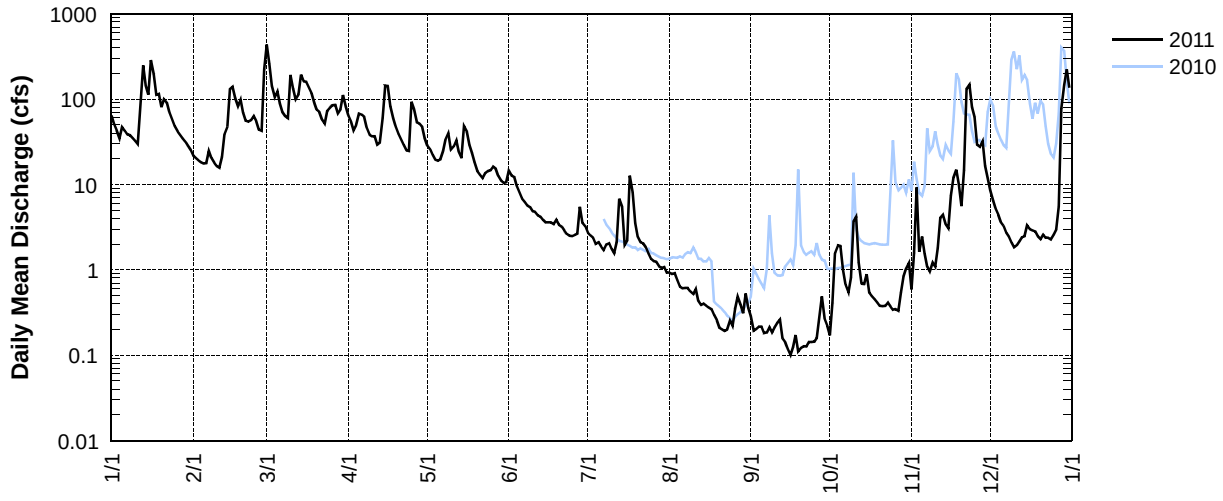
RCBL – 14206340 – ROCK CREEK BELOW BETHANY LAKE [RM 8.9]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	64	22	437	64	29	14	2.7	0.93	e0.29	e0.17	0.59	8.5
2	51	20	260	55	26	13	2.5	0.90	e0.19	0.41	1.6	6.5
3	43	19	142	43	22	12	2.4	0.92	e0.20	1.6	9.3	5.2
4	e35	18	106	50	20	9.6	2.0	0.76	e0.21	1.9	1.6	4.4
5	e47	18	124	68	19	8.1	2.1	0.64	e0.22	1.9	2.5	3.6
6	43	18	88	66	20	6.9	1.9	0.61	e0.18	1.0	1.5	3.3
7	39	25	70	62	25	6.2	1.7	0.61	e0.18	0.67	1.1	2.7
8	38	e20	63	46	34	5.7	2.0	0.61	e0.21	0.55	0.95	2.4
9	35	e18	60	39	40	5.4	2.1	0.56	e0.18	0.81	1.2	2.1
10	33	e16	193	37	26	4.9	1.8	0.52	e0.21	3.7	1.1	1.8
11	30	e16	134	37	28	4.8	1.6	0.59	e0.24	4.2	1.8	2.0
12	75	e21	100	29	33	4.3	2.1	0.43	e0.26	1.2	4.1	2.2
13	250	39	114	31	24	4.2	6.8	0.39	e0.16	0.69	4.4	2.4
14	144	48	194	60	20	3.8	5.5	0.40	e0.14	0.68	3.4	2.5
15	113	132	162	144	48	3.6	2.0	0.38	e0.12	0.89	3.0	3.3
16	286	140	160	143	41	3.6	2.2	0.36	e0.10	0.54	7.4	3.0
17	196	104	135	83	29	3.6	13	0.35	e0.12	0.49	12	2.9
18	113	83	117	60	23	3.4	8.1	0.30	e0.17	0.45	15	2.8
19	116	100	92	47	18	3.8	3.5	0.26	e0.11	0.42	10	2.5
20	81	70	75	39	14	3.4	2.4	0.21	0.12	0.38	e5.6	2.3
21	100	56	71	34	13	3.2	2.1	0.20	0.13	0.38	e15	2.6
22	91	54	57	29	12	2.9	2.0	0.19	0.13	0.38	133	2.4
23	69	57	52	25	14	2.6	1.8	0.20	0.14	0.41	149	2.4
24	58	63	73	25	14	2.5	1.6	0.25	0.14	0.37	80	2.3
25	49	55	79	94	15	2.5	1.3	0.22	0.14	0.34	62	2.6
26	42	44	85	77	16	2.6	1.3	e0.35	0.16	0.35	29	3.0
27	38	43	86	53	15	2.7	1.2	e0.49	0.27	0.33	27	5.5
28	35	225	68	52	13	5.5	1.1	e0.39	0.49	0.55	33	78
29	32	—	76	48	11	3.6	1.1	e0.31	0.26	0.84	17	147
30	29	—	112	35	10	3.2	1.1	e0.53	e0.22	1.0	12	226
31	26	—	81	—	11	—	0.93	e0.36	—	1.2	—	137
TOTAL	2401	1544	3666	1675	683	155.6	83.93	14.22	5.69	28.8	645.14	675.2
MEAN	77.4	55.2	118.2	55.8	22.1	5.2	2.7	0.46	0.19	0.93	21.5	21.8
MAX	286	225	437	144	48	14	13	0.93	0.49	4.2	149	226
MIN	26	16	52	25	10	2.5	0.93	0.19	0.10	0.17	0.59	1.8
AC-FT	4762	3062	7271	3322	1355	309	166	28	11	57	1280	1339

e=estimated value

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

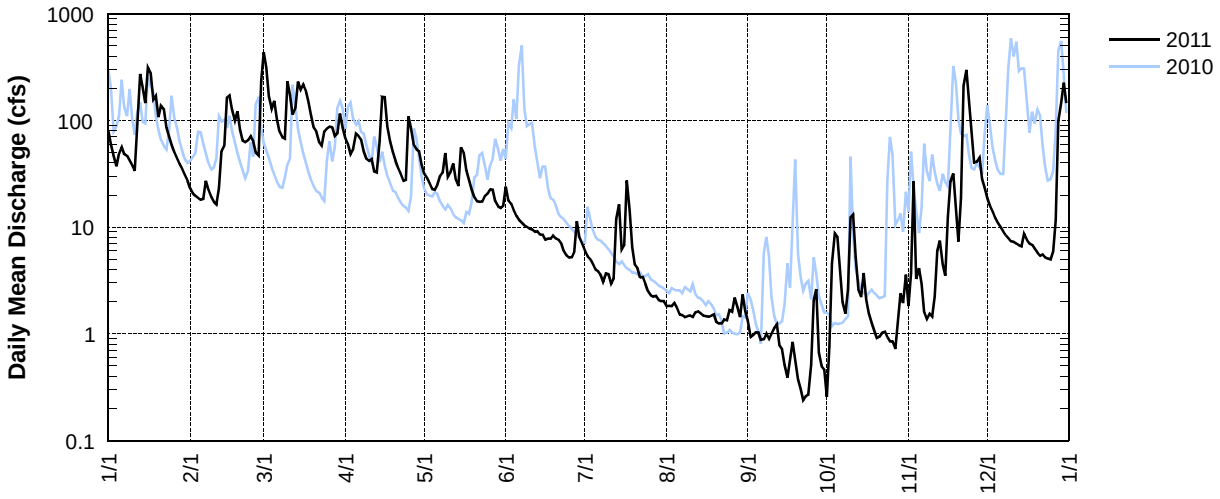


RCQR – 14206347 – ROCK CREEK AT QUATAMA ROAD NEAR ORENCO, OREGON [RM 4.9]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	80	23	439	68	32	24	6.0	1.8	1.3	0.26	1.8	19
2	59	21	313	60	29	18	5.4	1.8	0.93	0.76	3.7	16
3	47	20	169	49	26	17	5.0	1.8	0.97	4.6	27	14
4	37	19	129	54	23	14	4.6	1.9	1.0	8.8	3.3	12
5	49	18	153	75	22	13	4.0	1.8	1.0	8.1	4.1	11
6	57	18	103	71	25	12	3.9	1.5	0.88	3.9	2.9	10
7	49	27	79	66	31	11	3.6	1.5	0.89	2.0	1.6	9.1
8	47	23	70	52	33	10	3.1	1.4	1.0	1.6	1.4	8.4
9	42	19	68	43	50	10	3.7	1.5	0.89	2.6	1.5	7.9
10	38	17	233	42	30	9.6	3.6	1.5	1.0	12	1.4	7.4
11	34	16	173	44	33	9.5	3.0	1.4	1.1	13	2.2	7.3
12	95	23	114	33	40	9.0	3.3	1.6	1.2	5.3	6.0	7.0
13	273	52	132	33	28	9.2	12	1.6	0.78	2.6	7.5	6.8
14	203	59	231	64	24	8.5	16	1.6	0.71	2.2	4.5	6.6
15	146	164	195	166	56	8.5	6.2	1.5	0.51	3.7	3.5	8.6
16	311	172	218	165	49	7.6	6.9	1.5	0.39	2.1	13	7.6
17	275	126	187	88	34	7.8	27	1.4	0.56	1.6	27	7.0
18	157	100	148	63	28	7.8	14	1.5	0.84	1.3	32	6.8
19	171	122	111	51	23	8.3	6.5	1.5	0.57	1.1	16	6.3
20	108	81	86	43	19	7.8	4.5	1.3	0.37	0.92	7.3	5.8
21	138	65	79	36	18	7.6	4.2	1.3	0.30	0.94	19	5.4
22	128	63	63	32	17	7.1	3.4	1.2	0.24	1.0	212	5.6
23	86	65	58	27	17	5.9	3.4	1.4	0.26	1.0	299	5.2
24	71	71	79	28	20	5.4	3.0	1.3	0.27	0.93	143	5.1
25	60	63	84	109	21	5.2	2.5	1.7	0.51	0.85	76	5.0
26	50	50	88	85	23	5.2	2.3	1.6	2.1	0.85	40	5.9
27	44	47	86	59	22	5.9	2.2	2.2	2.6	0.72	41	12
28	39	233	72	53	18	11	2.3	1.8	0.67	1.3	45	99
29	35	—	76	52	16	8.0	2.1	1.4	0.49	2.4	28	147
30	31	—	116	39	15	6.9	2.0	2.4	0.46	1.9	23	227
31	27	—	84	—	16	—	2.0	1.6	—	3.6	—	146
TOTAL	2987	1777	4236	1850	838	290.8	171.7	49.3	24.79	93.93	1093.7	847.8
MEAN	96.3	63.5	136.6	61.7	26.9	9.7	5.6	1.6	0.83	3.0	36.5	27.4
MAX	311	233	439	166	56	24	27	2.4	2.6	13	299	227
MIN	27	16	58	27	15	5.2	2.0	1.2	0.24	0.26	1.4	5.0
AC-FT	5925	3525	8402	3669	1662	577	341	98	49	186	2169	1682

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



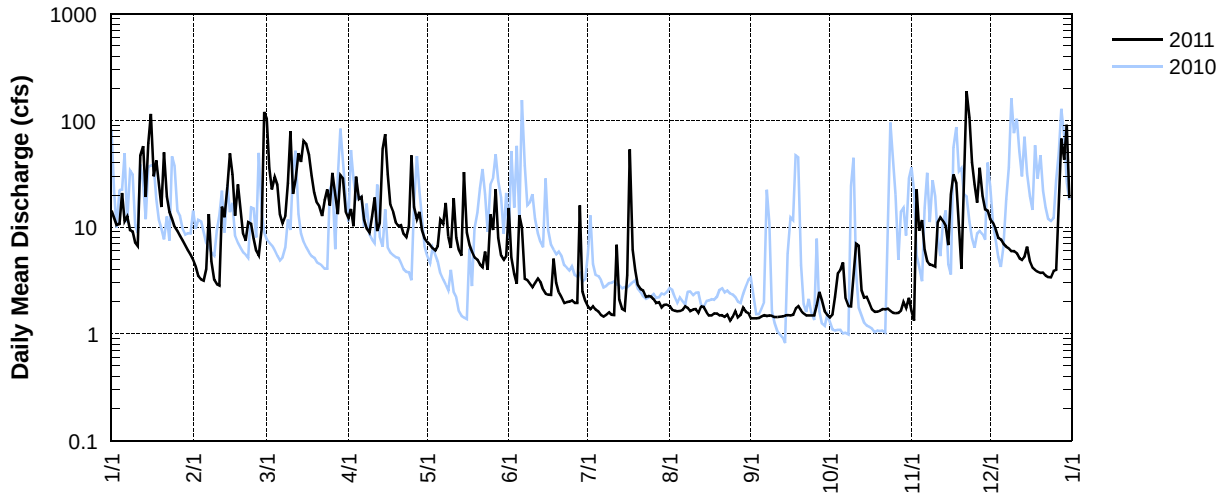
BCCH – 14206360 – BEAVERTON CREEK AT CEDAR HILLS BLVD AT BEAVERTON, OREGON [RM 7.45]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	14	4.9	104	12	7.3	15	1.8	1.8	e1.4	e1.4	e1.6	12
2	12	4.3	36	15	6.8	5.2	1.7	1.7	e1.4	e1.5	e1.3	11
3	11	3.5	23	10	6.3	3.6	1.8	1.7	e1.4	e2.2	e23	9.5
4	11	3.2	30	30	6.0	2.9	1.7	1.6	e1.4	e3.7	9.3	8.0
5	21	3.2	25	18	6.7	13	1.6	1.6	e1.5	e4.0	12	7.7
6	11	4.0	13	19	12	9.9	1.5	1.7	e1.5	e4.7	6.2	7.0
7	13	13	11	12	11	3.3	1.5	1.8	e1.5	e2.1	4.8	6.5
8	9.4	4.8	13	9.7	17	3.2	1.5	1.8	e1.5	e1.8	4.5	6.3
9	9.1	3.2	26	8.9	8.2	3.0	1.6	1.6	e1.5	e1.8	4.4	6.0
10	7.2	2.9	79	13	6.4	2.7	1.5	1.7	e1.4	e3.8	4.3	6.0
11	6.6	2.8	20	19	19	3.0	1.5	1.7	e1.4	e7.0	11	5.7
12	47	16	28	9.2	7.9	3.3	6.8	1.6	e1.4	e6.7	12	5.1
13	57	12	49	11	6.1	3.1	2.1	1.8	e1.4	e2.6	11	4.9
14	19	24	41	54	5.4	2.6	1.7	1.8	e1.5	e2.2	10	5.3
15	62	49	64	74	33	2.4	1.7	1.6	e1.5	e2.2	6.8	6.6
16	115	31	60	31	8.9	2.3	3.5	1.5	e1.5	e1.9	20	4.7
17	30	13	47	16	6.9	2.3	54	1.5	e1.5	e1.7	31	4.2
18	42	25	31	14	5.9	5.1	6.2	1.6	e1.7	e1.6	26	4.0
19	25	14	21	11	5.2	3.0	4.0	1.5	e1.8	e1.6	10.0	3.8
20	15	8.6	17	10	4.9	2.5	2.9	1.5	e1.6	e1.7	4.1	3.7
21	51	7.5	16	11	4.4	2.2	2.6	1.5	e1.6	e1.7	31	3.7
22	19	11	13	8.7	4.2	1.9	2.6	1.4	e1.5	e1.7	189	3.5
23	14	11	18	8.1	5.9	2.0	2.2	1.5	e1.5	e1.7	107	3.4
24	12	7.8	23	10	4.0	2.0	2.3	1.3	e1.5	e1.6	41	3.4
25	10	6.0	16	47	13	2.1	2.2	1.4	e1.5	e1.6	25	3.9
26	9.1	5.4	32	15	9.4	1.9	2.1	1.6	e1.8	e1.6	17	4.0
27	8.2	9.6	20	12	23	1.9	1.9	1.4	e2.5	e1.6	36	18
28	7.5	120	13	14	8.0	16	2.0	1.5	e2.1	e1.6	20	68
29	6.7	—	31	9.3	5.4	2.5	1.8	1.8	e1.6	e2.0	15	43
30	6.1	—	29	7.9	4.9	2.0	1.9	1.6	e1.5	e1.7	14	92
31	5.5	—	14	—	5.4	—	1.9	1.6	—	e2.2	—	19
TOTAL	686.4	420.7	963	539.8	278.5	125.9	124.1	49.7	46.9	75.2	708.3	389.9
MEAN	22.1	15.1	31.1	18.0	8.9	4.2	4.0	1.6	1.6	2.4	23.6	12.6
MAX	115	120	104	74	33	16	54	1.8	2.5	7.0	189	92
MIN	5.5	2.8	11	7.9	4.0	1.9	1.5	1.3	1.4	1.4	1.3	3.4
AC-FT	1361	834	1910	1071	552	250	246	99	93	149	1405	773

e=estimated value

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

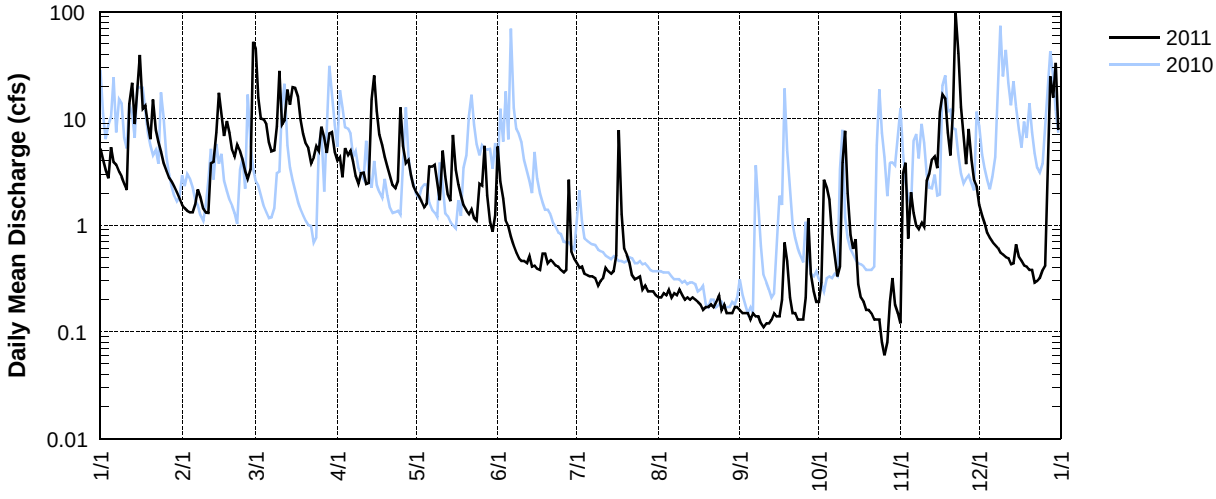


JCDV – 14206372 – JOHNSON CREEK AT DAVIS ROAD NEAR BEAVERTON, OREGON [RM 1.3]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.2	1.5	45	4.0	2.0	5.5	0.44	0.21	0.16	0.19	0.12	1.5
2	4.1	1.4	16	4.3	1.9	2.6	0.40	0.21	0.15	0.29	3.1	1.2
3	3.3	1.4	10	2.8	1.6	1.8	0.41	0.23	0.15	2.7	3.9	1.0
4	2.8	1.3	9.8	5.3	1.5	1.1	0.35	0.22	0.15	2.2	0.75	0.84
5	5.4	1.3	8.8	4.5	1.6	0.97	0.34	0.25	0.13	1.7	2.0	0.76
6	3.9	1.6	6.0	5.0	3.6	0.78	0.33	0.21	0.15	0.83	1.3	0.70
7	3.7	2.2	4.9	4.0	3.5	0.64	0.33	0.23	0.14	0.53	0.99	0.65
8	3.2	1.8	5.0	2.9	3.7	0.55	0.32	0.22	0.14	0.33	0.92	0.61
9	2.9	1.4	8.5	2.5	2.5	0.49	0.27	0.25	0.12	0.41	1.1	0.55
10	2.4	1.3	28	3.1	1.7	0.46	0.30	0.22	0.11	3.8	0.96	0.53
11	2.1	1.3	8.8	3.1	5.0	0.46	0.32	0.20	0.12	7.6	2.6	0.50
12	14	3.8	9.6	2.4	2.9	0.44	0.40	0.21	0.12	2.0	3.1	0.49
13	22	3.9	19	2.5	1.9	0.51	0.37	0.20	0.13	0.81	4.1	0.43
14	8.9	7.4	13	15	1.7	0.41	0.35	0.21	0.15	0.60	4.4	0.44
15	20	17	20	25	7.0	0.42	0.37	0.20	0.14	0.74	3.4	0.66
16	39	11	19	12	3.3	0.39	0.52	0.19	0.14	0.28	11	0.50
17	12	6.9	16	7.0	2.4	0.38	7.8	0.18	0.20	0.21	17	0.46
18	13	9.4	9.8	5.6	1.9	0.54	1.3	0.16	0.69	0.19	15	0.42
19	8.9	7.3	7.2	4.4	1.5	0.54	0.60	0.17	0.46	0.16	7.3	0.41
20	6.4	5.1	5.8	3.5	1.4	0.44	0.53	0.17	0.21	0.16	4.5	0.38
21	15	4.4	5.3	2.9	1.3	0.47	0.45	0.18	0.15	0.15	12	0.38
22	7.8	5.7	3.8	2.4	1.4	0.45	0.34	0.17	0.15	0.13	100	0.29
23	6.0	4.9	4.3	2.2	1.2	0.42	0.31	0.19	0.13	0.13	41	0.30
24	4.9	4.1	5.5	2.6	1.1	0.41	0.32	0.22	0.13	0.13	13	0.32
25	3.9	3.2	4.9	13	2.4	0.38	0.33	0.16	0.13	0.08	7.1	0.38
26	3.2	2.7	8.4	5.5	2.3	0.36	0.25	0.18	0.21	0.06	3.8	0.42
27	2.8	3.4	6.6	3.8	5.6	0.38	0.27	0.15	1.2	0.08	8.0	5.4
28	2.5	53	4.8	4.1	1.9	2.7	0.24	0.15	0.35	0.19	4.1	25
29	2.3	—	7.3	2.9	1.1	0.56	0.24	0.15	0.24	0.32	2.6	16
30	2.1	—	7.5	2.3	0.87	0.48	0.24	0.17	0.19	0.18	2.3	33
31	1.8	—	4.8	—	1.2	—	0.22	0.17	—	0.15	—	7.8
TOTAL	235.5	169.7	333.4	160.6	72.97	26.03	19.26	6.03	6.64	27.33	281.44	102.32
MEAN	7.6	6.1	10.8	5.4	2.4	0.86	0.62	0.19	0.22	0.89	9.4	3.3
MAX	39	53	45	25	7.0	5.5	7.8	0.25	1.2	7.6	100	33
MIN	1.8	1.3	3.8	2.2	0.87	0.36	0.22	0.15	0.11	0.06	0.12	0.29
AC-FT	467	337	661	319	145	52	38	12	13	54	558	203

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



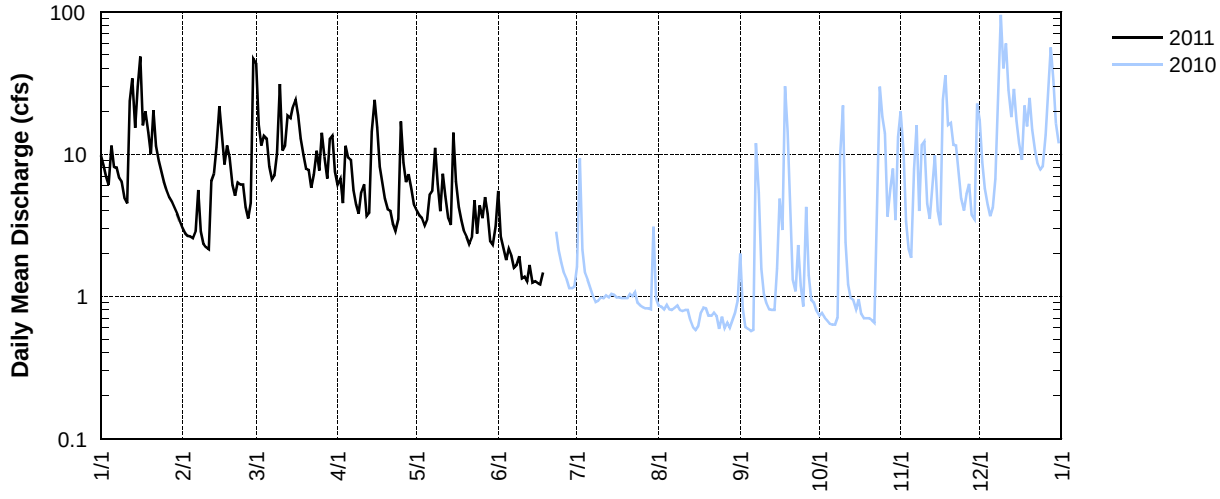
CMCW – 14206385 – CEDAR MILL CREEK ABOVE JOHNSON CREEK NEAR BEAVERTON, OREGON [RM 2.1]

Latitude: 45 30 40 Longitude: 122 49 09 Source Agency: WEST Consultants for Clean Water Services

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN*	JUL	AUG	SEP	OCT	NOV	DEC
1	9.8	3.0	43	6.1	4.0	5.5						
2	8.3	2.8	16	6.8	3.7	2.6						
3	6.9	2.6	11	4.5	3.6	2.2						
4	6.1	2.6	13	11	3.1	1.8						
5	12	2.6	13	9.4	3.5	2.2						
6	8.1	2.9	8.2	9.1	5.2	1.9						
7	8.0	5.6	6.7	5.6	5.5	1.6						
8	6.8	2.9	7.1	4.4	11	1.6						
9	6.4	2.3	10	3.8	6.2	1.9						
10	4.9	2.2	31	5.4	4.0	1.3						
11	4.5	2.1	11	6.1	7.3	1.4						
12	24	6.5	11	3.7	5.0	1.3						
13	34	7.3	19	3.9	3.5	1.7						
14	15	11	18	14	3.2	1.3						
15	30	22	22	24	14	1.3						
16	49	14	24	15	6.4	1.2						
17	16	8.4	19	8.1	4.2e	1.2						
18	20	11	13	6.3	3.4e	1.5						
19	14	9.4	9.8	4.8	2.9e							
20	10.0	6.0	7.9	4.1	2.6e							
21	20	5.1	7.7	4.0	2.3							
22	11	6.3	5.8	3.2	2.6							
23	8.9	6.1	7.2	2.9	4.7							
24	7.6	6.1	11	3.5	2.8							
25	6.3	4.2	7.7	17	4.4							
26	5.5	3.5	14	8.7	3.5							
27	5.0	4.5	9.7	6.4	5.0							
28	4.6	47	6.7	7.2	3.8							
29	4.2	—	13	5.7	2.4							
30	3.8	—	13	4.4	2.3							
31	3.4	—	7.5	—	3.1	—			—		—	
TOTAL	374.1	210	417	219.1	139.2							
MEAN	12.1	7.5	13.5	7.3	4.5							
MAX	49	47	43	24	14							
MIN	3.4	2.1	5.8	2.9	2.3							
AC-FT	742	417	827	435	276							

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

CMCW– 14206385 – Cedar Mill Creek above Johnson Creek near Beaverton, Oregon [RM 2.1]



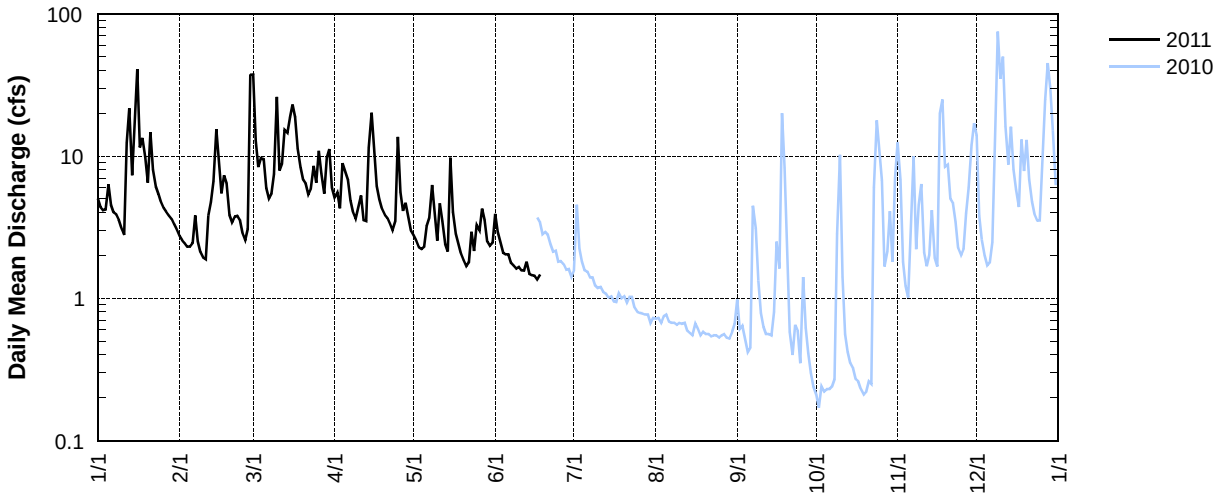
NJBR – 14206392 – NORTH JOHNSON CREEK AT BUTNER ROAD [RM 1.0]

Latitude: 45 30 49 Longitude: 122 48 22 Source Agency: WEST Consultants for Clean Water Services

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN*	JUL	AUG	SEP	OCT	NOV	DEC
1	5.0	2.7	37	5.1	2.8	3.9						
2	4.4	2.6	13	5.6	2.5	2.9						
3	4.2	2.4	8.4	4.3	2.3	2.5						
4	4.2	2.3	9.6	8.9	2.2	2.1						
5	6.3	2.3	9.5	7.9	2.3	2.0						
6	4.5	2.4	6.0	6.8	3.2	2.0						
7	4.0	3.8	5.0	4.9	3.7	1.8						
8	3.9	2.5	5.4	4.0	6.3	1.7						
9	3.6	2.1	7.5	3.6	3.9	1.6						
10	3.1	1.9	26	4.3	2.5	1.7						
11	2.8	1.9	7.9	5.3	4.7	1.6						
12	12	3.8	8.9	3.5	3.5	1.6						
13	22	4.7	15	3.5	2.4	1.8						
14	7.3	6.7	15	11	2.1	1.5						
15	19	15	19	20	9.7	1.4						
16	41	9.4	23	12	4.1	1.4						
17	12	5.5	19	6.1	2.8	1.4						
18	13	7.3	11	5.0	2.4	1.5						
19	9.8	6.4	8.3	4.3	2.1							
20	6.5	3.8	6.8	3.9	1.9							
21	15	3.4	6.4	3.7	1.7							
22	8.0	3.8	5.4	3.4	1.8							
23	6.1	3.8	5.9	3.0	2.9							
24	5.4	3.5	8.6	3.5	2.2							
25	4.7	2.9	6.5	14	3.3							
26	4.3	2.5	11	5.6	3.0							
27	4.1	3.1	7.6	4.1	4.3							
28	3.8	37	5.5	4.7	3.5							
29	3.6	—	9.7	3.7	2.5							
30	3.3	—	11	3.0	2.3							
31	3.1	—	6.0	—	2.5	—			—		—	
TOTAL	250	149.5	344.9	178.7	97.4							
MEAN	8.0	5.4	11.1	5.9	3.1							
MAX	41	37	37	20	9.7							
MIN	2.8	1.9	5.0	3.0	1.7							
AC-FT	496	297	684	354	193							

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

NJBR – 14206392 – North Johnson Creek at Butner Road [RM 1.0]



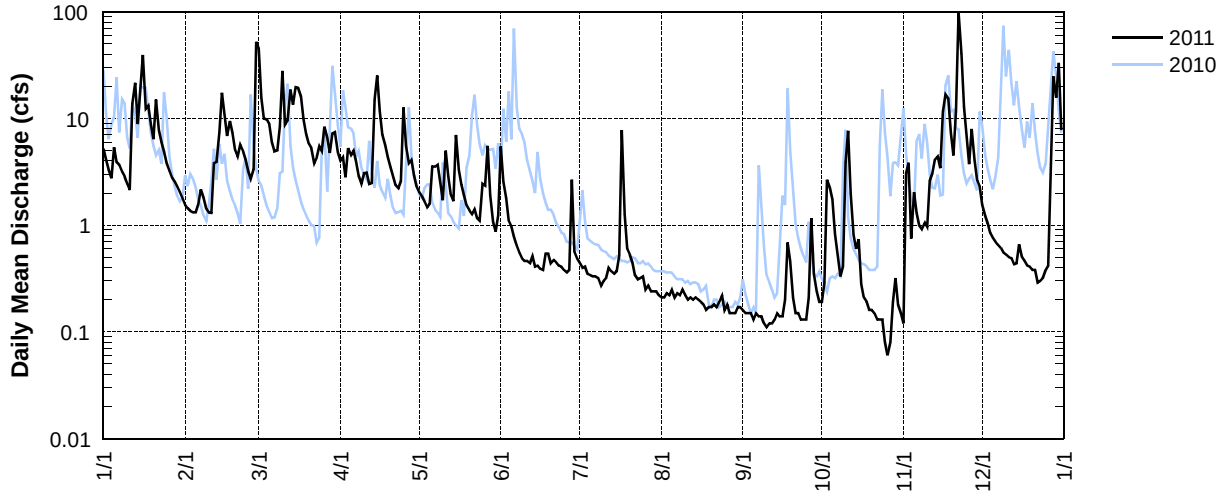
WC143 – 14206410 – WILLOW CREEK AT NW 143RD AVE NEAR BEAVERTON, OREGON [RM 3.5]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2.0	1.1	22	1.8	0.93	1.8	0.24	0.19	0.15	0.07	e0.25	e0.91
2	1.7	1.1	5.8	1.8	0.82	1.2	0.21	0.20	0.15	0.23	e1.1	e0.82
3	1.7	1.1	3.9	1.5	0.76	2.0	0.20	0.20	0.17	e1.0	e2.9	e0.74
4	2.0	1.1	4.5	3.4	0.70	0.92	0.20	0.20	0.09	e1.1	e0.50	e0.69
5	2.8	1.1	5.2	3.4	0.77	0.64	0.18	0.18	0.08	e1.4	e0.97	e0.65
6	2.0	1.2	2.7	3.0	1.1	0.55	0.16	0.19	0.14	e0.60	e0.40	e0.61
7	1.8	2.3	2.0	2.4	1.6	0.48	0.18	0.20	0.10	e0.31	e0.29	e0.59
8	1.7	1.3	2.2	1.7	2.8	0.45	0.17	0.20	0.14	e0.29	e0.26	e0.55
9	1.5	1.1	2.9	1.4	2.2	0.42	0.17	0.21	0.14	e0.38	e0.27	e0.53
10	1.2	1.0	17	1.6	1.1	0.39	0.17	0.22	0.10	e2.1	e0.24	e0.51
11	1.1	0.99	3.5	1.9	1.8	0.46	0.16	0.18	0.11	e1.5	e0.54	e0.50
12	8.3	2.9	3.6	1.4	1.8	0.45	0.59	0.17	0.10	e0.66	e0.87	e0.46
13	15	3.4	6.5	1.2	1.0	0.41	1.4	0.15	0.13	e0.30	e0.76	e0.45
14	3.9	4.6	7.3	4.4	0.83	0.40	1.2	0.18	0.12	e0.30	e0.51	e0.46
15	14	11	7.5	10	4.6	0.34	0.33	0.17	0.12	e0.47	e0.41	e0.55
16	23	5.8	7.5	4.6	2.2	0.32	0.48	0.15	0.18	e0.25	2.8	e0.43
17	5.2	3.2	6.1	2.5	1.3	0.32	7.6	0.14	0.27	e0.21	3.4	e0.40
18	7.1	4.5	4.0	1.9	0.94	0.44	3.0	0.16	0.19	e0.19	2.4	e0.39
19	4.9	3.9	2.8	1.6	0.80	0.46	0.90	0.16	0.14	e0.18	1.4	e0.38
20	2.9	2.3	2.1	1.3	0.69	0.34	0.53	0.13	0.11	e0.18	0.77	e0.37
21	8.0	1.9	2.4	1.2	0.61	0.29	0.40	0.13	0.09	e0.18	4.1	e0.36
22	3.6	2.3	1.9	1.3	0.60	0.26	0.32	0.17	0.08	e0.18	31	e0.33
23	2.6	2.4	1.9	1.1	1.4	0.25	0.28	0.19	0.08	e0.19	14	e0.32
24	2.3	2.4	3.5	1.1	1.3	0.23	0.25	0.18	0.09	e0.17	4.9	e0.31
25	2.0	1.9	2.8	6.9	1.4	0.21	0.28	0.15	0.17	e0.16	2.1	e0.31
26	1.8	1.5	3.6	2.7	2.0	0.22	0.23	0.14	0.47	e0.16	e1.4	e0.31
27	1.7	1.7	2.7	1.8	1.7	0.24	0.21	0.12	1.3	e0.16	e3.8	e0.90
28	1.6	26	2.0	1.7	1.4	1.1	0.19	0.09	0.16	e0.23	e1.9	11
29	1.5	—	3.7	1.4	0.93	0.38	0.19	0.16	0.08	e0.34	e1.2	7.5
30	1.4	—	4.8	1.1	0.71	0.28	0.19	0.15	0.04	e0.37	e1.1	11
31	1.3	—	2.4	—	1.0	—	0.19	0.17	—	e0.49	—	2.8
TOTAL	131.6	95.09	150.8	73.1	41.79	16.25	20.8	5.23	5.29	14.35	86.54	46.13
MEAN	4.2	3.4	4.9	2.5	1.4	0.54	0.67	0.17	0.18	0.47	2.9	1.5
MAX	23	26	22	10	4.6	2.0	7.6	0.22	1.3	2.1	31	11
MIN	1.1	0.99	1.9	1.1	0.60	0.21	0.16	0.09	0.04	0.07	0.24	0.31
AC-FT	261	189	299	145	83	32	41	10	10	28	172	91

e=estimated value

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



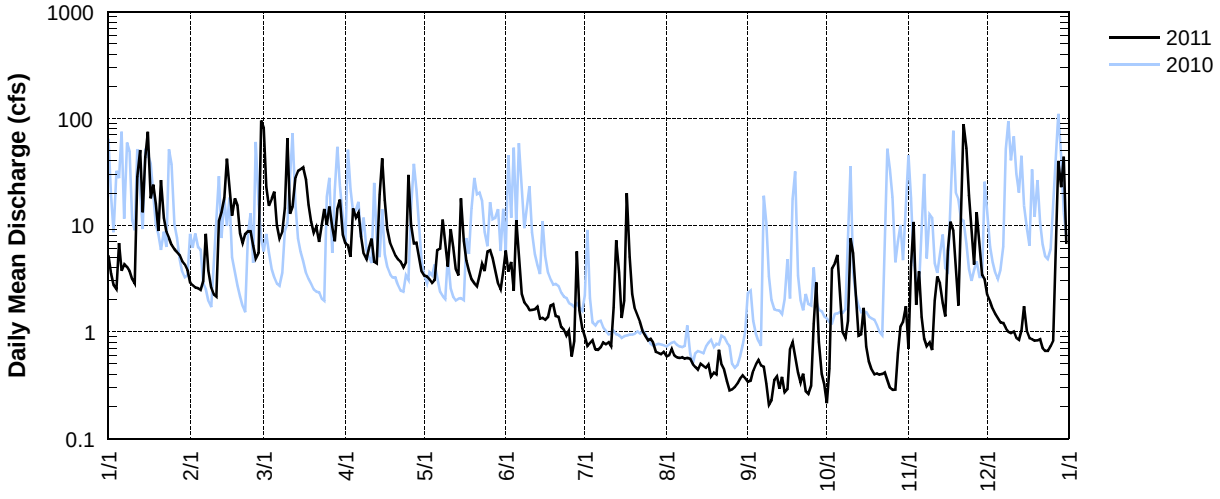
WCHP – 14206413 – WILLOW CREEK AT HERITAGE PARKWAY NEAR BEAVERTON, OREGON [RM 0.75]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.2	e2.9	e82	6.8	3.4	5.8	0.90	0.59	0.34	0.21	0.70	2.2
2	3.5	e2.7	e23	6.5	3.3	3.7	0.74	0.61	0.35	0.45	4.2	1.9
3	2.7	e2.6	e15	5.0	3.1	4.5	0.79	0.69	0.43	3.9	11	1.6
4	2.5	e2.6	e18	14	2.9	2.4	0.83	0.60	0.50	4.4	1.8	1.5
5	6.8	e2.5	e21	12	3.1	11	0.68	0.58	0.54	5.2	3.7	1.3
6	3.7	e3.0	e10.0	13	5.9	5.2	0.68	0.57	0.49	2.2	1.4	1.2
7	4.3	e8.3	7.6	7.9	6.0	2.3	0.71	0.58	0.47	0.99	0.87	1.2
8	4.0	e3.7	8.7	5.4	11	1.9	0.80	0.56	0.33	0.88	0.73	1.1
9	3.7	e2.6	15	4.8	6.7	1.8	0.76	0.57	0.21	1.3	0.79	1.0
10	3.1	e2.2	66	6.1	4.1	1.6	0.80	0.56	0.23	7.5	0.67	0.97
11	2.8	e2.1	13	7.5	9.2	1.6	0.73	0.50	0.35	5.5	2.0	1.0
12	28	e11	15	4.5	6.2	1.6	1.7	0.47	0.38	2.4	3.3	0.87
13	51	e13	28	4.4	3.8	1.7	7.2	0.44	0.29	0.92	2.9	0.84
14	13	e18	32	19	3.4	1.3	3.6	0.50	0.38	0.95	1.9	1.0
15	43	e42	34	43	18	1.4	1.4	0.48	0.27	1.7	1.4	1.7
16	75	e23	35	17	7.1	1.3	2.0	0.46	0.29	0.73	5.8	1.0
17	18	e12	27	9.1	4.6	1.4	20	0.49	0.70	0.53	11	0.87
18	24	e18	16	6.7	3.7	1.8	5.1	0.38	0.81	0.44	8.9	0.85
19	16	e15	11	5.9	3.1	1.8	2.3	0.42	0.60	0.40	3.8	0.82
20	8.8	e8.3	8.5	5.2	2.8	1.4	1.7	0.40	0.42	0.41	1.8	0.83
21	26	e6.8	9.7	4.8	2.7	1.4	1.4	0.68	0.34	0.40	11	0.86
22	12	e8.2	7.0	4.5	3.4	1.1	1.2	0.49	0.40	0.40	e89	0.70
23	8.6	e8.8	9.9	4.0	4.3	1.1	1.0	0.44	0.28	0.42	53	0.66
24	7.6	e8.7	14	4.5	3.7	0.92	0.91	0.34	0.26	0.35	19	0.66
25	6.5	e6.4	10	29	5.7	1.0	0.83	0.28	0.31	0.30	9.8	0.74
26	5.9	e4.9	15	10	5.9	0.59	0.86	0.29	1.2	0.28	4.3	0.83
27	5.6	e5.5	9.6	6.7	4.9	0.82	0.79	0.30	2.9	0.29	13	6.5
28	5.3	e96	7.1	6.8	3.8	5.7	0.65	0.33	0.81	0.63	6.2	40
29	e4.6	—	14	5.0	2.8	1.6	0.64	0.37	0.40	1.1	3.4	23
30	e4.3	—	17	3.7	2.5	1.1	0.62	0.39	0.32	1.3	3.1	44
31	e3.8	—	8.1	—	3.7	—	0.65	0.37	—	1.7	—	6.7
TOTAL	409.3	340.8	607.2	282.8	154.8	70.83	62.97	14.73	15.6	48.18	280.46	148.4
MEAN	13.2	12.2	19.5	9.5	5.0	2.4	2.0	0.48	0.52	1.6	9.3	4.8
MAX	75	96	82	43	18	11	20	0.69	2.9	7.5	89	44
MIN	2.5	2.1	7.0	3.7	2.5	0.59	0.62	0.28	0.21	0.21	0.67	0.66
AC-FT	812	676	1204	561	307	140	125	29	31	96	556	294

e=estimated value

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



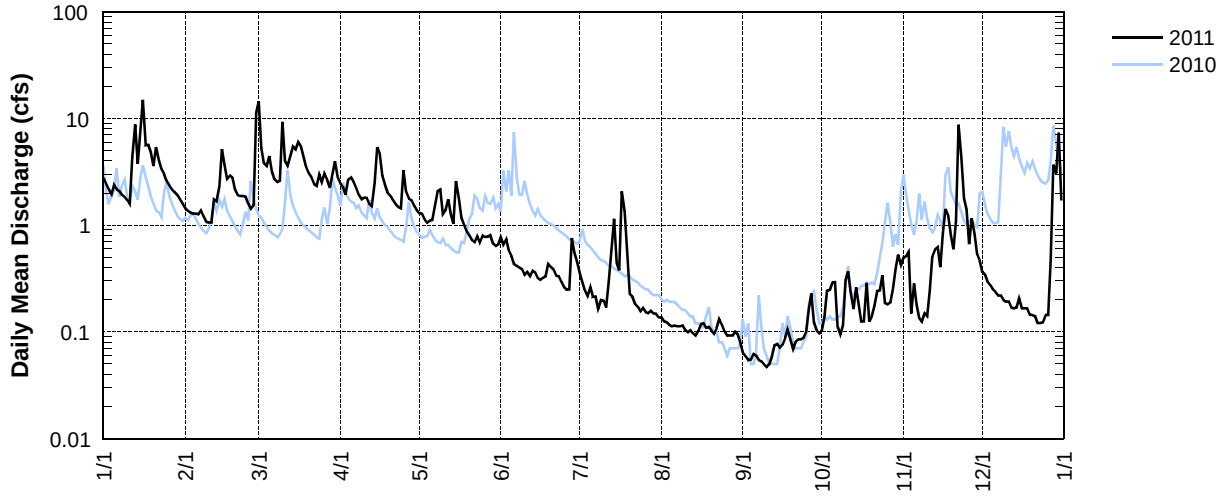
BCSR – 14206419 – BRONSON CREEK AT SALTZMAN ROAD [RM 5.1]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2.8	1.4	14	2.5	1.3	0.77	e0.35	0.14	0.06	0.10	0.50	0.36
2	2.4	1.4	5.3	2.3	1.3	0.66	e0.29	0.13	0.06	0.14	0.51	0.34
3	2.2	1.3	3.8	1.9	1.1	0.74	e0.24	0.12	0.05	0.24	0.56	0.29
4	1.9	1.3	3.6	2.7	1.1	0.58	e0.21	0.12	0.06	0.25	0.15	0.27
5	2.4	1.3	4.5	2.8	1.1	0.52	e0.26	0.11	0.06	0.29	0.28	0.25
6	2.2	1.3	3.2	2.5	e1.1	e0.43	e0.21	0.11	0.06	0.29	0.18	0.24
7	2.1	1.4	2.7	2.2	e1.6	e0.42	e0.21	0.11	0.05	0.11	0.13	0.22
8	1.9	1.2	2.5	1.9	e2.1	e0.40	e0.17	0.11	0.05	0.10	0.12	0.22
9	1.8	1.1	2.6	1.8	e2.2	e0.39	e0.20	0.12	0.05	0.11	0.15	0.20
10	1.7	1.1	9.3	1.8	e1.3	e0.34	e0.20	0.10	0.05	0.30	0.14	0.19
11	1.6	1.1	3.9	1.8	e1.4	e0.37	e0.17	0.10	0.05	0.37	0.24	0.19
12	4.3	1.7	3.6	1.6	e1.7	e0.33	e0.29	0.10	0.06	0.23	0.51	0.17
13	8.8	1.7	4.5	1.5	e1.3	e0.37	e0.56	0.10	0.08	0.16	0.59	0.17
14	3.8	2.3	5.5	2.5	e1.0	e0.36	e1.1	0.09	0.08	0.26	0.63	0.17
15	7.2	5.2	5.1	5.4	e2.6	e0.32	e0.44	0.10	0.07	0.18	0.41	0.20
16	15	3.7	6.0	4.7	e1.8	e0.31	e0.38	0.12	0.08	0.13	0.84	0.17
17	5.6	2.7	5.4	2.9	1.2	e0.32	e2.1	0.12	0.09	0.13	1.4	0.17
18	5.7	2.9	4.3	2.4	1.0	e0.33	e1.3	0.11	0.10	0.29	1.2	0.17
19	4.8	2.8	3.5	2.0	0.87	e0.43	e0.59	0.11	0.09	0.13	0.81	0.14
20	3.6	2.1	3.1	1.9	0.79	e0.41	0.23	0.10	0.07	0.14	0.60	0.14
21	5.4	1.9	2.8	1.7	0.72	e0.38	0.21	0.10	0.08	0.17	1.1	0.14
22	4.1	1.9	2.4	1.6	0.69	e0.34	0.18	0.11	0.09	0.24	8.7	0.12
23	3.4	1.9	2.3	1.5	0.79	e0.33	0.17	0.13	0.09	0.24	4.2	0.12
24	3.0	1.8	3.0	1.4	0.69	e0.29	0.16	0.12	0.09	0.34	1.8	0.12
25	2.6	1.6	2.5	3.3	0.80	e0.26	0.17	0.10	0.10	0.19	1.4	0.14
26	2.3	1.4	3.0	2.1	0.78	e0.25	0.15	0.09	0.16	0.18	0.67	0.14
27	2.2	1.6	2.6	1.8	0.78	e0.25	0.15	0.09	0.23	0.19	1.2	0.49
28	2.0	11	2.2	1.7	0.81	e0.76	0.16	0.09	0.12	0.25	0.83	3.7
29	1.9	—	2.9	1.5	0.67	e0.55	0.15	0.10	0.10	0.38	0.53	3.1
30	1.8	—	4.0	1.4	0.64	e0.44	0.15	0.10	0.10	0.53	0.46	7.3
31	1.6	—	2.8	—	0.66	—	0.14	0.08	—	0.42	—	1.7
TOTAL	112.1	62.1	126.9	67.1	35.89	12.65	11.29	3.33	2.48	7.08	30.84	21.34
MEAN	3.6	2.2	4.1	2.2	1.2	0.42	0.37	0.11	0.082	0.23	1.0	0.69
MAX	15	11	14	5.4	2.6	0.77	2.1	0.14	0.23	0.53	8.7	7.3
MIN	1.6	1.1	2.2	1.4	0.64	0.25	0.14	0.08	0.05	0.10	0.12	0.12
AC-FT	222	123	252	133	71	25	22	6.6	4.9	14	61	42

e=estimated value

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



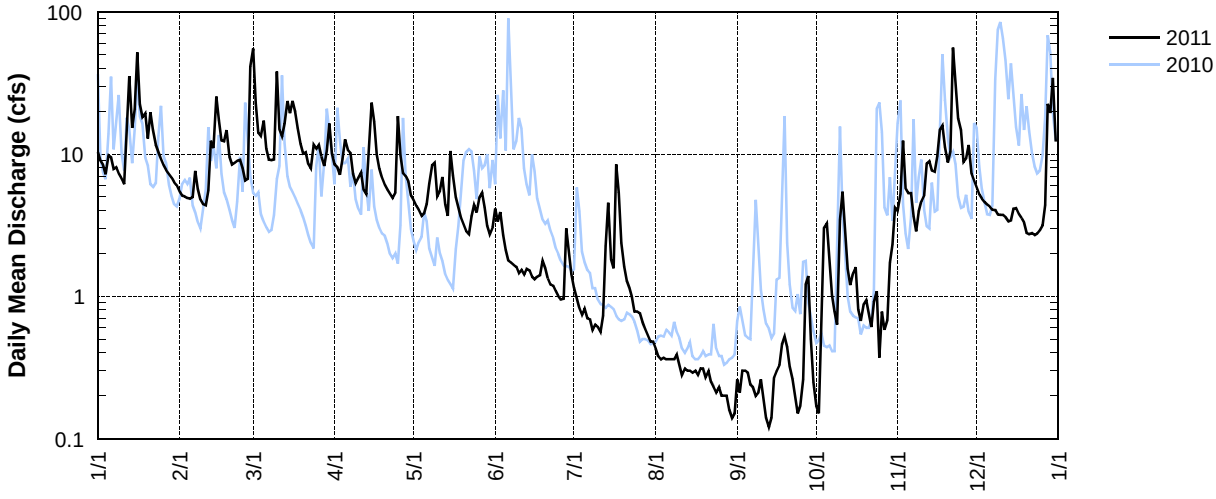
BCBR – 14206423 – BRONSON CREEK AT BRONSON ROAD NEAR ORENCO, OREGON [RM 2.1]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	10	5.4	55	8.5	4.7	4.1	1.1	0.43	0.26	0.17	4.0	5.8
2	8.9	5.1	23	8.1	4.3	3.3	0.96	0.38	0.21	0.15	5.3	5.2
3	8.4	5.0	14	7.2	4.0	3.9	0.82	0.36	0.30	0.78	12	4.9
4	7.2	4.9	13	9.3	3.7	2.7	0.74	0.37	0.30	3.0	5.7	4.6
5	9.8	4.9	17	13	3.8	2.1	0.82	0.36	0.29	3.3	5.3	4.4
6	9.5	5.0	11	11	4.5	1.8	0.70	0.36	0.24	1.8	5.3	4.3
7	7.9	7.6	9.1	10	6.2	1.7	0.69	0.36	0.23	1.0	3.6	4.1
8	8.1	5.7	9.1	7.3	8.3	1.7	0.58	0.36	0.20	0.78	2.9	4.0
9	7.3	4.8	9.2	6.3	8.7	1.6	0.63	0.39	0.21	0.63	4.0	3.7
10	6.7	4.5	38	6.8	5.1	1.4	0.61	0.33	0.26	3.5	4.7	3.7
11	6.1	4.4	15	7.4	5.5	1.5	0.56	0.28	0.19	5.4	5.1	3.7
12	17	5.6	13	5.6	6.9	1.4	0.73	0.31	0.14	2.9	8.6	3.6
13	35	12	16	5.2	4.4	1.6	2.3	0.30	0.12	1.6	8.9	3.4
14	15	11	24	10	3.7	1.5	4.6	0.30	0.14	1.2	7.6	3.4
15	21	25	19	23	11	1.4	1.8	0.29	0.27	1.5	7.5	4.1
16	52	17	24	17	7.1	1.3	1.6	0.30	0.30	1.6	9.7	4.2
17	22	13	20	9.9	5.0	1.4	8.5	0.28	0.33	0.81	15	3.8
18	18	12	15	7.9	4.2	1.4	5.4	0.31	0.46	0.67	16	3.5
19	19	15	12	6.8	3.6	1.8	2.4	0.31	0.52	0.88	11	3.3
20	13	9.6	10	6.1	3.2	1.6	1.6	0.27	0.44	0.94	8.7	2.8
21	20	8.4	10	5.6	2.9	1.3	1.3	0.30	0.32	0.76	10	2.7
22	15	8.7	8.5	5.2	2.7	1.2	1.1	0.25	0.26	0.61	e56	2.8
23	12	9.0	7.9	4.9	3.6	1.2	0.99	0.23	0.20	0.91	34	2.7
24	10	9.1	12	5.4	4.4	1.1	0.78	0.21	0.15	1.1	18	2.8
25	9.2	8.0	11	19	3.9	1.0	0.78	0.23	0.17	0.37	15	2.9
26	8.3	6.5	12	9.8	5.0	0.95	0.76	0.20	0.26	0.78	8.8	3.2
27	7.7	6.7	9.6	7.4	5.4	0.96	0.66	0.20	1.2	0.58	9.3	4.4
28	7.2	41	8.2	7.0	4.2	3.0	0.59	0.20	1.4	0.68	12	23
29	6.9	—	11	6.4	3.1	2.1	0.53	0.16	0.50	1.7	7.2	20
30	6.3	—	16	5.1	2.7	1.4	0.48	0.14	0.25	2.3	6.5	34
31	6.1	—	10	—	3.1	—	0.48	0.15	—	4.2	—	12
TOTAL	410.6	274.9	482.6	262.2	148.9	53.41	45.59	8.92	10.12	46.6	327.7	191
MEAN	13.3	9.8	15.6	8.7	4.8	1.8	1.5	0.29	0.34	1.5	10.9	6.1
MAX	52	41	55	23	11	4.1	8.5	0.43	1.4	5.4	56	34
MIN	6.1	4.4	7.9	4.9	2.7	0.95	0.48	0.14	0.12	0.15	2.9	2.7
AC-FT	814	545	957	520	295	106	90	18	20	92	650	379

e=estimated value

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



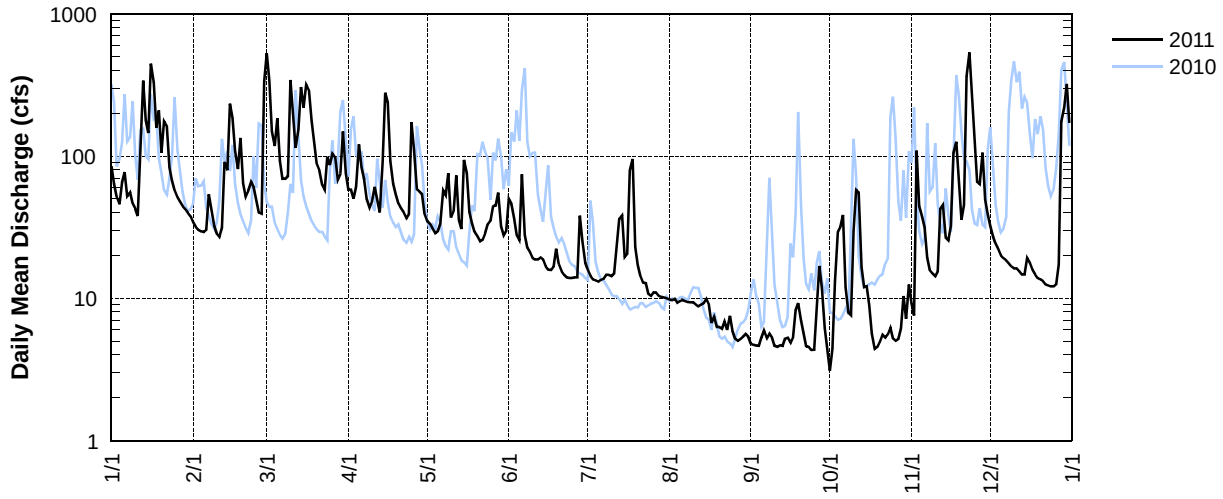
BVTS – 14206435 – BEAVERTON CREEK AT NE GUSTON COURT NEAR ORENCO, OREGON [RM 1.2]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	85	34	531	58	35	50	16	9.8	4.8	3.1	9.2	32
2	63	32	341	58	33	46	14	9.7	4.7	4.4	7.6	27
3	52	30	149	50	31	36	14	9.9	4.6	13	109	24
4	46	30	118	61	29	28	13	9.3	4.6	29	45	22
5	65	29	185	121	30	26	13	9.6	5.3	32	37	20
6	77	30	93	83	33	74	14	9.8	5.9	39	31	19
7	52	54	69	69	57	28	14	9.5	5.2	12	19	18
8	56	43	69	50	53	23	15	9.4	5.6	7.9	16	18
9	47	32	72	44	76	21	15	9.3	5.3	7.6	15	17
10	43	29	343	48	37	19	14	9.4	4.6	30	14	16
11	38	27	198	61	42	19	15	9.0	4.6	58	15	16
12	122	31	114	49	73	19	23	8.8	4.7	55	43	16
13	340	91	154	40	36	19	36	9.0	4.6	16	45	15
14	178	79	306	90	31	e19	38	9.2	5.2	12	27	15
15	145	233	219	278	94	e17	20	9.9	5.3	12	25	19
16	447	186	317	238	75	16	21	9.0	4.9	8.9	32	18
17	331	109	288	93	40	16	79	6.7	5.3	5.7	105	16
18	158	81	178	64	34	17	95	7.4	8.3	4.4	126	15
19	209	134	123	54	29	22	23	6.3	9.3	4.5	72	14
20	106	65	88	46	27	17	17	6.3	7.0	5.0	36	14
21	175	52	80	43	25	16	14	6.1	5.6	5.6	46	13
22	161	57	63	40	26	15	13	6.9	4.6	5.3	365	13
23	83	65	58	37	29	14	13	6.0	4.5	5.6	534	12
24	67	61	99	39	33	14	11	7.5	4.3	6.2	276	12
25	58	50	86	173	35	14	10	5.9	4.3	5.2	132	12
26	51	40	104	111	44	14	11	5.2	9.2	5.0	66	13
27	48	39	98	58	45	14	11	5.0	17	5.2	63	17
28	45	335	68	56	55	38	10	5.2	12	6.1	106	175
29	42	—	75	54	32	25	10	5.4	6.2	10	50	219
30	40	—	149	39	28	18	10	5.6	4.5	7.2	39	322
31	38	—	76	—	30	—	10.0	5.4	—	12	—	171
TOTAL	3468	2078	4911	2305	1277	714	632	241.5	182	432.9	2505.8	1350
MEAN	111.8	74.2	158.5	76.9	41.2	23.7	20.4	7.8	6.1	14.0	83.6	43.5
MAX	447	335	531	278	94	74	95	9.9	17	58	534	322
MIN	38	27	58	37	25	14	10.0	5.0	4.3	3.1	7.6	12
AC-FT	6879	4122	9741	4572	2533	1416	1254	479	361	859	4970	2678

e=estimated value

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



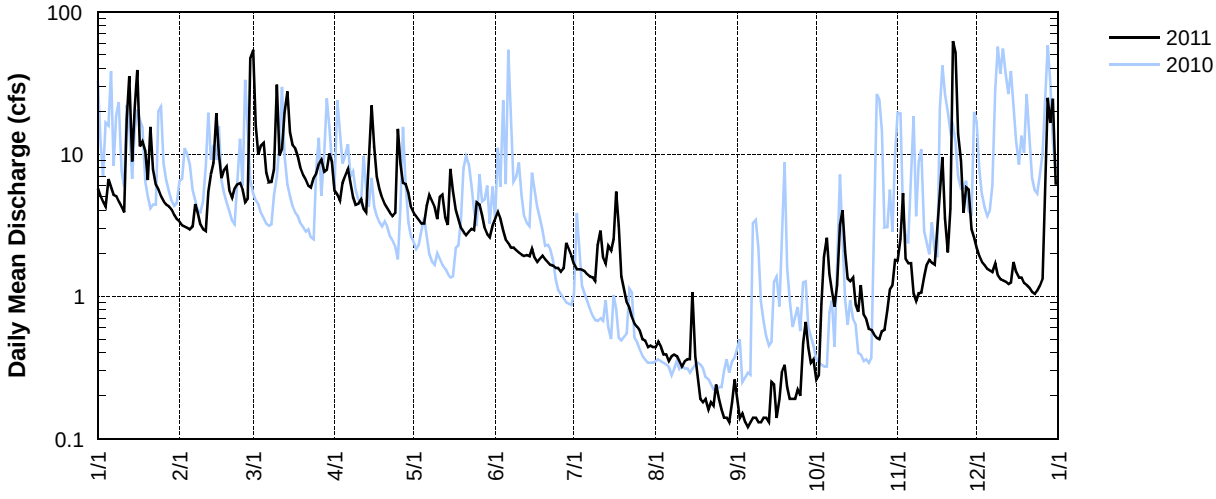
DCBR – 14206443 – DAWSON CREEK AT BROOKWOOD ROAD NEAR HILLSBORO, OREGON [RM 0.7]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.7	3.4	54	5.5	3.9	3.6	1.7	0.44	0.19	0.26	1.8	2.2
2	5.1	3.2	16	5.2	3.6	3.9	1.5	0.48	0.14	0.28	2.5	1.9
3	4.6	3.1	10	4.7	3.4	3.5	1.6	0.44	0.15	0.88	5.3	1.7
4	4.2	3.0	11	6.3	3.3	2.9	1.5	0.39	0.13	1.9	1.8	1.6
5	6.7	3.0	12	7.1	3.3	2.5	1.5	0.39	0.12	2.6	1.7	1.6
6	5.9	3.1	7.4	7.9	4.3	2.4	1.4	0.35	0.13	1.4	1.7	1.5
7	5.2	4.4	6.3	6.3	5.1	2.2	1.4	0.38	0.14	1.1	1.0	1.5
8	5.1	3.8	6.4	5.0	4.6	2.2	1.4	0.39	0.14	0.85	0.93	1.7
9	4.6	3.2	7.8	4.4	4.2	2.1	1.3	0.38	0.13	1.2	1.0	1.4
10	4.2	3.0	31	4.5	3.5	2.0	2.3	0.35	0.13	3.2	1.1	1.3
11	3.9	2.9	9.8	4.8	5.0	2.0	2.9	0.32	0.14	4.0	1.4	1.3
12	18	5.4	11	4.1	5.2	1.9	1.9	0.35	0.14	2.1	1.7	1.3
13	35	7.2	20	3.9	3.6	1.9	1.7	0.36	0.13	1.3	1.8	1.2
14	8.9	8.7	28	9.6	3.2	1.9	2.3	0.36	0.25	1.3	1.7	1.3
15	21	19	e14	22	7.8	2.2	2.1	1.1	0.24	1.4	1.7	1.7
16	39	9.9	e12	11	5.5	1.9	2.5	0.38	0.14	0.88	3.0	1.5
17	11	6.8	e11	7.0	4.0	1.7	5.5	0.27	0.19	0.78	5.6	1.3
18	12	7.7	e9.7	5.7	3.5	1.8	3.1	0.19	0.30	1.2	9.5	1.3
19	10	8.2	e7.9	5.0	3.0	1.9	1.4	0.18	0.33	0.74	3.5	1.2
20	6.6	5.5	e7.1	4.4	2.8	1.8	1.1	0.19	0.23	0.69	2.0	1.2
21	15	4.9	e6.6	4.1	2.7	1.7	0.90	0.16	0.19	0.59	4.1	1.2
22	7.8	5.7	e6.0	3.9	2.8	1.7	0.83	0.18	0.19	0.58	62	1.1
23	6.1	6.2	e5.8	3.7	3.0	1.6	0.71	0.17	0.19	0.54	52	1.0
24	5.6	6.3	e6.8	3.9	2.9	1.6	0.64	0.24	0.22	0.51	14	1.1
25	5.1	5.6	e7.3	15	4.6	1.6	0.61	0.19	0.20	0.50	9.0	1.2
26	4.7	4.6	e8.5	8.5	4.4	1.5	0.57	0.16	0.47	0.57	3.9	1.3
27	4.4	4.9	e9.2	6.3	3.7	1.6	0.50	0.14	0.66	0.58	5.8	4.2
28	4.3	48	e7.5	6.2	3.0	2.4	0.49	0.14	0.44	0.80	5.6	25
29	e4.1	—	e7.8	5.3	2.7	2.1	0.44	0.13	0.34	1.1	3.0	17
30	e3.7	—	e10	4.2	2.6	1.9	0.45	0.18	0.36	1.2	2.6	25
31	3.5	—	e8.8	—	3.1	—	0.44	0.26	—	1.8	—	6.1
TOTAL	281	200.7	376.7	195.5	118.3	64	46.68	9.64	6.75	36.83	212.73	113.9
MEAN	9.1	7.2	12.1	6.5	3.8	2.1	1.5	0.31	0.22	1.2	7.1	3.6
MAX	39	48	54	22	7.8	3.9	5.5	1.1	0.66	4.0	62	25
MIN	3.5	2.9	5.8	3.7	2.6	1.5	0.44	0.13	0.12	0.26	0.93	1.0
AC-FT	557	398	747	388	235	127	93	19	13	73	422	226

e=estimated value

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

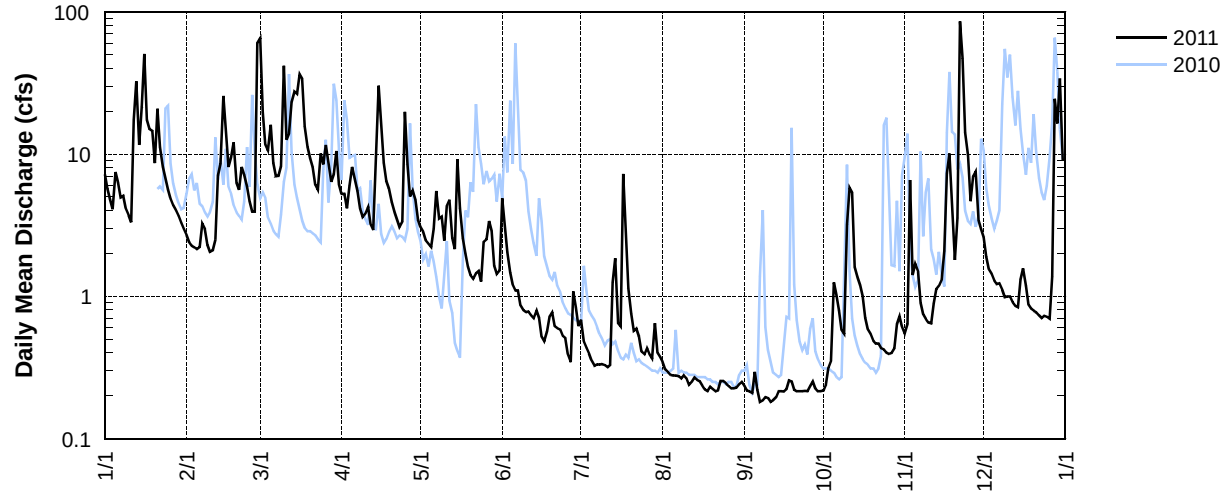


BCRR – 14206483 – BUTTERNUT CREEK AT ROSA ROAD [RM 1.0]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7.2	2.7	65	5.2	3.1	4.9	0.69	0.34	0.23	0.22	0.55	2.6
2	5.7	2.4	20	5.3	2.8	3.0	0.48	0.31	0.22	0.24	0.64	1.9
3	4.8	2.3	12	4.2	2.5	2.0	0.44	0.29	0.22	0.32	6.6	1.5
4	4.1	2.2	11	6.0	2.3	1.5	0.40	0.28	0.21	0.35	1.4	1.4
5	7.5	2.1	16	8.1	2.2	1.2	0.35	0.28	0.29	1.3	1.7	1.3
6	6.3	2.2	8.6	6.6	3.0	1.1	0.32	0.28	0.22	1.0	1.5	1.2
7	5.0	3.2	7.0	5.5	5.5	1.1	0.33	0.27	0.18	0.80	0.90	1.2
8	5.1	3.0	7.0	4.1	3.5	0.86	0.33	0.26	0.19	0.58	0.74	1.1
9	4.1	2.3	8.2	3.6	3.6	0.80	0.33	0.28	0.20	0.54	0.69	0.98
10	3.7	2.1	42	3.8	2.5	0.77	0.33	0.27	0.19	3.2	0.65	1.00
11	3.3	2.1	13	4.3	4.3	0.78	0.32	0.24	0.18	5.8	0.64	0.99
12	17	2.5	14	3.2	4.8	0.74	0.33	0.25	0.19	5.3	0.89	0.91
13	33	7.1	23	2.9	2.6	0.70	1.3	0.27	0.19	1.6	1.1	0.86
14	12	8.5	27	9.9	2.1	0.80	1.9	0.26	0.22	1.4	1.2	0.84
15	21	26	26	30	9.2	0.71	0.65	0.25	0.22	1.2	1.3	1.3
16	51	14	36	17	4.2	0.52	0.61	0.23	0.21	1.0	2.1	1.6
17	17	8.1	34	8.7	2.5	0.48	7.2	0.22	0.22	0.70	7.3	1.2
18	15	9.5	16	6.5	2.0	0.57	2.8	0.22	0.26	0.58	10	0.87
19	15	12	11	5.7	1.6	0.72	1.1	0.23	0.25	0.54	4.6	0.82
20	8.6	6.3	9.3	4.6	1.4	0.77	0.76	0.22	0.22	0.49	1.8	0.79
21	21	5.6	8.1	4.0	1.3	0.62	0.57	0.22	0.22	0.47	3.5	0.77
22	11	8.1	6.1	3.5	1.5	0.60	0.59	0.22	0.22	0.46	86	0.73
23	8.1	7.1	5.6	3.1	1.5	0.58	0.52	0.25	0.22	0.43	47	0.70
24	6.7	5.9	10	3.4	1.3	0.53	0.41	0.25	0.22	0.42	14	0.73
25	5.6	4.6	8.4	20	2.4	0.51	0.39	0.25	0.22	0.40	9.8	0.72
26	4.8	3.9	12	8.5	2.5	0.39	0.43	0.23	0.23	0.39	4.7	0.69
27	4.4	3.9	8.9	5.0	3.4	0.34	0.39	0.23	0.25	0.40	7.0	1.4
28	4.0	60	6.4	5.6	2.9	1.1	0.36	0.23	0.23	0.43	7.6	25
29	3.7	—	7.2	4.8	1.6	0.84	0.65	0.23	0.22	0.64	3.4	16
30	3.3	—	10	3.5	1.4	0.62	0.40	0.24	0.22	0.72	3.0	34
31	3.0	—	6.1	—	1.5	—	0.37	0.25	—	0.60	—	8.9
TOTAL	322	219.7	494.9	206.6	87	30.15	26.05	7.85	6.56	32.52	232.3	114
MEAN	10.4	7.9	16.0	6.9	2.8	1.0	0.84	0.25	0.22	1.0	7.8	3.7
MAX	51	60	65	30	9.2	4.9	7.2	0.34	0.29	5.8	86	34
MIN	3.0	2.1	5.6	2.9	1.3	0.34	0.32	0.22	0.18	0.22	0.55	0.69
AC-FT	639	436	982	410	173	60	52	16	13	65	461	226

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



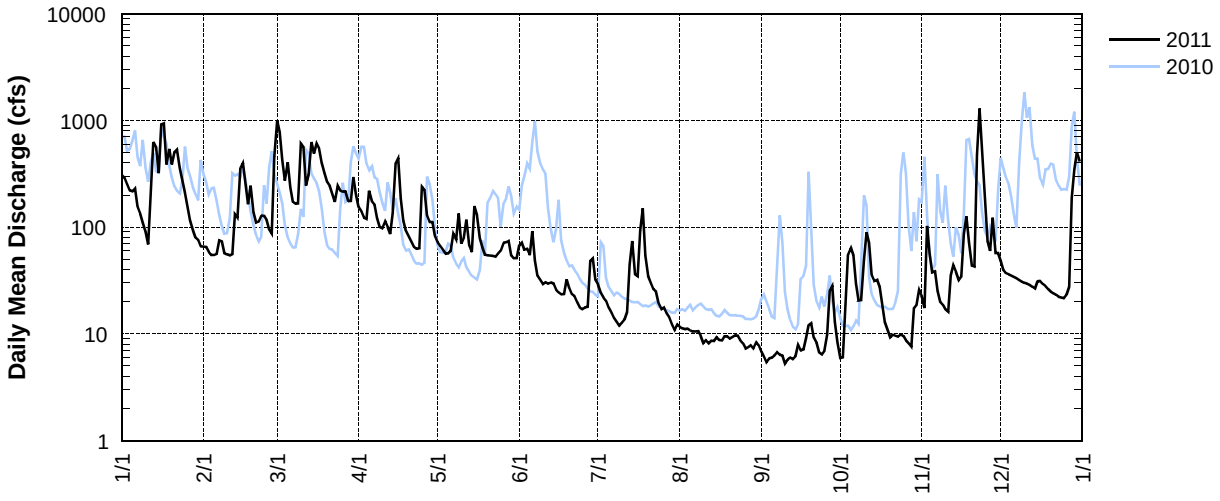
RCTV – 14206451** – ROCK CREEK AT HWY 8 NEAR HILLSBORO, OREGON [RM 1.2]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	306	e66	e1000	155	72	67	29	12	6.8	5.9	23	49
2	289	e65	e771	140	67	72	24	11	6.1	6.0	17	40
3	253	e59	423	123	62	62	22	11	5.4	20	103	37
4	221	55	275	120	56	63	20	11	5.9	55	57	36
5	216	55	407	220	57	55	18	11	6.0	64	38	35
6	231	56	237	175	60	92	16	11	6.3	55	38	34
7	154	75	173	163	86	49	14	11	6.7	30	25	33
8	134	74	166	121	76	35	13	11	6.3	21	20	32
9	110	57	167	101	135	32	12	9.6	6.3	21	19	31
10	90	56	611	98	e70	29	13	8.2	5.3	50	17	30
11	69	54	567	114	e80	30	14	8.7	5.7	89	16	30
12	172	56	245	101	e118	30	16	8.1	6.0	71	35	29
13	626	133	309	86	e67	30	45	8.6	5.8	36	44	28
14	554	123	627	137	e58	30	74	8.6	6.2	31	38	27
15	321	360	491	397	e158	26	36	9.3	7.8	32	32	31
16	922	402	608	445	e130	24	35	8.7	7.0	28	35	31
17	941	252	542	186	e78	24	94	8.7	7.1	18	86	29
18	386	164	402	115	e65	24	150	9.5	9.1	13	126	28
19	545	246	318	92	e55	32	55	9.5	12	11	72	26
20	387	137	265	81	e55	27	35	9.0	13	9.3	44	25
21	503	111	244	73	54	24	30	9.3	9.2	9.8	43	24
22	531	113	205	65	54	23	26	9.7	8.2	9.6	476	23
23	353	128	172	62	53	20	25	9.6	6.7	9.4	1300	22
24	274	127	244	63	57	18	20	8.8	6.4	9.9	592	22
25	210	116	219	241	60	17	17	8.1	6.9	9.6	216	21
26	156	95	215	225	71	18	18	7.3	9.9	8.6	74	23
27	115	86	217	128	72	18	16	7.5	25	8.2	60	28
28	93	e460	175	112	74	48	14	7.8	28	7.6	123	189
29	80	—	176	112	54	51	12	7.3	13	17	57	347
30	76	—	296	82	51	32	11	8.4	8.4	19	57	502
31	66	—	202	—	51	—	12	7.8	—	26	—	413
TOTAL	9384	3781	10969	4333	2256	1102	936	287.1	262.5	800.9	3883	2255
MEAN	302.7	135.0	354.0	144.4	72.8	36.6	30.1	9.2	8.8	25.8	129.6	72.8
MAX	941	460	1000	445	158	92	150	12	28	89	1300	502
MIN	66	54	166	62	51	17	11	7.3	5.3	5.9	16	21
AC-FT	18610	7500	21760	8594	4475	2186	1857	569	521	1589	7702	4473

**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]



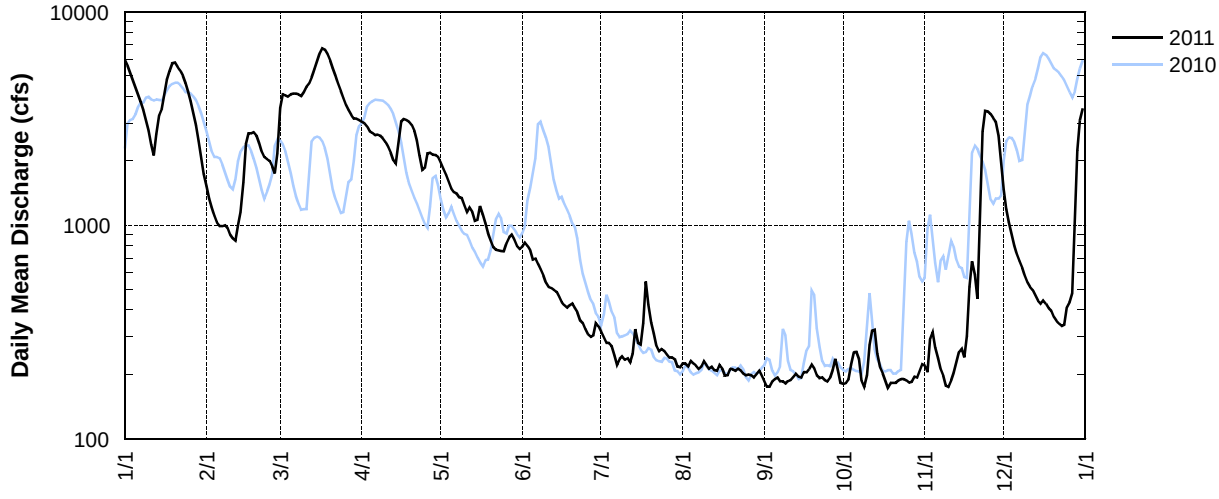
FRMO – 14206500 – TUALATIN RIVER AT FARMINGTON, OREGON [RM 33.3]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	5950	1520	3550	3060	1970	794	318	225	185	180	220	1470
2	5600	1330	4100	3010	1840	830	297	225	175	182	205	1190
3	5200	1210	4070	2910	1720	802	280	218	175	189	294	1030
4	4820	1110	4010	2760	1600	762	280	231	185	221	316	904
5	4430	1030	4100	2710	1490	692	272	225	190	254	267	802
6	4110	991	4140	2640	1430	697	245	220	193	255	238	731
7	3790	988	4140	2660	1410	659	222	212	185	236	211	679
8	3480	1000	4110	2630	1350	623	236	217	185	186	197	629
9	3140	972	4040	2560	1340	581	243	230	181	174	177	577
10	2770	906	4220	2460	1240	536	234	221	186	198	175	538
11	2390	864	4460	2330	1150	514	238	213	188	275	188	514
12	2120	845	4620	2190	1210	508	227	217	194	321	204	497
13	2680	997	4940	2020	1150	498	249	209	201	324	228	468
14	3290	1150	5390	1950	1050	488	325	208	195	250	254	442
15	3510	1590	e5880	2460	1060	462	280	222	193	215	264	429
16	4140	2400	e6390	3060	1230	437	276	213	205	202	240	444
17	4810	2690	e6750	3150	1120	422	348	197	204	187	303	428
18	5260	2690	e6670	3110	1020	410	544	198	211	173	513	409
19	e5740	2730	e6320	3060	919	422	424	212	222	182	677	397
20	e5780	2630	e5920	2950	846	429	349	211	213	182	586	372
21	5530	2430	5450	2770	791	409	310	208	198	182	452	357
22	5320	2210	5050	2490	766	391	272	213	192	187	898	345
23	5020	2090	4630	2120	762	357	256	209	193	190	2750	337
24	4650	2040	4260	1820	757	348	263	202	188	190	3430	341
25	4240	2000	3940	1860	754	325	257	198	185	187	3410	411
26	3820	1890	3670	2170	827	308	248	199	193	183	3310	437
27	3380	1750	3470	2180	878	299	239	198	210	184	3180	479
28	2940	2170	3280	2140	902	305	240	193	236	195	3060	919
29	2490	—	3160	2130	856	347	235	200	209	193	2620	2240
30	2060	—	3160	2090	801	336	217	208	182	208	1960	3100
31	1740	—	3120	—	773	—	216	197	—	223	—	3530
TOTAL	124200	46223	141010	75450	35012	14991	8640	6549	5852	6508	30827	25446
MEAN	4006	1651	4549	2515	1129	500	279	211	195	209.9	1028	821
MAX	5950	2730	6750	3150	1970	830	544	231	236	324	3430	3530
MIN	1740	845	3120	1820	754	299	216	193	175	173	175	337
AC-FT	246300	91680	279700	149700	69450	29730	17140	12990	11610	12910	61150	50480

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

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



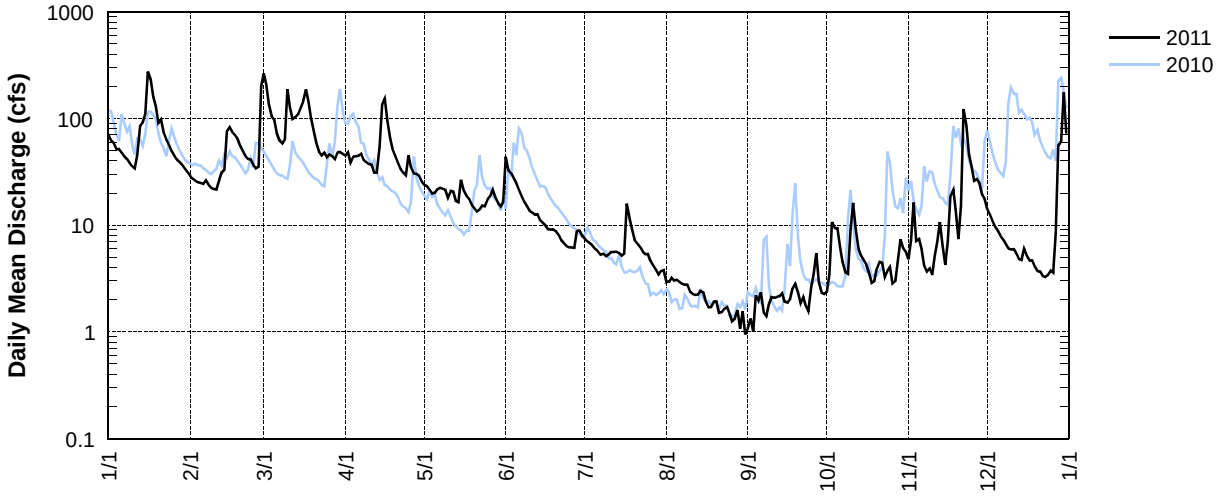
CCSR – 14206750 – CHICKEN CREEK AT ROY ROGERS ROAD NEAR SHERWOOD, OREGON [RM 2.3]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	e70	29	e264	45	24	44	7.5	2.9	1.1	2.4	4.8	14
2	e62	27	207	48	23	33	7.0	3.0	1.3	3.5	7.2	12
3	59	26	136	39	21	31	6.7	3.2	1.0	11	16	11
4	52	25	105	44	20	28	6.4	3.0	2.2	9.3	7.1	9.6
5	52	25	97	44	20	25	5.9	3.1	2.0	9.4	7.4	8.8
6	48	24	72	45	22	21	5.7	2.9	2.4	6.3	6.0	8.0
7	44	26	62	47	23	19	5.3	2.8	1.5	4.5	4.2	7.3
8	42	24	59	40	22	16	5.4	2.8	1.4	3.6	3.7	6.6
9	38	22	64	39	21	15	5.1	2.8	1.8	3.5	3.9	6.0
10	36	22	189	37	18	14	5.3	2.4	2.1	9.1	3.4	5.9
11	34	22	126	37	21	13	5.6	2.3	2.1	16	5.2	5.9
12	46	26	99	31	21	13	5.6	2.2	2.1	9.3	7.0	5.4
13	86	31	103	31	17	13	5.6	2.2	2.2	6.0	11	4.8
14	92	33	110	55	16	11	5.5	2.4	2.3	5.2	6.3	4.7
15	111	76	126	137	27	11	5.2	2.3	1.9	4.7	4.2	6.0
16	e275	83	145	155	21	10	5.4	1.9	1.9	4.3	7.2	5.1
17	231	75	187	96	19	9.1	16	1.7	2.0	3.6	19	4.6
18	160	70	143	65	18	9.1	11	1.7	2.6	2.9	22	4.7
19	130	65	100	51	16	9.1	9.0	1.9	2.8	3.0	13	4.1
20	91	55	76	44	14	8.8	7.2	1.9	2.3	3.9	7.4	3.7
21	98	50	59	39	14	8.2	6.7	1.5	1.9	4.5	15	3.7
22	73	45	49	34	14	7.2	6.3	1.5	2.1	4.4	123	3.3
23	63	42	45	31	15	6.9	5.6	1.6	1.8	3.3	86	3.3
24	56	41	48	29	15	6.4	5.3	1.7	1.6	3.7	46	3.4
25	49	37	43	45	17	6.2	5.4	1.5	2.6	4.1	36	3.8
26	45	34	46	35	19	6.2	4.6	1.3	3.5	2.9	26	3.6
27	41	35	45	30	22	6.1	4.2	1.3	5.5	3.0	27	8.4
28	39	200	42	30	18	8.9	3.8	1.6	2.9	4.6	25	56
29	37	—	48	29	16	8.9	3.4	1.1	2.3	7.4	19	62
30	34	—	49	26	15	7.9	3.7	1.6	2.3	6.1	18	176
31	32	—	47	—	17	—	3.8	0.95	—	5.6	—	72
TOTAL	2326	1270	2991	1458	586	426	189.2	65.05	65.5	171.1	587	533.7
MEAN	74.9	45.4	96.4	48.6	18.9	14.1	6.1	2.1	2.2	5.5	19.5	17.2
MAX	275	200	264	155	27	44	16	3.2	5.5	16	123	176
MIN	32	22	42	26	14	6.1	3.4	0.95	1.0	2.4	3.4	3.3
AC-FT	4614	2519	5933	2892	1162	845	375	129	130	339	1164	1059

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

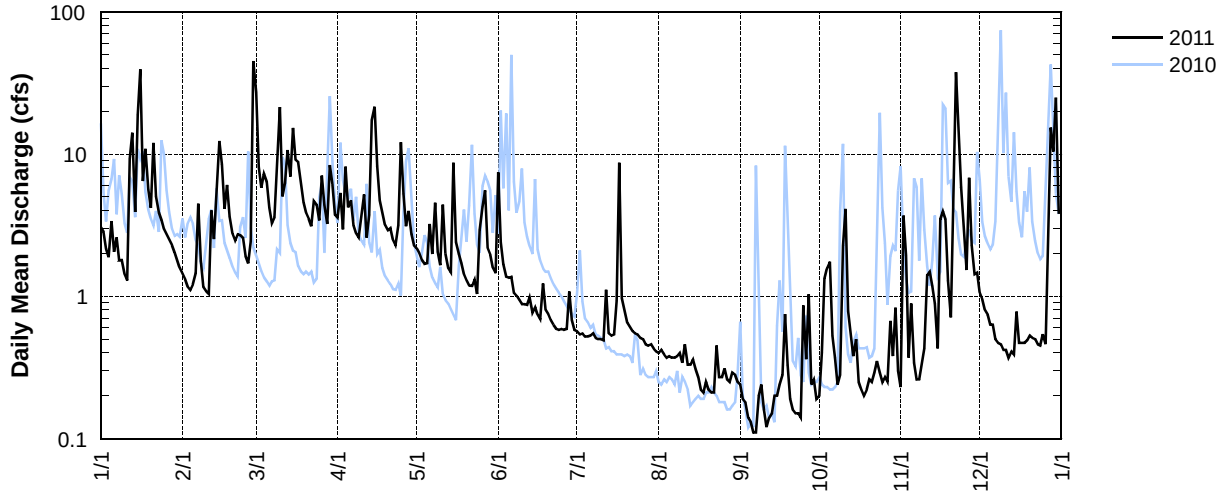
LATITUDE: 452917 LONGITUDE: 1224401 DRAINAGE AREA: 2.37

Discharge, Cubic Feet per Second, Calendar Year January to December 2011 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	3.1	1.4	27	3.5	2.2	7.4	0.57	0.40	e0.24	0.20	0.23	1.1
2	2.8	1.3	8.2	5.4	2.0	2.4	0.55	0.42	0.19	0.40	3.6	0.95
3	2.2	1.2	5.8	3.0	1.8	1.7	0.55	0.39	0.18	1.3	2.0	0.80
4	1.9	1.1	7.3	8.1	1.7	1.4	0.52	0.37	0.14	1.6	0.37	0.74
5	3.4	1.2	6.4	4.2	1.7	1.3	0.52	0.37	0.13	1.8	0.89	0.63
6	2.1	1.4	4.2	4.7	3.2	1.4	0.54	0.37	0.11	0.54	0.34	0.63
7	2.6	4.5	3.3	3.1	2.0	1.1	0.56	0.37	0.11	0.37	0.26	0.50
8	1.8	1.8	3.6	2.8	4.5	1.0	0.51	0.38	0.20	0.24	0.26	0.47
9	1.8	1.2	7.8	2.6	2.1	0.94	0.50	0.40	0.24	0.28	0.33	0.46
10	1.4	1.1	22	3.6	1.6	0.88	0.50	0.34	0.15	2.2	0.43	0.42
11	1.3	1.0	5.1	5.2	4.4	0.88	0.49	0.46	0.11	4.1	1.4	0.42
12	9.3	4.0	6.3	2.6	2.0	0.87	1.1	0.33	0.14	0.80	1.5	0.37
13	14	2.5	10	3.7	1.6	0.98	0.55	0.33	0.15	0.56	1.2	0.41
14	3.9	4.9	7.0	17	1.5	0.77	0.53	0.36	0.20	0.38	0.88	0.38
15	19	12	15	22	8.7	0.84	0.54	0.32	0.20	0.50	0.43	0.78
16	39	8.4	9.1	8.3	2.4	0.74	0.93	0.28	0.24	0.25	3.3	0.47
17	6.5	4.1	8.8	4.7	2.0	0.70	8.70	0.22	0.28	0.21	4.1	0.47
18	11	6.1	6.4	3.9	1.7	1.20	0.97	0.21	0.75	0.20	3.5	0.47
19	5.7	3.7	4.6	3.2	1.4	0.80	0.79	0.25	0.33	0.22	1.3	0.49
20	4.2	2.8	3.8	2.9	1.3	0.75	0.65	0.22	0.19	0.26	0.71	0.53
21	12	2.5	3.5	3.0	1.2	0.69	0.62	0.21	0.16	0.25	5.8	0.51
22	5.0	2.7	3.1	2.5	1.2	0.63	0.57	0.21	0.15	0.29	38	0.50
23	3.9	2.7	4.7	2.3	1.3	0.59	0.55	0.45	0.15	0.35	16	0.46
24	3.5	2.6	4.4	3.2	1.0	0.58	0.55	0.27	0.14	0.29	5.9	0.45
25	3.0	1.9	3.4	12	2.9	0.59	0.51	0.27	0.86	0.25	3.0	0.54
26	2.7	1.7	7.0	5.3	4.3	0.59	0.50	0.31	0.36	0.27	1.5	0.46
27	2.5	2.4	4.4	3.1	5.6	0.59	0.47	0.26	1.0	0.25	6.8	4.4
28	2.3	45	3.2	4.0	2.2	1.1	0.45	0.25	0.24	0.67	2.3	15
29	2.0	—	8.3	2.7	2.0	0.68	0.46	e0.29	0.26	0.39	1.4	10
30	1.8	—	6.3	2.3	1.6	0.59	0.43	e0.28	0.19	0.83	1.5	25
31	1.6	—	3.8	—	1.5	—	0.41	e0.25	—	0.31	—	3.8
TOTAL	177.3	127.2	223.8	154.9	74.6	34.7	26.1	9.8	7.8	20.6	109.2	72.6
MEAN	5.7	4.5	7.2	5.2	2.4	1.16	0.84	0.32	0.26	0.66	3.6	2.3
MAX	39	45	27	22	8.7	7.4	8.7	0.46	1.0	4.1	38	25
MIN	1.3	1.0	3.1	2.3	1.0	0.58	0.41	0.21	0.11	0.20	0.23	0.37
AC-FT	352	252	444	307	148	69	52	20	15	41	217	144

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

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



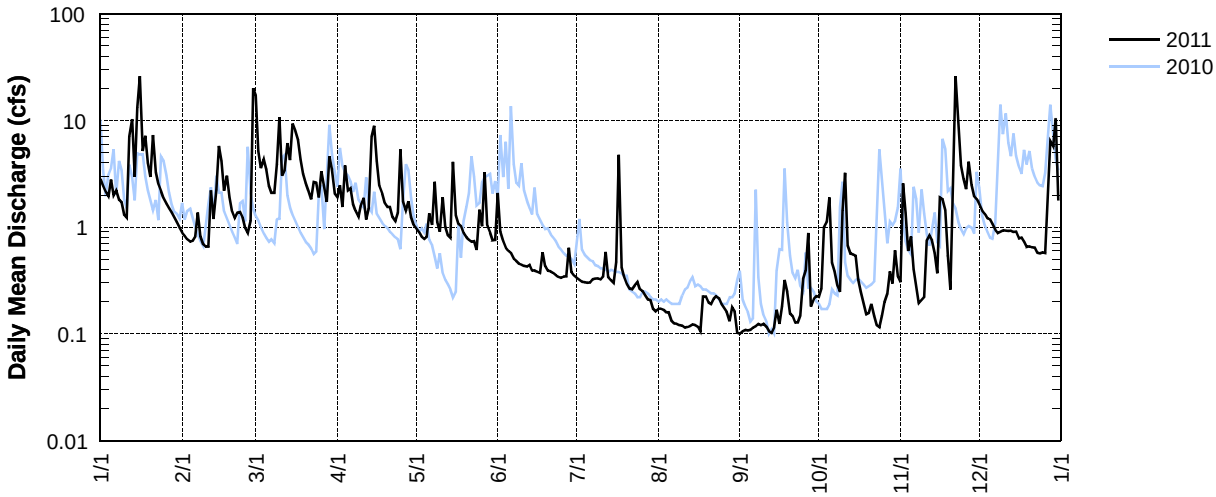
SCRL – 14206905 – SYLVAN CREEK AT RALEIGHWOOD LANE NEAR WEST SLOPE, OREGON [RM 1.0]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2.8	0.89	17	1.9	0.98	2.1	0.33	0.17	0.10	0.22	0.31	1.6
2	2.4	0.83	5.2	2.5	0.90	0.91	0.32	0.17	0.11	0.26	2.6	1.4
3	2.2	0.77	3.6	1.5	0.81	0.74	0.31	0.17	0.11	1.0	1.4	1.3
4	1.9	0.74	4.3	3.8	0.77	0.64	0.30	0.16	0.11	1.1	0.60	1.2
5	2.8	0.75	3.5	2.2	0.82	0.60	0.30	0.16	0.11	1.9	e0.82	1.2
6	2.0	0.82	2.5	2.3	1.4	0.57	0.30	0.13	0.11	0.46	e0.40	1.1
7	2.2	1.4	2.1	1.6	1.0	0.51	0.33	0.13	0.12	0.39	e0.29	0.95
8	1.8	0.83	2.1	1.4	2.7	0.48	0.33	0.12	0.12	0.28	0.19	0.88
9	1.7	0.69	3.9	1.3	1.1	0.46	0.33	0.12	0.12	0.25	0.21	0.91
10	1.3	0.66	11	1.6	0.91	0.45	0.32	0.12	0.12	1.4	0.22	0.93
11	1.2	0.66	3.0	1.9	1.9	0.43	0.34	0.11	0.12	3.2	0.75	0.92
12	7.1	2.2	3.4	1.2	1.0	0.43	0.59	0.12	0.11	0.67	0.83	0.92
13	10	1.2	6.1	1.5	0.84	0.44	0.34	0.12	0.10	0.56	0.75	0.92
14	3.0	2.3	4.3	7.1	0.80	0.39	0.32	0.12	0.11	0.56	0.57	0.90
15	13	5.8	9.4	8.9	4.1	0.39	0.30	0.12	0.17	0.54	0.37	0.91
16	26	4.2	8.1	4.2	1.3	0.38	0.47	0.12	0.12	0.32	1.9	0.79
17	5.2	2.2	6.6	2.4	1.1	0.37	4.8	0.11	0.18	0.25	1.8	0.79
18	7.2	3.0	4.3	2.1	1.0	0.58	0.42	e0.22	0.32	0.19	1.4	0.73
19	4.0	1.9	3.1	1.7	0.88	0.43	0.34	e0.22	0.25	0.15	0.54	0.65
20	3.0	1.4	2.6	1.5	0.80	0.39	0.29	e0.20	0.15	0.16	0.26	0.66
21	7.3	1.2	2.2	1.5	0.76	0.38	0.26	e0.19	0.15	0.19	2.6	0.65
22	3.3	1.4	1.8	1.2	0.73	0.37	0.26	e0.21	0.13	0.15	26	0.64
23	2.5	1.4	2.6	1.1	0.74	0.36	0.29	e0.22	0.13	0.12	8.4	0.58
24	2.2	1.2	2.6	1.4	0.61	0.34	0.31	e0.22	0.15	0.11	3.8	0.57
25	1.9	0.98	1.9	5.3	1.5	0.34	0.26	e0.19	0.33	0.15	2.8	0.58
26	1.7	0.87	3.3	1.7	1.0	0.34	0.25	e0.17	0.39	0.20	2.3	0.57
27	1.5	1.2	2.3	1.4	3.3	0.35	0.23	e0.16	0.88	0.24	4.1	2.0
28	1.4	20	1.7	1.7	1.0	0.64	0.21	e0.13	0.18	0.38	2.5	6.4
29	1.2	—	4.6	1.2	0.89	0.38	0.21	e0.18	0.21	0.30	1.9	5.7
30	1.1	—	3.5	1.1	0.76	0.35	0.17	e0.16	0.23	0.61	1.8	11
31	0.99	—	2.1	—	0.76	—	0.16	0.10	—	0.34	—	1.8
TOTAL	61.49	134.7	70.2	37.16	15.54	13.99	4.84	5.54	16.65	72.41	50.15	
MEAN	4.1	2.2	4.3	2.4	1.2	0.52	0.45	0.16	0.18	0.54	2.4	1.6
MAX	26	20	17	8.9	4.1	2.1	4.8	0.22	0.88	3.2	26	11
MIN	0.99	0.66	1.7	1.1	0.61	0.34	0.16	0.10	0.10	0.11	0.19	0.57
AC-FT	250	122	267	139	74	31	28	9.6	11	33	144	99

e=estimated value

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



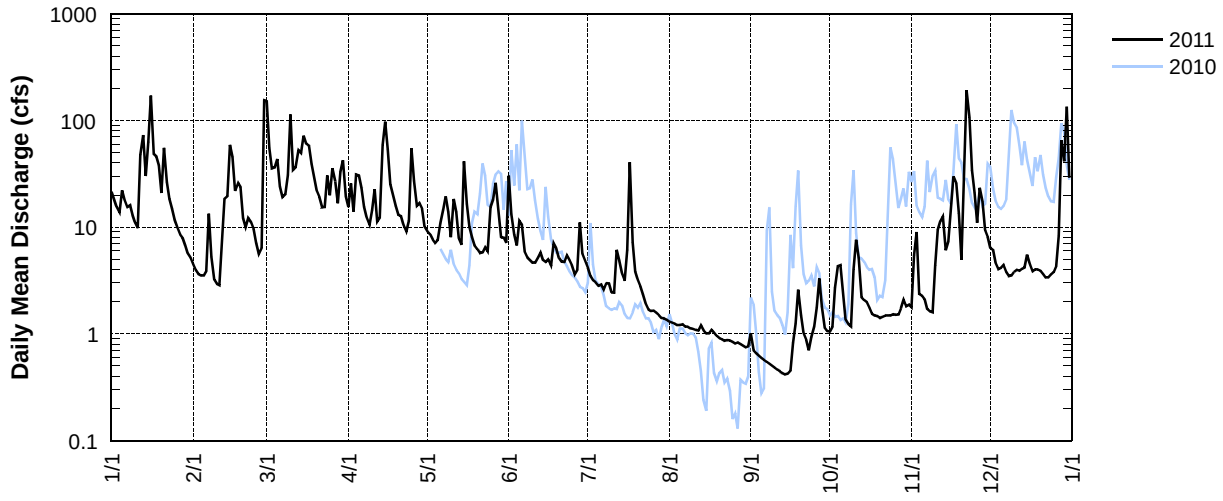
FCTW – 14206927 – FANNO CREEK AT TUCKERWOOD [RM 7.3]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	21	4.5	152	16	9.2	30	4.1	e1.3	e1.0	e1.1	e1.8	6.4
2	18	4.0	55	26	8.6	13	3.5	e1.3	e0.70	e1.2	e5.5	6.1
3	16	3.7	36	14	7.7	8.5	3.2	e1.2	e0.66	e2.7	e9.0	4.6
4	14	3.5	36	31	7.1	6.8	3.1	e1.2	e0.62	e4.3	e2.4	4.1
5	22	3.5	43	30	7.6	11	2.8	e1.2	e0.59	e4.4	e2.3	4.2
6	18	3.9	24	23	11	10	2.9	e1.2	e0.57	e2.4	e2.1	4.4
7	16	13	19	16	15	5.8	2.6	e1.2	e0.54	e1.4	e1.7	3.8
8	16	5.3	20	12	20	5.2	3.0	e1.2	e0.52	e1.2	e1.6	3.5
9	13	3.2	31	11	14	4.9	3.0	e1.1	e0.50	e1.2	e1.6	3.5
10	11	2.9	114	14	8.1	4.6	2.4	e1.1	e0.48	e4.0	4.4	3.8
11	9.8	2.9	35	23	18	4.6	2.4	e1.1	e0.46	e7.6	9.5	4.0
12	48	7.6	36	11	14	5.2	6.1	e1.1	e0.44	e5.2	11	3.9
13	73	18	53	12	7.8	5.8	4.9	e1.2	e0.43	e2.2	13	4.1
14	30	20	50	59	6.8	4.9	3.6	e1.1	e0.42	e2.1	6.1	4.2
15	63	59	72	98	41	4.7	3.2	e1.0	e0.42	e2.0	7.3	5.5
16	171	45	61	54	17	5.0	6.1	e1.0	e0.45	e1.8	14	4.5
17	49	22	58	25	10	4.4	41	e1.1	e0.83	e1.5	30	3.8
18	46	26	39	20	8.1	7.0	7.2	e1.0	e1.3	e1.5	26	4.0
19	38	24	29	16	6.7	6.3	3.8	e0.96	e2.6	e1.5	13	4.0
20	21	12	22	13	6.2	5.2	3.2	e0.91	e1.5	e1.4	5.0	3.9
21	55	10	19	13	5.7	4.7	2.8	e0.89	e1.0	e1.4	20	3.6
22	26	12	15	11	5.8	4.7	2.3	e0.86	e0.88	e1.5	192	3.4
23	18	11	16	9.1	6.5	5.4	1.9	e0.88	e0.70	e1.5	108	3.4
24	15	9.6	31	12	5.9	4.9	e1.7	e0.87	e0.93	e1.5	34	3.6
25	12	7.1	20	55	16	4.4	e1.6	e0.84	e1.2	e1.5	21	3.8
26	9.9	5.6	36	27	18	3.6	e1.7	e0.82	e1.8	e1.5	11	4.3
27	8.6	6.4	27	16	26	4.0	e1.6	e0.83	e3.3	e1.5	23	8.4
28	8.0	155	17	17	15	11	e1.5	e0.80	e1.8	e1.7	17	65
29	6.8	—	33	15	8.0	5.6	e1.4	e0.77	e1.1	e2.1	9.3	41
30	5.7	—	42	10	8.0	4.8	e1.4	e0.75	e1.1	e1.8	8.1	134
31	5.1	—	19	—	7.2	—	e1.4	e0.77	—	e1.9	—	29
TOTAL	883.9	500.7	1260	709.1	366	206	131.4	31.55	28.84	68.6	610.7	385.8
MEAN	28.5	17.9	40.7	23.6	11.8	6.9	4.2	1.0	0.96	2.2	20.4	12.5
MAX	171	155	152	98	41	30	41	1.3	3.3	7.6	192	134
MIN	5.1	2.9	15	9.1	5.7	3.6	1.4	0.75	0.42	1.1	1.6	3.4
AC-FT	1753	993	2499	1406	726	409	261	63	57	136	1211	765

e=estimated value

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

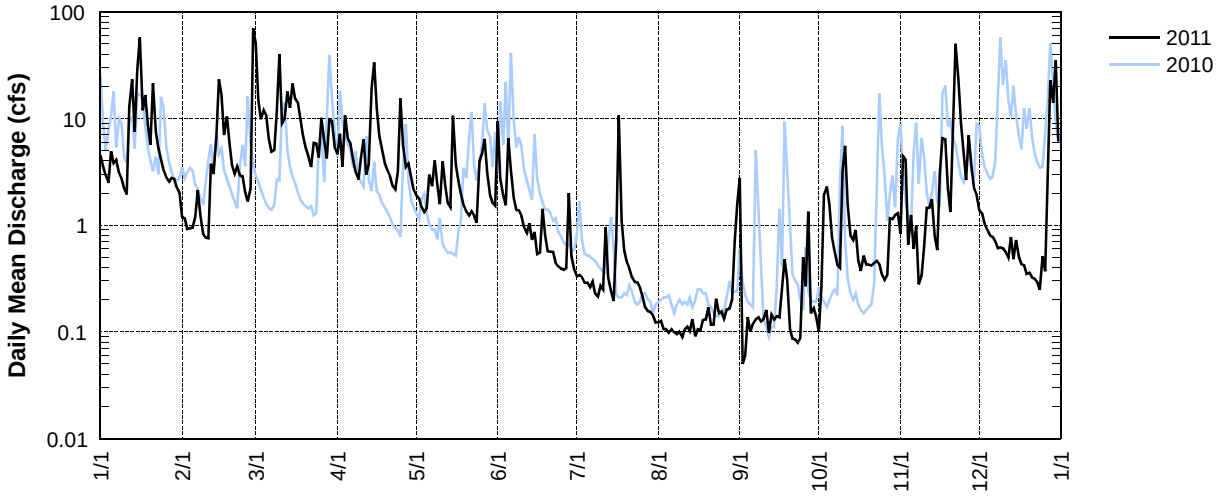


ASMP – 14206933 – ASH CREEK AT METZGER PARK AT METZGER, OREGON [RM 1.25]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	4.5	1.2	51	4.6	1.9	9.4	0.33	0.12	2.8	0.10	0.83	1.4
2	3.6	1.2	15	7.2	1.8	2.7	0.34	0.13	0.05	0.26	4.5	1.3
3	2.9	0.92	9.9	3.5	1.5	1.9	0.32	0.11	0.06	1.9	4.1	1.0
4	2.5	0.93	12	11	1.3	1.5	0.29	0.11	0.14	2.3	0.66	0.90
5	4.9	0.95	11	6.4	1.4	6.5	0.29	0.10	0.10	1.6	1.3	0.81
6	3.8	1.2	6.4	5.8	3.0	3.3	0.26	0.11	0.12	0.78	0.60	0.78
7	4.1	2.1	4.9	4.1	2.3	1.8	0.30	0.10	0.13	0.57	0.98	0.70
8	3.1	1.3	5.1	3.2	4.1	1.4	0.23	0.10	0.14	0.42	0.28	0.61
9	2.7	0.82	12	2.7	2.4	1.4	0.21	0.10	0.13	0.40	0.34	0.61
10	2.2	0.76	40	4.4	1.6	1.2	0.27	0.09	0.13	3.2	0.64	0.61
11	1.9	0.75	9.1	6.4	4.0	0.95	0.25	0.10	0.16	5.5	1.5	0.55
12	13	3.8	10	3.0	2.3	0.84	0.95	0.11	0.10	1.6	1.5	0.49
13	23	3.0	18	3.7	1.6	1.0	0.32	0.10	0.14	0.79	1.7	0.77
14	7.5	6.7	13	19	1.5	0.73	0.24	0.13	0.13	0.72	0.79	0.48
15	29	23	21	34	11	0.87	0.19	0.09	0.14	0.90	0.58	0.73
16	57	17	15	13	3.7	0.53	0.71	0.11	0.14	0.47	3.1	0.50
17	12	7.0	14	6.9	2.6	0.56	11	0.10	0.27	0.37	6.5	0.43
18	17	10	9.9	5.1	2.0	1.4	1.1	0.13	0.48	0.52	6.4	0.42
19	8.8	5.9	6.8	3.8	1.5	0.81	0.58	0.13	0.31	0.43	2.2	0.35
20	5.7	3.7	5.3	3.3	1.3	0.57	0.45	0.17	0.11	0.43	1.3	0.36
21	21	3.1	4.5	2.9	1.2	0.56	0.39	0.12	0.09	0.42	7.0	0.32
22	7.5	3.5	3.5	2.4	1.4	0.56	0.32	0.12	0.09	0.44	50	0.32
23	5.3	2.9	5.9	2.2	1.2	0.44	0.29	0.20	0.08	0.46	23	0.29
24	4.2	2.9	5.8	3.2	1.1	0.41	0.29	0.15	0.09	0.43	9.1	0.25
25	3.3	2.0	4.3	15	4.0	0.39	0.26	0.16	0.50	0.34	4.9	0.51
26	2.8	1.7	10	5.7	4.7	0.38	0.22	0.13	0.27	0.31	2.6	0.37
27	2.6	2.2	6.1	3.5	6.4	0.40	0.17	0.16	1.3	0.35	7.0	3.8
28	2.8	70	4.2	3.8	3.1	2.0	0.16	0.16	0.15	1.2	3.5	23
29	2.7	—	9.8	2.9	1.9	0.51	0.15	0.20	0.17	1.1	2.2	14
30	2.3	—	9.5	2.1	1.6	0.38	0.14	0.69	0.14	1.3	1.9	35
31	2.0	—	5.3	—	1.5	—	0.12	1.6	—	1.3	—	6.1
TOTAL	265.7	180.53	358.3	194.8	80.9	45.39	21.14	5.93	8.66	30.91	151	97.76
MEAN	8.6	6.5	11.6	6.5	2.6	1.5	0.67	0.19	0.29	1.00	5.0	3.2
MAX	57	70	51	34	11	9.4	11	1.6	2.8	5.5	50	35
MIN	1.9	0.75	3.5	2.1	1.1	0.38	0.12	0.09	0.05	0.10	0.28	0.25
AC-FT	527	358	711	386	160	90	42	12	17	61	300	194

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

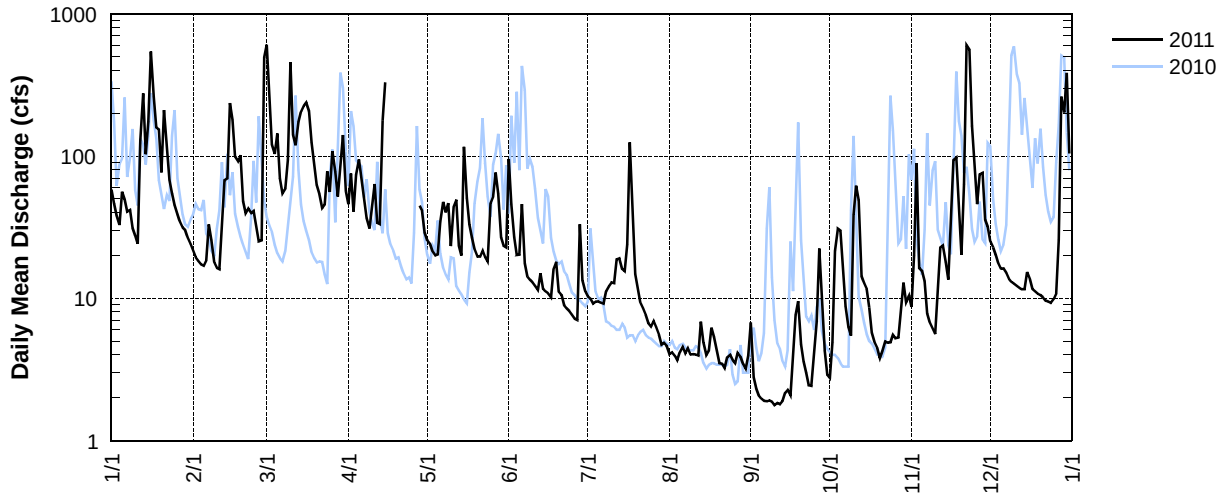
STATION NUMBER 14206950 FANNO CREEK AT DURHAM

LATITUDE: 452413 LONGITUDE: 1224513 DRAINAGE AREA: 31.50

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	58	22	613	46	26	94	10	4.1	6.7	2.7	8.9	25
2	47	19	251	76	24	47	10	4.1	2.8	4.7	17	23
3	38	18	121	41	21	27	9.2	4.0	2.3	21	92	20
4	33	17	101	71	20	20	9.5	3.7	2.1	31	17	18
5	55	17	147	97	20	20	9.5	4.1	2.0	31	15	16
6	51	18	70	71	33	47	9.4	4.6	1.9	17	13	16
7	40	33	55	53	49	18	9.2	4.1	1.9	8.8	7.8	15
8	42	26	59	37	39	14	11	4.5	1.9	6.4	6.8	14
9	31	18	90	31	48	14	12	4.0	1.9	5.5	6.1	13
10	28	16	455	45	23	13	13	4.1	1.8	37	5.6	13
11	24	16	145	64	43	12	13	4.0	1.8	61	12	12
12	125	29	119	34	51	11	19	4.0	1.8	50	23	12
13	275	69	169	33	24	15	19	6.8	1.9	14	24	12
14	105	68	211	173	20	12	16	4.9	2.1	13	18	12
15	168	234	220	e420	114	11	15	4.0	e2.1	12	14	15
16	540	181	240	e220	52	11	24	4.3	2.1	8.7	33	14
17	271	101	210	e110	33	10	122	6.2	3.8	5.7	94	12
18	156	89	125	e80	27	16	42	5.4	7.5	4.8	99	11
19	157	103	88	e60	22	18	15	4.2	9.5	4.5	50	11
20	77	48	63	e50	20	11	12	3.5	4.8	3.8	20	11
21	208	40	55	e48	19	11	9.4	3.5	3.6	4.2	60	10
22	114	42	43	e42	22	9.0	8.5	3.2	3.0	5.0	587	9.6
23	68	40	45	e36	19	8.5	7.6	3.8	2.5	4.9	568	9.5
24	55	41	79	e42	18	8.1	6.7	4.0	2.4	4.9	167	9.3
25	45	32	56	e150	46	7.7	6.3	3.7	4.1	5.5	93	9.9
26	39	25	107	e70	51	7.2	6.9	3.5	6.8	5.2	46	11
27	34	25	79	e50	76	7.0	6.3	4.1	22.0	5.3	72	23
28	32	479	53	e50	56	33	5.6	3.9	9.2	8.3	79	257
29	30	—	85	42	27	14	4.7	3.5	4.3	13	36	206
30	27	—	143	29	23	11	4.9	3.2	2.9	9.4	32	383
31	24	—	57	—	23	—	4.6	3.9	—	10	—	108
TOTAL	2997	1866	4354	2371	1089	557	471	129	124	418	2316	1331
MEAN	97	67	140	79	35	18.6	15.2	4.2	4.1	13.5	77	43
MAX	540	479	613	420	114	94	122	6.8	22	61	587	383
MIN	24	16	43	29	18	7.0	4.6	3.2	1.8	2.7	5.6	9.3
AC-FT	5940	3700	8640	4700	2160	1110	935	256	245	830	4590	2640

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

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



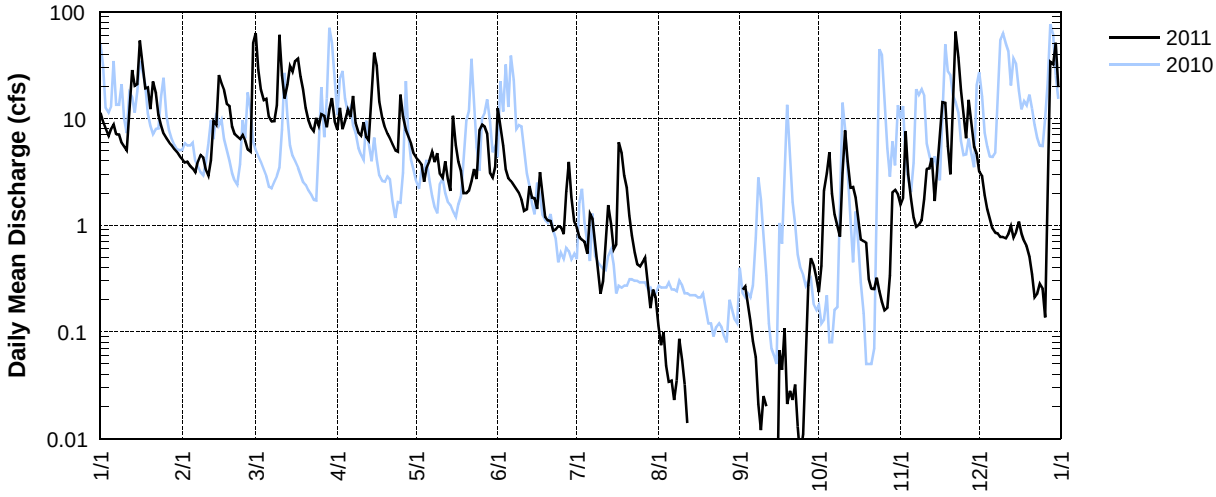
HCTP – 14206958 – HEDGES CREEK AT TUALATIN PARK AT TUALATIN, OREGON [RM 0.3]

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

Day	2011 Daily Mean Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	11	4.2	63	7.8	4.3	12	0.94	0.11	0.00	0.24	1.6	e3.2
2	9.3	3.9	29	13	4.0	8.6	0.77	0.08	0.25	0.42	1.8	e2.9
3	8.1	3.9	19	7.9	3.7	5.6	0.73	0.10	0.27	2.1	7.6	e1.9
4	6.9	3.6	15	9.5	2.5	3.3	0.70	0.05	0.18	3.1	3.0	e1.4
5	8.0	3.4	15	12	3.5	2.8	0.54	0.03	0.13	4.8	1.8	e1.1
6	8.8	3.1	10	10	4.0	2.6	1.3	0.04	0.08	2.0	1.2	e0.93
7	7.1	4.0	9.4	16	4.9	2.4	1.1	0.02	0.06	1.3	0.97	e0.84
8	7.0	4.5	9.4	9.1	3.9	2.2	0.70	0.04	0.02	0.98	e1.0	e0.84
9	5.9	4.3	13	7.4	4.7	2.0	0.38	0.09	0.01	0.78	e1.1	e0.78
10	5.4	3.3	61	6.9	3.0	1.7	0.23	0.05	0.03	3.1	e1.8	e0.78
11	5.0	2.9	26	9.3	2.8	1.4	0.30	0.03	0.02	7.7	e3.4	e0.75
12	10	4.0	15	6.7	4.0	1.4	0.67	0.01	0.00	4.0	e3.4	e0.83
13	29	9.5	21	6.3	2.7	2.3	1.5	0.00	0.00	2.2	e4.3	e0.98
14	20	8.8	31	17	2.1	1.8	1.0	0.01	0.00	2.3	e1.7	e0.77
15	21	25	27	42	11	1.8	0.59	0.00	0.00	1.8	e3.9	e0.86
16	54	21	35	31	5.6	1.4	0.66	0.02	0.07	1.1	e7.6	1.1
17	30	18	37	14	3.9	3.1	6.0	0.00	0.04	0.74	e14	0.84
18	19	14	25	10	3.2	2.0	4.7	0.00	0.11	0.71	e14	0.71
19	20	13	19	8.3	2.0	1.2	2.9	0.00	0.02	0.68	e5.5	0.63
20	12	8.5	13	7.2	2.0	1.1	2.3	0.00	0.03	0.31	e3.0	0.50
21	22	7.1	9.7	6.5	2.1	1.1	1.2	0.00	0.02	0.25	e15	0.35
22	17	6.8	8.2	5.7	2.6	0.89	0.80	0.00	0.03	0.25	e66	0.21
23	11	6.4	7.6	5.0	3.3	0.92	0.55	0.00	0.01	0.32	e37	0.23
24	8.6	7.0	10	4.9	2.7	0.98	0.43	0.00	0.01	0.24	e19	0.28
25	7.2	6.2	8.6	17	7.8	0.96	0.41	0.00	0.01	0.19	e11	0.25
26	6.5	5.1	11	10	8.8	0.82	0.45	0.00	0.04	0.16	e6.6	0.14
27	6.0	4.9	11	7.8	8.4	2.1	0.50	0.00	0.27	0.17	e15	2.6
28	5.6	51	8.3	6.7	7.2	3.9	0.27	0.00	0.49	0.34	e8.5	34
29	5.2	—	12	5.8	3.1	1.8	0.17	0.00	0.42	2.0	e5.5	32
30	4.9	—	15	4.7	2.8	1.1	0.25	0.00	0.32	2.1	e4.7	51
31	4.4	—	9.3	—	3.5	—	0.21	0.05	—	1.9	—	20
TOTAL	395.9	257.4	603.5	325.5	130.1	75.27	33.25	0.73	2.94	48.28	270.97	163.7
MEAN	12.8	9.2	19.4	10.9	4.2	2.5	1.1	0.023	0.098	1.6	9.0	5.3
MAX	54	51	63	42	11	12	6.0	0.11	0.49	7.7	66	51
MIN	4.4	2.9	7.6	4.7	2.0	0.82	0.17	0.00	0.00	0.16	0.97	0.14
AC-FT	785	511	1197	646	258	149	66	1.4	5.8	96	537	325

e=estimated value

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



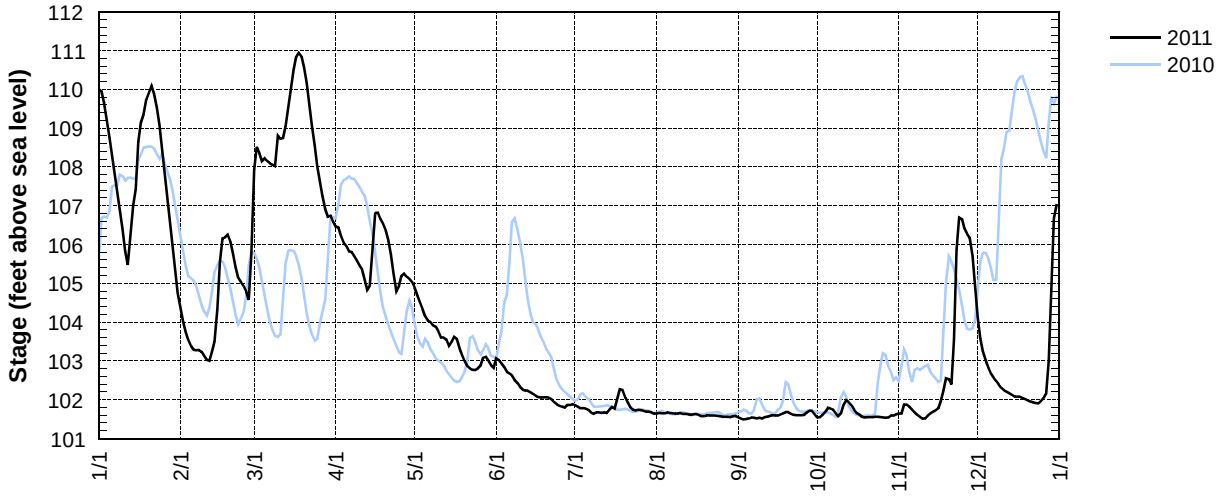
TRT – 14206956 (formerly 14206960) – TUALATIN RIVER AT TUALATIN, OREGON [RM 8.9]

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

Day	Daily Elevation in Feet above Mean Sea Level for 2011*											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	110.00	104.35	107.94	106.46	104.89	103.07	101.86	101.64	101.55	101.54	101.64	104.13
2	109.95	104.01	108.52	106.44	104.71	103.03	101.82	101.66	101.52	101.55	101.64	103.59
3	109.65	103.74	108.36	106.22	104.52	102.94	101.78	101.65	101.49	101.61	101.87	103.25
4	109.22	103.54	108.15	106.05	104.33	102.84	101.78	101.65	101.50	101.68	101.87	103.02
5	108.76	103.39	108.22	105.97	104.15	102.72	101.77	101.67	101.52	101.79	101.82	102.83
6	108.30	103.28	108.15	105.82	104.04	102.68	101.74	101.66	101.54	101.77	101.75	102.67
7	107.82	103.27	108.09	105.81	104.01	102.62	101.67	101.65	101.53	101.75	101.67	102.57
8	107.39	103.28	108.06	105.70	103.92	102.51	101.64	101.64	101.52	101.66	101.61	102.48
9	106.91	103.24	108.03	105.59	103.88	102.43	101.67	101.64	101.53	101.57	101.56	102.38
10	106.38	103.13	108.81	105.47	103.76	102.33	101.67	101.66	101.52	101.65	101.51	102.30
11	105.83	103.03	108.73	105.35	103.60	102.27	101.66	101.63	101.55	101.87	101.52	102.24
12	105.48	103.00	108.74	105.09	103.60	102.23	101.67	101.63	101.56	101.99	101.59	102.21
13	106.25	103.23	109.05	104.83	103.55	102.23	101.66	101.62	101.58	101.94	101.65	102.17
14	107.01	103.50	109.56	104.94	103.39	102.19	101.74	101.61	101.60	101.86	101.69	102.13
15	107.43	104.35	110.02	105.88	103.49	102.15	101.81	101.62	101.59	101.74	101.73	102.08
16	108.65	105.56	110.50	106.81	103.62	102.10	101.77	101.63	101.59	101.66	101.78	102.08
17	109.15	106.16	110.84	106.82	103.56	102.07	102.03	101.61	101.62	101.62	101.97	102.08
18	109.35	106.19	110.95	106.66	103.34	102.05	102.27	101.57	101.65	101.56	102.23	102.04
19	109.75	106.25	110.85	106.54	103.15	102.06	102.25	101.57	101.68	101.54	102.55	102.02
20	109.92	106.06	110.56	106.36	102.99	102.06	102.05	101.60	101.68	101.55	102.52	101.99
21	110.10	105.76	110.17	106.11	102.87	102.05	101.92	101.59	101.64	101.55	102.39	101.95
22	109.89	105.41	109.66	105.75	102.80	102.02	101.80	101.59	101.61	101.55	103.55	101.93
23	109.53	105.14	109.08	105.27	102.77	101.94	101.74	101.59	101.60	101.56	105.87	101.91
24	109.09	105.02	108.56	104.80	102.76	101.88	101.72	101.58	101.60	101.56	106.70	101.90
25	108.56	104.93	108.02	104.93	102.80	101.85	101.74	101.57	101.60	101.55	106.66	101.96
26	107.97	104.78	107.62	105.20	102.88	101.82	101.73	101.56	101.61	101.54	106.40	102.05
27	107.33	104.57	107.26	105.25	103.08	101.80	101.71	101.56	101.67	101.53	106.27	102.17
28	106.68	105.73	106.91	105.17	103.11	101.86	101.69	101.56	101.71	101.54	106.18	103.01
29	106.01	—	106.72	105.11	103.01	101.86	101.69	101.55	101.71	101.59	105.71	104.78
30	105.34	—	106.75	105.04	102.89	101.89	101.67	101.57	101.63	101.59	104.94	106.67
31	104.75	—	106.59	—	102.82	—	101.64	101.58	—	101.62	—	107.04
MEAN	108.01	104.43	108.69	105.71	103.49	102.25	101.79	101.61	101.59	101.65	103.03	102.76
MAX	110.10	106.25	110.95	106.82	104.89	103.07	102.27	101.67	101.71	101.99	106.70	107.04
MIN	104.75	103.00	106.59	104.80	102.76	101.80	101.64	101.55	101.49	101.53	101.51	101.90

† Provisional 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.

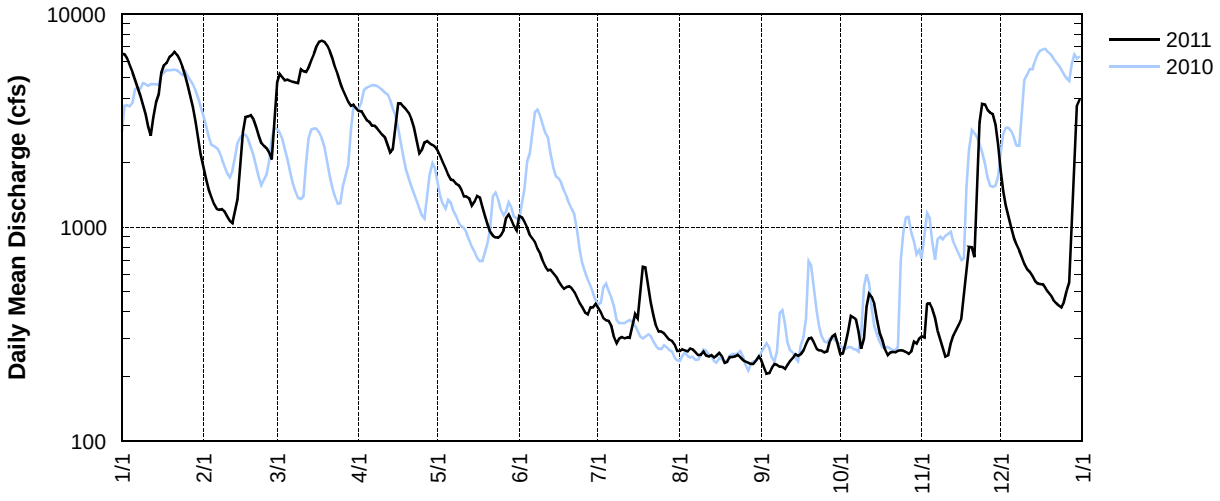
LATITUDE: 452103 LONGITUDE: 1224030 DRAINAGE AREA: 706.00 DATUM: 85.61

Discharge, Cubic Feet per Second, Calendar Year January to December 2011 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT†	NOV†	DEC†
1	6510	1910	4770	3510	2290	1130	419	263	238	254	308	1850
2	6450	1680	5220	3500	2150	1110	397	267	221	255	303	1480
3	6180	1510	5060	3320	2010	1060	373	265	205	283	438	1260
4	5750	1390	4870	3180	1880	995	366	261	207	321	440	1120
5	5330	1290	4920	3130	1760	919	363	270	219	384	415	993
6	4930	1220	4850	2990	1670	887	342	267	227	378	376	896
7	4520	1200	4800	2990	1660	851	305	259	227	368	327	831
8	4170	1210	4760	2910	1600	790	285	251	222	324	297	777
9	3790	1180	4740	2810	1570	747	300	251	221	270	272	721
10	3380	1130	5470	2720	1500	690	305	261	217	299	248	670
11	2960	1070	5370	2630	1390	652	301	250	226	422	250	636
12	2690	1040	5350	2430	1390	628	305	248	236	487	285	618
13	3260	1190	5590	2250	1360	631	302	251	244	471	311	590
14	3860	1350	6100	2310	1260	609	341	245	254	438	328	561
15	4200	1920	6520	3040	1320	589	390	249	249	366	350	544
16	5290	2780	7060	3800	1400	556	372	257	253	320	373	540
17	5750	3280	7410	3810	1380	534	496	249	265	297	481	539
18	5880	3300	7490	3680	1250	515	652	231	284	268	616	518
19	6270	3350	7390	3570	1130	524	647	233	300	251	805	497
20	6420	3200	7110	3430	1030	527	529	246	302	258	805	480
21	6630	2960	6720	3220	952	517	443	246	289	260	721	457
22	6440	2700	6210	2940	912	497	388	248	270	259	1420	441
23	6060	2490	5650	2580	896	467	345	252	265	263	3090	429
24	5640	2400	5200	2230	893	439	324	246	263	264	3780	420
25	5170	2340	4750	2300	914	420	324	238	259	264	3750	444
26	4660	2230	4410	2490	966	400	318	234	261	260	3540	503
27	4150	2080	4140	2530	1110	391	307	232	292	255	3450	549
28	3640	2970	3860	2480	1150	420	298	229	307	261	3400	1040
29	3130	—	3700	2430	1080	420	294	228	314	290	3020	2210
30	2620	—	3760	2380	1010	436	282	237	287	284	2440	3710
31	2190	—	3620	—	965	—	262	248	—	300	—	3990
TOTAL	147920	56370	166870	87590	41848	19351	11375	7712	7624	9674	36639	30314
MEAN	4772	2013	5383	2920	1350	645	367	249	254	312	1221	978
MAX	6630	3350	7490	3810	2290	1130	652	270	314	487	3780	3990
MIN	2190	1040	3620	2230	893	391	262	228	205	251	248	420
AC-FT	293400	111800	331000	173700	83010	38380	22560	15300	15120	19190	72670	60130

† Provisional data–subject to revision

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

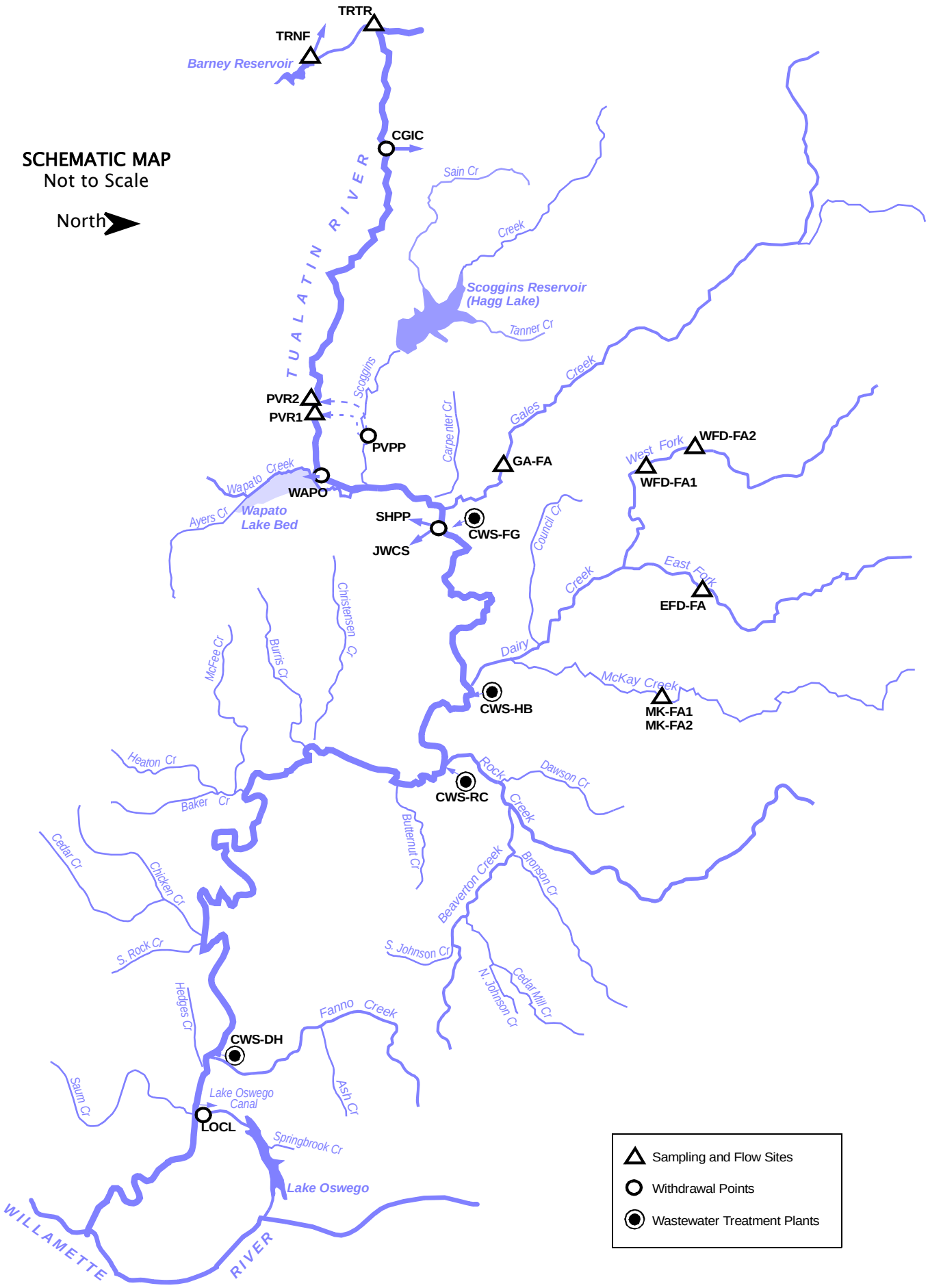


Appendix B

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

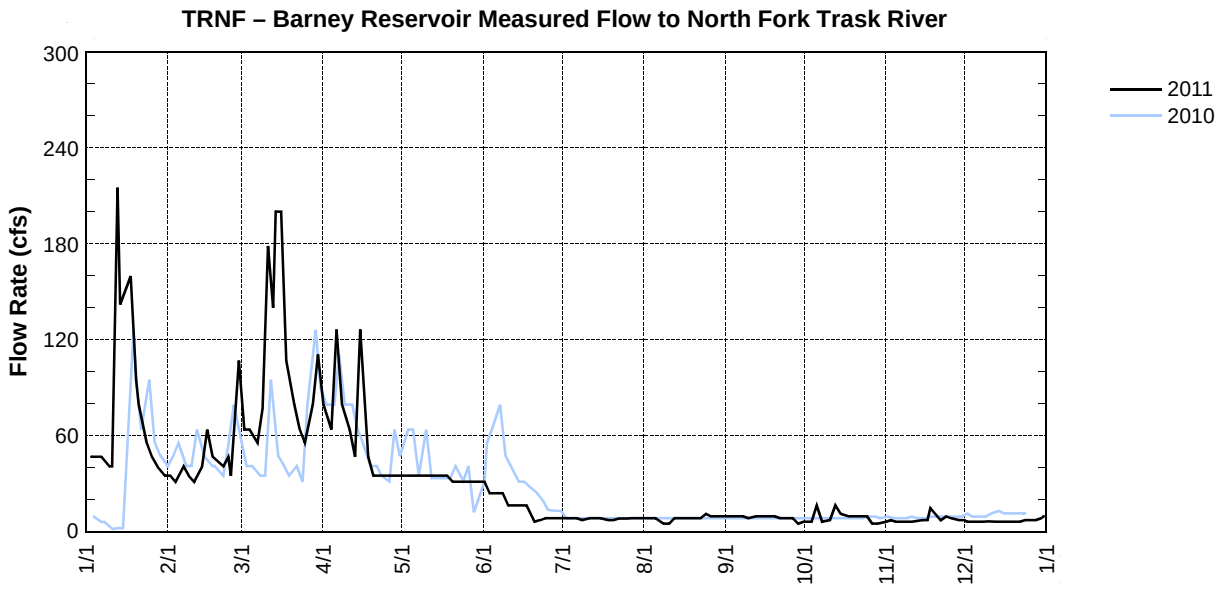
SITE CODE	SITE NAME	RIVER MILE	PAGE
CGIC	City of Hillsboro Withdrawal at Cherry Grove	73.3	B-6
CWS-DH	CWS Durham WWTF Release	9.33	B-12
CWS-FG	CWS Forest Grove WWTF Release	55.2	B-9
CWS-HB	CWS Hillsboro WWTF Release	43.8	B-10
CWS-RC	CWS Rock Creek WWTF Release	38.08	B-11
EFD-FA	CWS East Fork Dairy Flow 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	B-14
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

*Withdrawals and releases at Patton Valley Pump Plant, Patton Valley River turnouts were not measured in 2011.
**Wapato Canal and Wapato Creek were monitored by the USGS; results are in appendix A.

TRNF – BARNEY RESERVOIR MEASURED FLOW TO NORTH FORK TRASK RIVER

Source Agency: Joint Water Commission

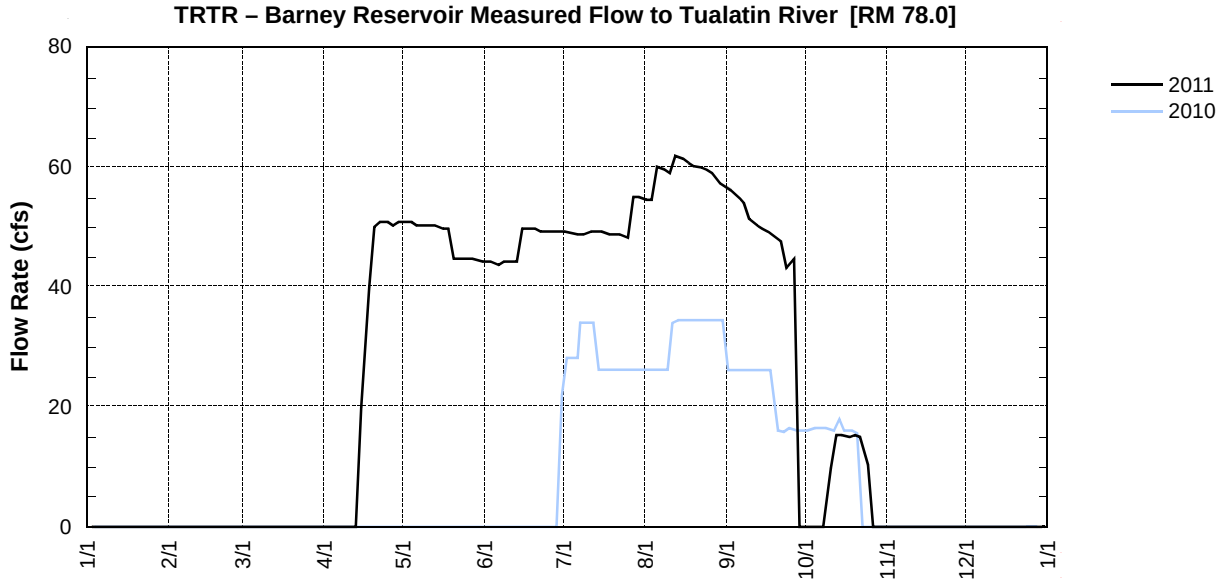
Day	2011 — Instantaneous Measured Flow Rate in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				79.6		31.3	8.4	8.4				6.2
2		35.0	64.0		35.0				9.5		7.3	
3	47.0					23.9		8.4		6.2		
4		31.3	64.0	64.0	35.0						6.2	
5	47.0							8.4		16.5		6.2
6				126.4	35.0	23.9	8.4		9.5			
7	47.0	41.0	55.5						9.5	6.2	6.2	6.2
8				79.6		23.9	7.3	5.1				
9		35.0	77.0		35.0				8.4		6.2	6.4
10	41.0					16.5		5.1		7.3	6.2	
11	41.0	31.3	178.6	64.0	35.0		8.4					
12								8.4	9.5	16.5		6.2
13	215.1		140.0	47.0	35.0	16.5	8.4					
14	142.0	41.0	200.0						9.5	11.3	7.3	6.2
15				126.4		16.5	8.4	8.4				
16		64.0	200.0		35.0				9.5		7.3	6.2
17						16.5		8.4		9.5	14.8	
18	160.0	47.0	107.0	47.0	35.0		7.3					
19								8.4	9.5	9.5		6.2
20	95.2			35.0	31.3	6.2	7.3					
21	79.6		79.6						8.4	9.5	7.3	6.2
22		41.0		35.0		7.3	8.2	8.4				
23			64.0						8.4		9.5	7.3
24	55.5	47.0			31.2	8.5		11.3		9.5		
25		35.0	55.5	35.0	31.3		8.2				8.4	
26	47.0							9.5	8.4	5.1		
27				35.0	31.3	8.4	8.4					7.3
28	41.0	107.0	79.6						5.1	5.1	7.3	
29		—		35.0		8.4	8.4	9.5				8.4
30		—	110.8						6.2		7.3	9.5
31	35.0	—		—	31.3	—		9.5	—	6.0	—	



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

Source Agency: Joint Water Commission

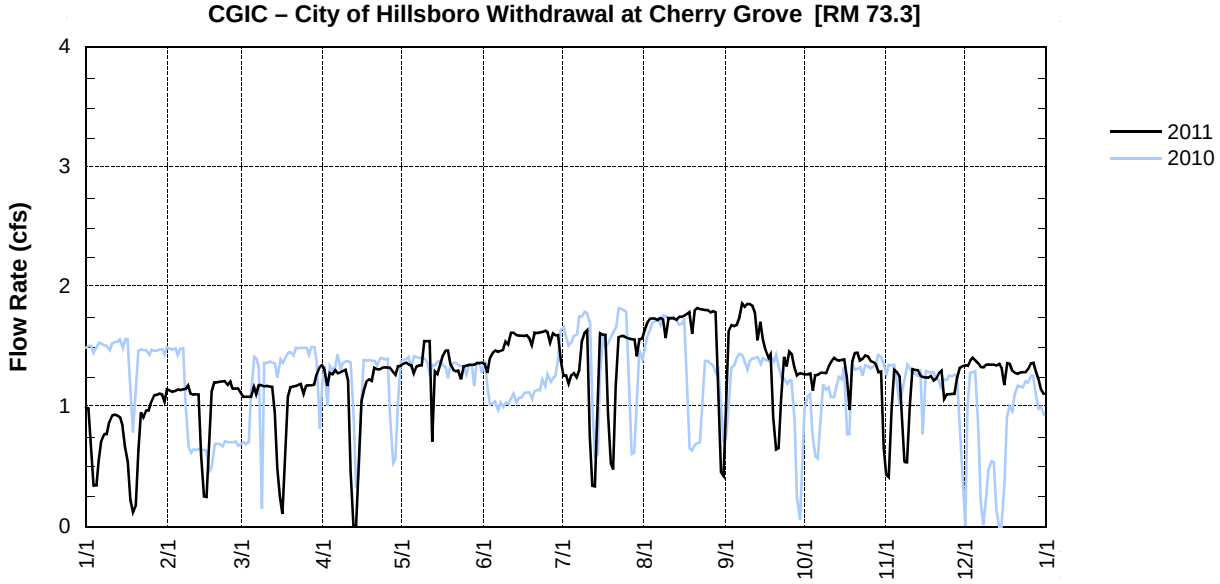
Day	2011 — Instantaneous Measured Flow Rate in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				0.0		44.2	49.2	54.5				0.0
2		0.0	0.0		50.8				56.1		0.0	
3	0.0					44.2		54.5		0.0		
4		0.0	0.0	0.0	50.8						0.0	
5	0.0							60.0		0.0		0.0
6				0.0	50.2	43.7	48.7		54.5			
7	0.0	0.0	0.0						54.0	0.0	0.0	0.0
8				0.0		44.2	48.7	59.5				
9		0.0	0.0		50.2				51.3		0.0	0.0
10	0.0					44.2		59.0		9.8	0.0	
11	0.0	0.0	0.0	0.0	50.2		49.2					
12								61.8	50.2	15.3		0.0
13	0.0		0.0	0.0	50.2	44.2	49.2					
14	0.0	0.0	0.0						49.7	15.3	0.0	0.0
15				20.0		49.7	49.2	61.3				
16		0.0	0.0		49.7				49.2		0.0	0.0
17						49.7		60.7		15.0	0.0	
18	0.0	0.0	0.0	40.0	49.7		48.7					
19								60.1	48.2	15.3		0.0
20	0.0			50.0	44.7	49.7	48.7					
21	0.0		0.0						47.6	15.0	0.0	0.0
22		0.0		50.8		49.2	48.7	59.9				
23			0.0						43.2		0.0	0.0
24	0.0	0.0			44.7	49.2		59.5		10.3		
25		0.0	0.0	50.8	44.7		48.2				0.0	
26	0.0							59.0	44.7	0.0		
27				50.2	44.7	49.2	55.0					0.0
28	0.0	0.0	0.0						0.0	0.0	0.0	
29		—		50.8		49.2	55.0	57.3				0.0
30		—	0.0						0.0		0.0	0.0
31	0.0	—		—	44.2	—		56.7	—	0.0	—	



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

Source Agency: Joint Water Commission

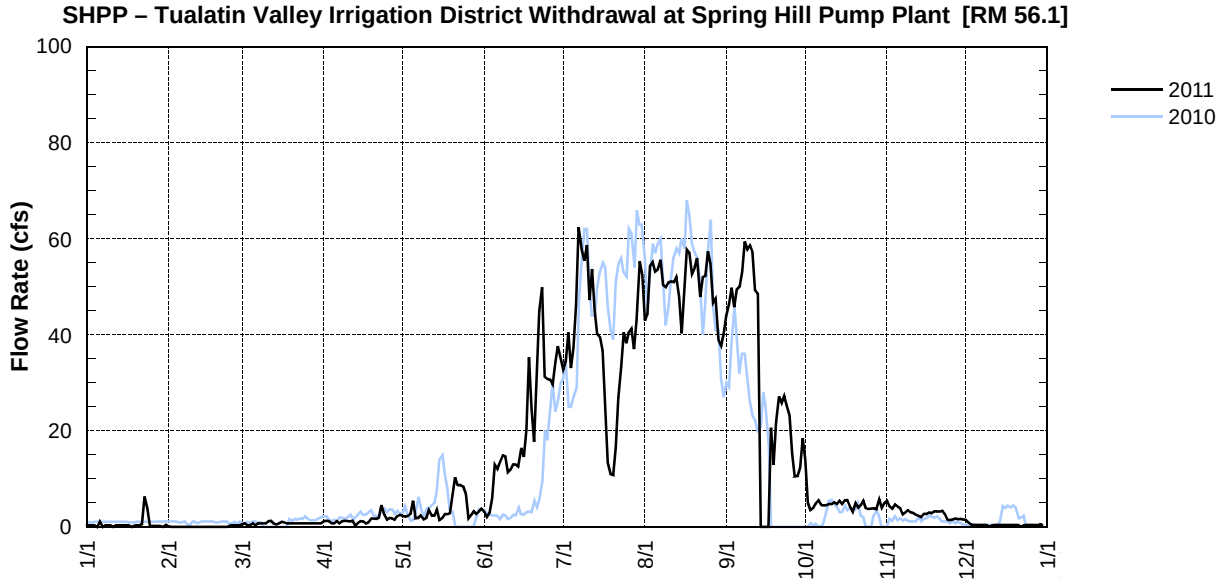
Day	2011 — Calculated Average Flow Rate in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.99	1.15	1.08	1.31	1.36	1.36	1.26	1.64	1.15	1.27	0.44	1.35
2	0.99	1.14	1.08	1.17	1.37	1.28	1.26	1.71	1.64	1.27	0.41	1.34
3	0.66	1.13	1.08	1.28	1.35	1.40	1.19	1.73	1.68	1.28	0.99	1.39
4	0.35	1.13	1.08	1.27	1.34	1.45	1.26	1.74	1.67	1.14	1.31	1.41
5	0.34	1.14	1.17	1.31	1.28	1.47	1.28	1.73	1.68	1.26	1.29	1.38
6	0.55	1.14	1.10	1.28	1.34	1.46	1.25	1.72	1.74	1.27	1.25	1.36
7	0.72	1.15	1.18	1.29	1.35	1.47	1.30	1.74	1.86	1.28	0.84	1.33
8	0.78	1.15	1.18	1.30	1.35	1.47	1.54	1.73	1.84	1.28	0.54	1.33
9	0.77	1.18	1.17	1.31	1.55	1.54	1.62	1.57	1.86	1.28	0.54	1.35
10	0.87	1.11	1.17	1.22	1.55	1.52	1.64	1.74	1.86	1.34	1.02	1.35
11	0.93	1.10	1.17	0.46	1.55	1.62	0.76	1.74	1.84	1.38	1.32	1.35
12	0.93	1.10	1.17	0.00	0.71	1.62	0.34	1.74	1.79	1.41	1.31	1.35
13	0.93	1.10	0.96	0.00	1.30	1.60	0.34	1.73	1.55	1.39	1.31	1.34
14	0.91	0.60	0.49	0.54	1.27	1.59	1.05	1.75	1.71	1.39	1.26	1.36
15	0.85	0.26	0.26	1.05	1.35	1.59	1.62	1.75	1.56	1.39	1.25	1.32
16	0.67	0.25	0.11	1.14	1.43	1.59	1.60	1.76	1.47	1.40	1.24	1.18
17	0.54	0.71	0.62	1.21	1.47	1.60	1.60	1.77	1.41	1.25	1.24	1.36
18	0.22	1.13	1.08	1.23	1.47	1.58	0.95	1.79	1.44	0.97	1.25	1.36
19	0.13	1.20	1.16	1.22	1.35	1.51	0.52	1.61	0.91	1.38	1.22	1.30
20	0.18	1.20	1.17	1.32	1.31	1.62	0.48	1.81	0.65	1.45	1.23	1.28
21	0.63	1.21	1.17	1.31	1.30	1.61	1.17	1.83	0.66	1.45	1.28	1.28
22	0.96	1.21	1.19	1.31	1.30	1.62	1.58	1.81	1.08	1.39	1.30	1.29
23	0.91	1.21	1.19	1.33	1.23	1.62	1.59	1.81	1.42	1.40	1.07	1.29
24	0.97	1.19	1.11	1.33	1.34	1.64	1.59	1.81	1.34	1.43	1.10	1.29
25	0.97	1.21	1.18	1.33	1.34	1.62	1.58	1.81	1.46	1.42	1.11	1.32
26	1.04	1.15	1.18	1.32	1.35	1.53	1.57	1.79	1.44	1.38	1.11	1.36
27	1.10	1.15	1.18	1.30	1.35	1.61	1.56	1.80	1.33	1.38	1.11	1.37
28	1.10	1.15	1.19	1.27	1.35	1.60	1.56	1.79	1.26	1.35	1.24	1.29
29	1.11	—	1.28	1.34	1.37	1.60	1.42	1.01	1.28	1.29	1.32	1.24
30	1.10	—	1.33	1.34	1.36	1.38	1.56	0.45	1.27	1.29	1.34	1.14
31	1.04	—	1.35	—	1.37	—	1.57	0.42	—	0.67	—	1.11



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

Source Agency: US Geological Survey, Oregon Water Science Center

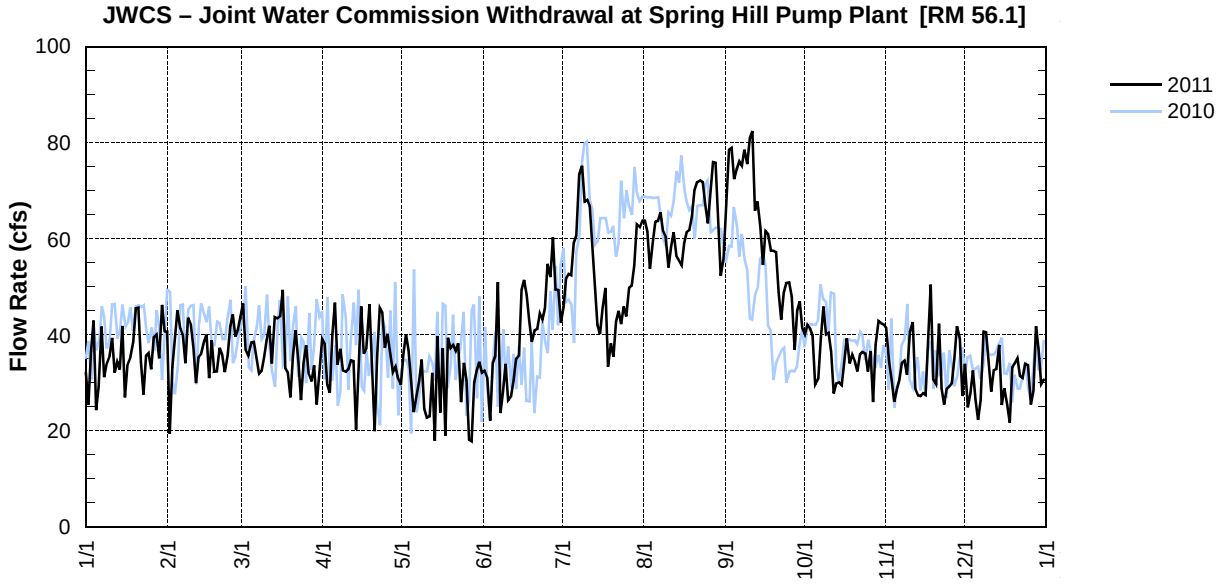
Day	2011 — Mean Daily Water Withdrawal in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.3	0.1	0.7	1.3	2.1	2.1	34.5	44.5	46.4	5.1	4.3	0.9
2	0.3	na	0.3	1.2	2.3	3.0	40.6	54.4	49.9	3.5	3.8	0.4
3	0.3	na	0.3	0.8	2.8	6.0	33.2	55.2	45.8	3.9	4.7	0.4
4	0.3	na	0.7	0.7	5.5	12.9	37.4	53.2	49.5	4.9	4.3	0.4
5	0.0	na	0.4	1.2	1.8	12.0	46.2	53.6	50.1	5.6	3.9	0.4
6	1.1	na	0.7	0.8	1.9	13.5	62.5	55.7	53.2	4.5	2.6	0.4
7	0.0	na	0.7	1.2	2.4	15.0	57.7	50.4	59.5	4.4	3.0	0.4
8	0.3	na	0.7	1.3	1.6	14.7	55.5	50.0	57.8	4.5	3.5	0.4
9	0.3	na	0.7	1.2	1.9	11.4	58.7	51.0	58.7	4.8	3.0	0.1
10	0.3	na	1.2	1.2	3.5	11.9	47.3	51.1	57.2	4.7	2.9	0.3
11	0.0	na	1.2	1.2	2.3	13.0	53.7	51.0	49.3	5.1	2.5	0.4
12	0.3	na	0.7	0.2	2.3	13.0	45.2	52.1	48.6	4.8	2.3	0.4
13	0.3	na	0.5	0.8	3.7	12.6	40.2	47.9	na	5.5	2.1	0.4
14	0.3	na	0.7	1.2	1.5	16.5	39.6	40.3	na	4.8	2.7	0.4
15	0.3	na	1.1	1.2	1.9	14.6	36.8	49.4	na	5.6	2.7	0.4
16	0.3	na	0.9	0.8	2.7	20.3	23.6	57.8	na	5.6	3.0	0.4
17	0.3	na	0.7	1.0	2.7	35.3	13.4	57.1	20.7	4.2	2.9	0.4
18	0.0	na	0.7	1.8	2.9	24.7	11.0	52.7	12.9	3.1	3.3	0.4
19	0.3	na	0.7	1.7	6.6	17.8	10.8	54.0	21.9	4.9	3.2	0.4
20	0.3	na	0.7	1.6	10.3	33.0	16.5	56.0	27.2	4.0	3.2	0.4
21	0.3	na	0.7	1.9	8.7	44.9	26.9	47.9	25.8	4.5	3.4	0.1
22	0.6	na	0.7	4.5	8.7	49.9	33.3	52.0	27.3	5.5	2.7	0.3
23	6.3	na	0.7	2.5	8.4	31.3	40.6	52.3	25.2	3.9	1.4	0.4
24	3.8	0.2	0.7	1.5	6.8	30.8	38.3	57.4	23.2	3.7	1.4	0.4
25	0.2	0.3	0.8	1.9	1.8	30.6	40.6	54.8	15.3	3.8	1.5	0.4
26	0.2	0.3	0.7	1.8	2.5	29.7	41.3	46.7	10.5	3.9	1.7	0.4
27	0.2	0.3	0.7	1.5	3.3	34.1	37.0	47.6	10.6	3.7	1.6	0.4
28	0.2	0.3	0.7	2.2	2.8	37.7	43.0	38.9	12.3	5.7	1.6	0.4
29	0.2	—	0.7	2.5	3.2	35.0	55.3	37.7	18.4	4.0	1.5	0.4
30	0.0	—	0.7	2.3	3.8	32.7	52.5	40.2	14.1	5.0	1.5	0.4
31	0.4	—	1.2	—	3.2	—	43.0	43.9	—	5.4	—	0.4



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

Source Agency: Joint Water Commission

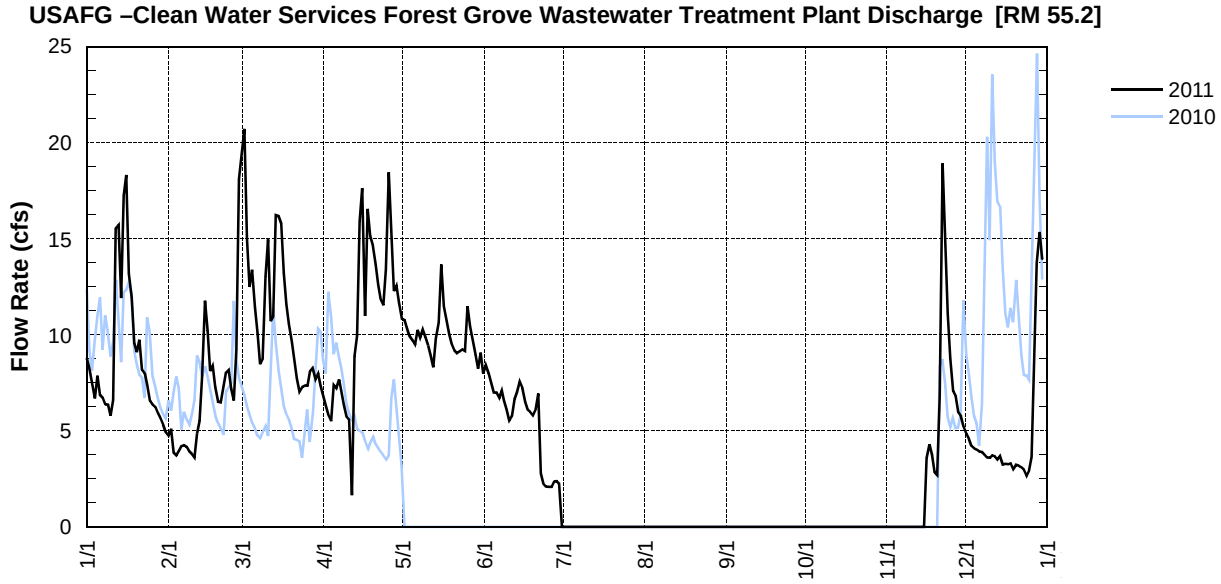
Day	2011 — Calculated Average Flow Rate in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	32.1	40.7	46.5	38.1	36.1	32.5	45.7	63.8	67.7	40.0	41.4	34.0
2	25.5	19.4	36.8	29.7	40.1	31.0	51.8	61.5	78.6	42.1	34.5	24.9
3	36.5	33.2	35.6	27.9	36.8	22.1	52.7	53.8	79.0	41.4	30.7	27.8
4	43.0	39.7	38.4	40.1	30.4	34.1	52.5	59.4	72.5	39.9	26.0	32.6
5	24.3	45.1	38.5	46.7	23.9	35.7	59.1	63.7	74.5	29.7	28.5	26.6
6	29.3	41.3	35.2	33.8	27.4	51.0	60.7	63.7	76.1	30.9	30.6	22.3
7	41.7	39.9	32.0	37.1	30.4	23.8	73.5	65.5	75.1	39.4	34.2	26.4
8	31.2	34.1	32.5	32.6	34.9	28.2	75.2	61.6	78.6	45.9	34.7	40.7
9	34.0	43.6	35.4	32.3	24.6	34.0	67.8	60.5	75.6	40.1	31.7	40.6
10	35.6	42.1	39.0	32.9	22.8	26.4	68.1	54.1	81.0	40.5	40.6	34.5
11	39.4	37.3	41.9	34.7	23.1	27.2	66.8	58.3	82.4	36.5	42.6	28.2
12	32.1	30.0	34.1	34.5	32.1	30.5	57.8	61.4	65.8	27.8	28.7	32.6
13	34.4	35.4	43.7	20.3	18.0	35.1	49.7	56.3	67.8	29.9	27.4	32.9
14	32.8	36.1	43.5	31.9	39.7	35.7	42.0	55.3	62.5	30.1	27.3	37.9
15	41.9	38.6	43.9	45.9	23.8	49.4	40.2	54.4	54.6	29.6	27.8	25.4
16	27.0	40.0	49.4	36.1	37.3	51.4	45.5	59.1	61.7	34.4	27.6	28.9
17	33.9	31.0	33.0	37.2	19.0	48.3	49.8	61.4	61.0	39.3	39.9	25.5
18	35.4	38.9	32.1	46.4	39.4	42.9	33.4	61.8	57.6	34.0	50.5	21.7
19	38.6	32.3	27.0	35.2	37.2	38.6	38.2	64.7	57.6	35.9	30.6	33.3
20	45.5	32.4	35.8	20.0	37.9	41.0	35.4	70.1	57.3	34.4	29.6	34.2
21	45.6	37.3	41.0	35.8	36.7	41.2	42.7	71.8	48.9	32.4	42.4	35.2
22	34.4	35.8	34.3	45.6	38.2	44.5	44.9	72.2	43.2	35.9	28.8	31.4
23	27.6	32.3	26.5	44.6	26.0	43.1	42.3	71.9	48.8	36.5	25.6	30.9
24	35.7	35.9	34.2	37.3	34.2	45.5	45.9	67.1	50.8	36.1	28.8	34.0
25	36.2	41.7	37.8	40.2	30.6	54.8	43.8	63.2	51.0	32.4	29.3	33.7
26	32.9	44.3	31.9	36.3	18.2	52.1	49.8	69.8	48.0	36.6	29.9	25.6
27	39.5	39.7	30.4	32.3	17.9	60.3	50.2	75.9	36.9	25.9	35.1	28.4
28	40.0	41.1	33.6	33.4	30.1	49.5	54.4	75.8	45.0	38.1	41.8	41.8
29	35.1	—	25.5	30.9	32.6	49.4	63.0	63.1	46.9	42.8	39.2	37.1
30	46.3	—	31.8	29.6	34.4	42.6	62.4	52.3	41.3	42.5	27.3	29.8
31	40.7	—	39.1	—	32.1	—	63.8	56.0	—	42.1	—	30.7



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

Source Agency: Clean Water Services

Day	2011 — Mean Daily Water Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	8.8	4.8	20.7	6.3	10.8	8.4	0.0	0.0	0.0	0.0	0.0	4.8
2	8.2	5.1	15.0	5.8	10.3	8.0	0.0	0.0	0.0	0.0	0.0	4.6
3	7.5	3.9	12.5	5.5	9.9	7.5	0.0	0.0	0.0	0.0	0.0	4.2
4	6.7	3.7	13.4	7.4	9.7	7.0	0.0	0.0	0.0	0.0	0.0	4.1
5	7.9	3.9	11.4	7.2	9.5	7.0	0.0	0.0	0.0	0.0	0.0	4.0
6	6.9	4.2	10.1	7.7	10.3	6.7	0.0	0.0	0.0	0.0	0.0	3.9
7	6.7	4.3	8.5	7.1	9.9	7.1	0.0	0.0	0.0	0.0	0.0	3.9
8	6.4	4.2	8.8	6.3	10.3	6.6	0.0	0.0	0.0	0.0	0.0	3.8
9	6.4	3.9	13.1	5.7	9.9	6.1	0.0	0.0	0.0	0.0	0.0	3.6
10	5.8	3.8	15.0	5.6	9.4	5.5	0.0	0.0	0.0	0.0	0.0	3.6
11	6.6	3.6	10.7	1.7	8.9	5.8	0.0	0.0	0.0	0.0	0.0	3.7
12	15.6	4.9	11.0	8.9	8.3	6.7	0.0	0.0	0.0	0.0	0.0	3.7
13	15.7	5.5	16.2	10.0	9.8	7.1	0.0	0.0	0.0	0.0	0.0	3.5
14	11.9	7.9	16.2	15.9	10.7	7.6	0.0	0.0	0.0	0.0	0.0	3.7
15	17.3	11.8	15.8	17.6	13.7	7.2	0.0	0.0	0.0	0.0	0.0	3.2
16	18.3	10.2	13.2	11.0	11.5	6.5	0.0	0.0	0.0	0.0	3.6	3.3
17	13.2	8.1	11.6	16.6	10.8	6.1	0.0	0.0	0.0	0.0	4.3	3.3
18	12.0	8.4	10.6	15.2	10.0	6.0	0.0	0.0	0.0	0.0	3.8	3.3
19	9.6	7.3	9.7	14.7	9.5	5.8	0.0	0.0	0.0	0.0	2.9	3.0
20	9.1	6.5	8.7	13.7	9.2	6.2	0.0	0.0	0.0	0.0	2.7	3.2
21	9.7	6.5	7.7	12.6	9.0	7.0	0.0	0.0	0.0	0.0	6.8	3.2
22	8.2	7.3	7.1	11.8	9.1	2.8	0.0	0.0	0.0	0.0	18.9	3.1
23	8.0	8.0	7.3	11.6	9.2	2.2	0.0	0.0	0.0	0.0	14.8	3.0
24	7.4	8.2	7.4	13.4	9.2	2.1	0.0	0.0	0.0	0.0	11.1	2.7
25	6.6	7.2	7.3	18.5	11.5	2.1	0.0	0.0	0.0	0.0	8.8	2.9
26	6.4	6.6	8.1	15.4	10.4	2.1	0.0	0.0	0.0	0.0	7.1	3.6
27	6.2	9.3	8.3	12.3	9.7	2.4	0.0	0.0	0.0	0.0	6.8	7.8
28	5.9	18.1	7.7	12.6	9.0	2.4	0.0	0.0	0.0	0.0	6.0	13.8
29	5.6	—	8.0	11.7	8.3	2.2	0.0	0.0	0.0	0.0	5.8	15.4
30	5.3	—	7.3	10.8	9.1	0.0	0.0	0.0	0.0	0.0	5.2	14.0
31	5.0	—	6.9	—	8.0	—	0.0	0.0	—	0.0	—	10.2

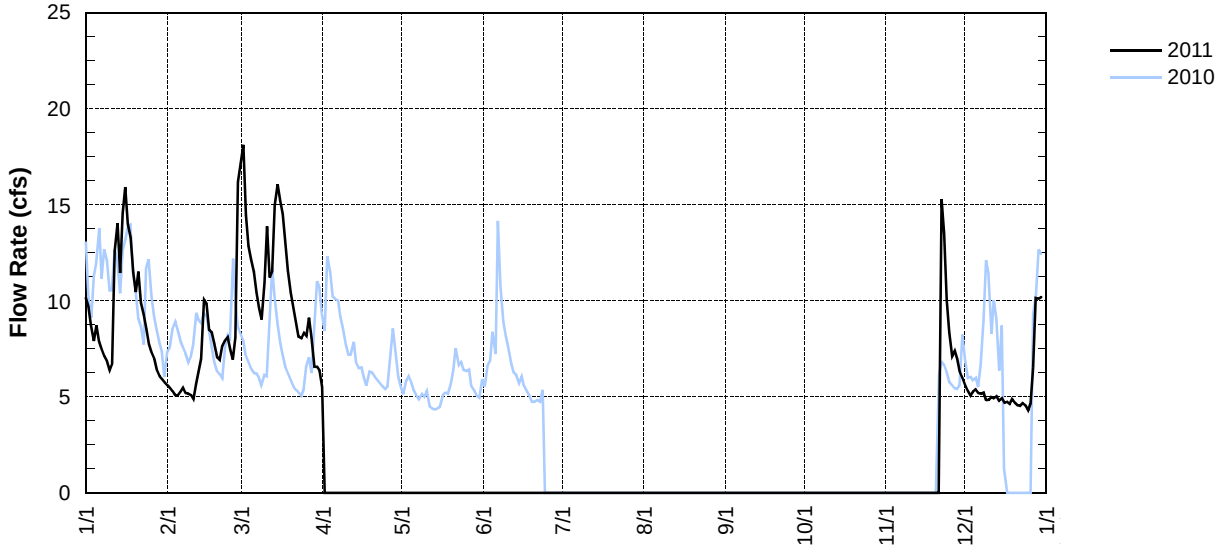


USAHB – CLEAN WATER SERVICES HILLSBORO WASTEWATER TREATMENT FACILITY DISCHARGE [RM 43.8]

Source Agency: Clean Water Services

Day	2011 — Mean Daily Water Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	10.2	5.6	18.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6
2	9.7	5.5	14.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3
3	8.7	5.3	12.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1
4	7.9	5.1	12.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3
5	8.7	5.1	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4
6	7.9	5.3	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
7	7.5	5.5	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
8	7.1	5.2	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2
9	6.9	5.2	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8
10	6.4	5.1	13.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8
11	6.7	4.9	11.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0
12	12.6	5.6	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9
13	14.1	6.3	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0
14	11.4	7.0	16.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8
15	14.6	10.0	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9
16	15.9	9.8	14.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7
17	14.0	8.5	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7
18	13.3	8.4	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6
19	11.5	7.8	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9
20	10.5	7.1	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7
21	11.5	6.9	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6
22	9.9	7.7	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.3	4.5
23	9.3	7.9	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.5	4.7
24	8.6	8.1	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	4.6
25	7.8	7.5	8.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.4	4.3
26	7.3	6.9	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	4.7
27	7.0	8.1	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.4	6.5
28	6.4	16.2	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	10.1
29	6.1	—	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	10.1
30	5.9	—	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	10.2
31	5.8	—	5.5	—	0.0	—	0.0	0.0	—	0.0	—	8.5

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

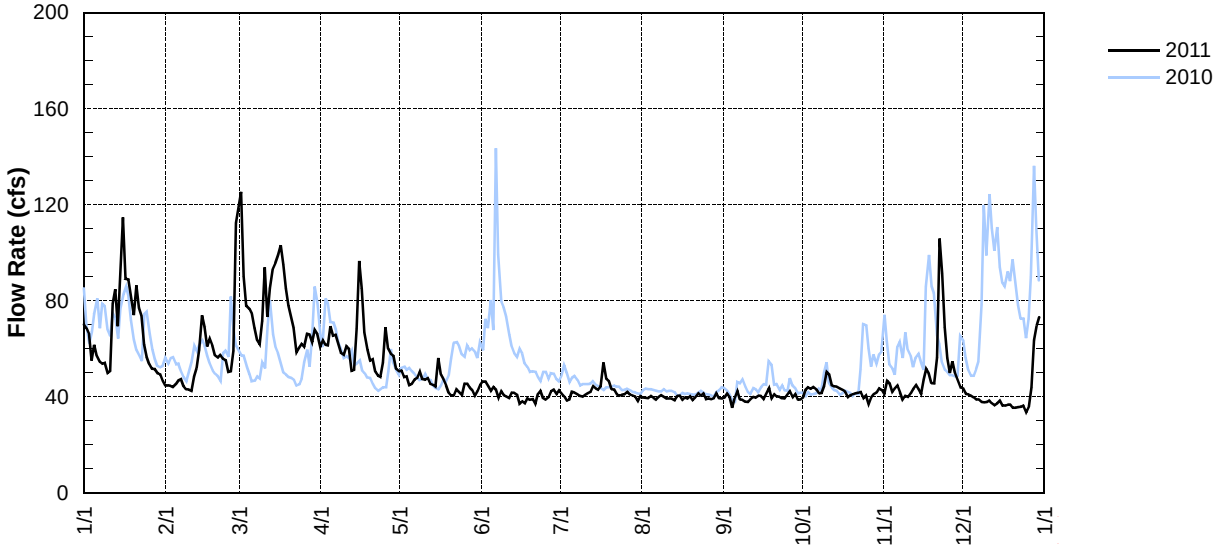


USARC – CLEAN WATER SERVICES ROCK CREEK WASTEWATER TREATMENT FACILITY DISCHARGE [RM 38.08]

Source Agency: Clean Water Services

Day	2011 — Mean Daily Water Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	70.2	44.6	125.4	63.5	51.0	46.4	41.4	39.8	39.7	39.7	41.2	43.6
2	68.7	44.7	90.1	61.6	48.2	46.3	40.3	39.6	41.6	42.9	46.6	41.3
3	66.3	44.7	78.0	61.4	48.5	44.4	38.6	39.5	40.0	44.0	45.6	41.0
4	55.1	44.1	76.6	69.4	44.9	42.5	38.9	40.4	35.4	43.4	42.1	40.4
5	61.7	45.2	74.5	65.6	45.5	44.1	42.1	39.6	39.8	44.1	43.7	39.9
6	57.0	47.0	68.6	66.0	47.3	43.0	41.9	38.8	42.5	42.9	44.8	38.8
7	54.7	47.4	63.6	62.0	47.9	39.8	41.1	40.0	38.9	41.6	42.0	38.9
8	53.8	44.5	62.0	58.5	50.6	42.4	40.4	40.7	38.8	41.6	38.9	37.9
9	54.1	43.2	71.7	57.6	47.5	40.7	40.1	40.1	38.1	44.4	40.3	37.7
10	50.0	42.9	93.9	61.0	47.2	40.2	40.8	39.3	37.9	50.4	40.0	37.9
11	50.8	42.5	73.4	60.1	47.8	39.6	41.7	39.3	39.0	49.3	41.6	38.5
12	78.9	48.3	85.4	51.0	45.5	41.8	42.2	39.2	40.0	45.0	43.5	37.3
13	85.0	51.9	93.4	51.3	45.1	41.8	44.4	38.6	39.8	44.3	45.0	36.5
14	69.4	59.6	95.8	68.4	44.2	40.9	43.6	40.4	40.5	44.2	43.2	37.3
15	89.9	74.0	99.3	96.7	56.4	37.1	43.0	40.5	40.4	43.6	41.1	38.4
16	114.8	69.0	103.1	85.1	49.3	38.2	44.3	38.7	39.1	43.0	47.1	36.4
17	89.1	61.0	95.1	66.9	47.3	37.3	54.3	39.8	41.4	42.3	51.6	36.4
18	88.9	64.3	85.3	59.6	45.0	39.5	47.4	39.3	43.8	39.8	49.7	36.7
19	81.0	61.4	77.9	55.2	41.9	38.7	46.5	40.3	39.5	40.7	45.7	36.7
20	74.1	57.3	73.4	55.7	40.6	39.0	43.2	38.6	41.0	41.2	45.6	35.5
21	86.4	56.4	68.8	50.5	40.6	37.0	43.1	39.8	40.2	41.4	56.4	35.4
22	77.1	57.4	58.6	49.0	43.3	41.2	41.2	41.5	40.2	41.7	105.9	35.7
23	73.8	55.9	60.5	48.4	42.0	42.4	40.5	40.5	39.5	42.1	91.4	35.9
24	62.0	55.3	62.1	54.2	40.7	39.6	40.9	41.5	39.4	39.5	69.0	36.4
25	56.7	50.3	60.9	69.1	45.5	38.8	41.0	39.0	40.9	40.5	56.3	33.7
26	53.6	50.6	66.3	60.1	45.5	39.9	42.1	39.3	42.4	37.1	49.9	36.1
27	51.7	59.2	66.0	57.8	43.9	42.4	41.0	39.0	39.9	39.8	54.8	44.0
28	51.6	112.4	62.9	57.0	42.7	43.0	40.6	39.5	41.2	41.1	49.9	63.6
29	49.9	—	67.9	51.7	40.5	41.1	40.2	41.5	38.8	41.9	46.7	69.7
30	49.5	—	66.1	50.6	42.4	42.7	38.3	39.6	38.8	43.7	43.9	73.2
31	46.5	—	60.9	—	45.0	—	40.4	39.3	—	42.9	—	57.8

USARC – Clean Water Services Rock Creek Wastewater Treatment Plant Discharge [RM 38.08]

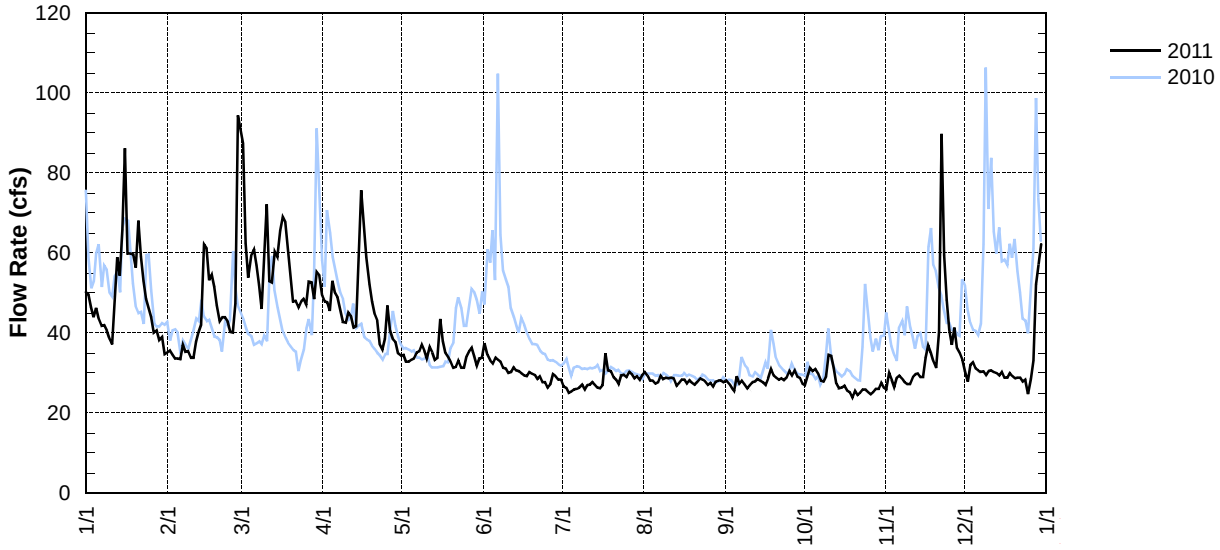


USADH – CLEAN WATER SERVICES DURHAM WASTEWATER TREATMENT FACILITY DISCHARGE [RM 9.33]

Source Agency: Clean Water Services

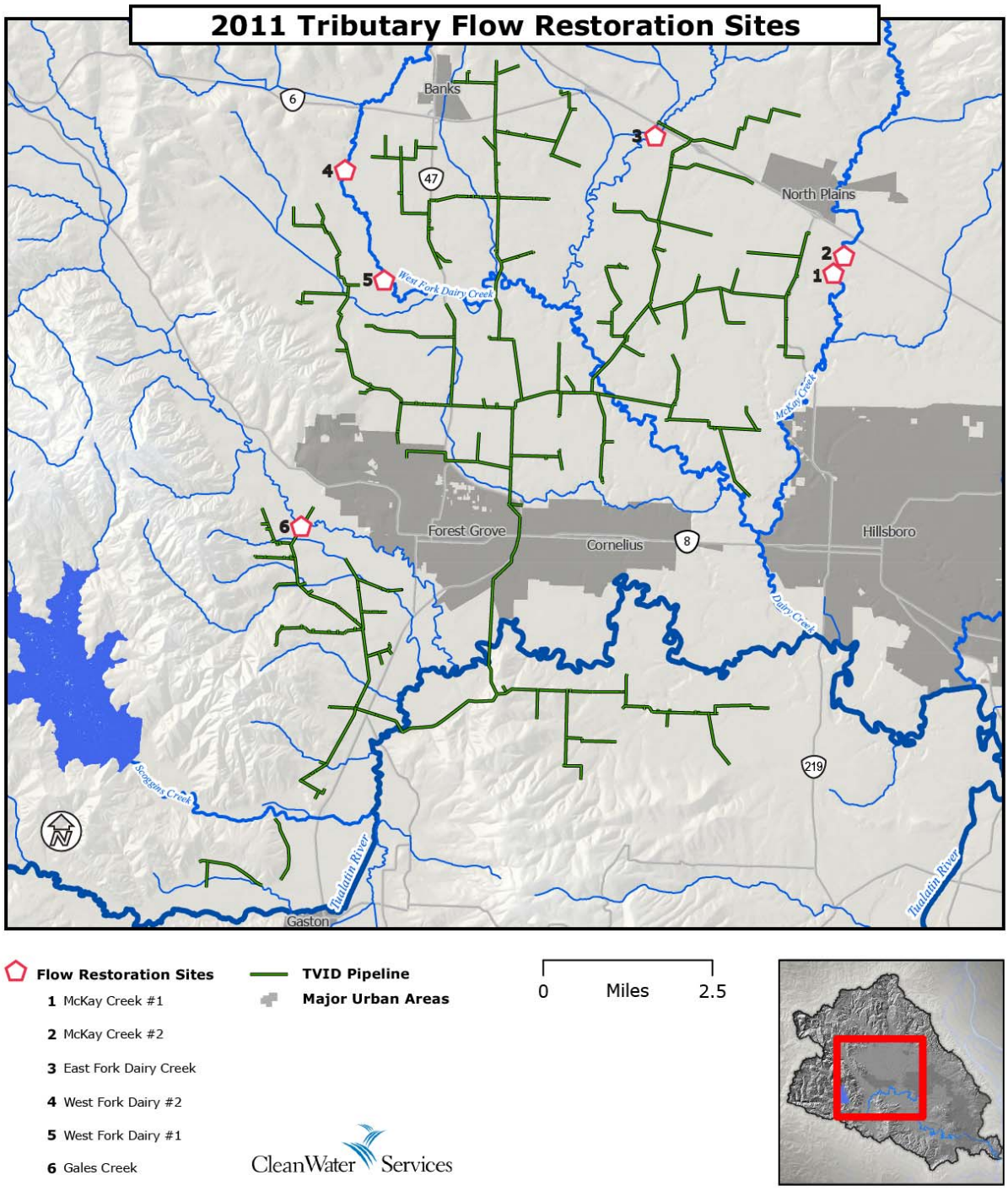
Day	2011 — Mean Daily Water Discharge in Cubic Feet per Second											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	50.1	35.1	87.4	47.8	34.5	37.4	26.6	30.2	28.2	26.9	25.8	30.3
2	49.7	35.6	62.5	47.6	32.8	34.5	26.3	29.4	27.4	29.1	30.0	27.8
3	46.4	34.5	53.8	45.5	32.8	33.1	25.1	28.0	26.3	31.2	28.3	32.0
4	43.9	33.6	59.6	53.1	33.3	32.3	25.4	28.0	25.5	30.5	26.5	32.6
5	46.3	33.6	61.0	50.0	33.6	33.9	25.8	27.4	29.2	30.9	28.8	31.1
6	43.5	33.4	56.9	48.9	35.1	33.3	26.0	27.7	27.4	29.7	29.4	30.6
7	41.8	37.0	52.0	45.5	35.4	32.8	26.3	29.4	28.0	28.0	28.6	30.2
8	41.9	35.3	45.9	42.7	37.1	31.2	27.1	28.5	27.2	27.8	27.7	30.3
9	40.7	35.4	57.5	42.5	35.6	31.1	25.8	28.8	26.1	29.1	27.2	29.5
10	38.5	33.7	72.1	45.2	33.6	30.0	26.9	28.6	26.9	34.5	27.2	30.5
11	37.1	33.7	52.9	44.2	36.5	30.2	27.1	28.8	27.7	34.3	28.9	30.6
12	49.7	37.7	52.6	41.3	35.1	31.4	27.7	28.6	27.8	31.2	29.7	30.2
13	58.9	40.2	60.3	41.6	33.3	30.6	27.1	26.8	28.5	27.4	29.9	30.0
14	54.3	42.1	58.9	56.9	33.7	30.3	26.3	27.5	28.0	26.1	28.9	29.4
15	65.7	62.0	65.6	75.6	43.5	29.9	26.1	28.3	27.7	26.3	28.9	30.2
16	86.2	61.1	69.0	67.1	37.9	29.4	26.9	28.3	27.1	26.8	33.7	28.8
17	59.9	53.2	67.6	58.9	35.0	29.2	35.0	27.4	28.6	25.7	36.8	28.8
18	59.9	54.6	61.0	52.1	34.0	30.2	30.6	28.2	30.9	25.2	35.1	30.0
19	59.6	51.5	54.3	47.8	32.8	29.9	30.3	27.5	29.4	23.8	33.0	29.2
20	56.3	46.9	47.8	44.7	31.2	29.5	28.9	27.1	28.8	25.5	31.2	28.6
21	68.1	43.0	48.0	43.2	31.6	28.5	28.3	27.7	28.3	24.4	40.2	28.8
22	59.1	43.9	46.4	37.0	33.1	29.1	27.2	28.6	28.6	25.1	89.7	28.8
23	53.1	43.9	47.8	35.7	31.2	27.7	29.4	28.3	28.2	25.8	59.4	27.8
24	48.4	42.9	48.4	38.5	31.2	27.7	29.5	27.8	28.8	25.8	48.3	28.3
25	46.1	40.2	47.0	46.9	34.2	26.3	28.9	27.1	30.5	25.2	40.8	24.8
26	43.9	40.1	52.8	40.7	35.4	27.2	30.2	27.5	29.4	24.6	37.0	28.5
27	40.1	47.3	52.6	38.5	36.4	29.7	29.7	26.6	30.6	25.2	41.3	33.1
28	40.7	94.4	48.4	37.7	34.2	29.2	28.6	27.8	29.1	26.0	36.2	52.1
29	38.2	—	55.2	34.8	31.9	28.3	29.2	28.0	28.8	26.0	34.8	57.1
30	39.0	—	54.5	34.3	33.6	28.3	28.3	28.2	27.4	27.5	33.3	62.2
31	34.7	—	49.3	—	33.7	—	29.5	27.7	—	26.3	—	46.4

USADH – 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	7/11/2011	9/30/2011	0.6	96
4	WFD-FA1	West Fork Dairy Creek #1	7.5	7/11/2011	9/30/2011	0.7	106
5	WFD-FA2	West Fork Dairy Creek #2	5.2	7/11/2011	9/30/2011	0.4	72
6	GA-FA	Gales Creek	5.0	7/11/2011	9/30/2011	1.5	240
1	MK-FA1	McKay Creek #1	6.5	7/11/2011	9/30/2011	0.7	118
2	MK-FA2	McKay Creek #2	7.0	7/11/2011	9/30/2011	0.4	67



Disclaimer: Not intended as definitive property description. All users of this information should perform a separate investigation of conditions before commencing any plan, design, construction, watershed enhancement activities, or other work. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, concerning this information.

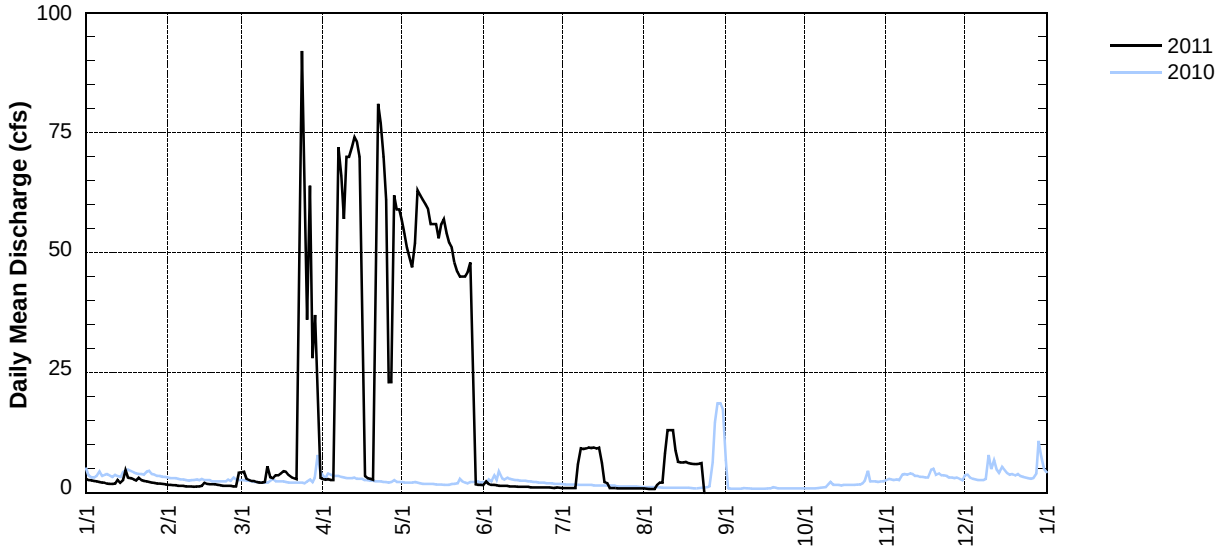
LOCL – OSWEGO CANAL NEAR LAKE OSWEGO, OREGON [RM 6.7]

Source Agency: District 18 Watermaster

Day	2011 — Daily Water Discharge in Cubic Feet per Second*											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG*	SEP	OCT	NOV	DEC
1	2.9	1.6	4.3	2.7	54.0	2.3	0.97	0.8				
2	2.6	1.6	2.9	2.8	51.0	1.8	0.97	0.7				
3	2.5	1.5	2.6	2.6	49.0	1.6	0.97	0.7				
4	2.4	1.5	2.4	2.6	47.0	1.6	0.97	0.7				
5	2.3	1.4	2.4	46.0	52.0	1.5	0.97	1.6				
6	2.2	1.4	2.2	72.0	63.0	1.4	5.90	2.1				
7	2.1	1.4	2.1	66.0	62.0	1.4	9.20	2.1				
8	2.1	1.3	2.1	57.0	61.0	1.4	9.10	8.2				
9	1.9	1.3	2.2	70.0	60.0	1.4	9.20	13.0				
10	1.8	1.3	5.5	70.0	59.0	1.3	9.4	13.0				
11	1.8	1.2	3.2	72.0	56.0	1.3	9.3	13.0				
12	1.9	1.3	3.0	74.0	56.0	1.3	9.4	8.7				
13	2.7	1.3	3.6	73.0	56.0	1.2	9.2	6.4				
14	2.1	1.4	3.6	70.0	53.0	1.2	9.4	6.3				
15	2.6	2.1	4.0	30.0	56.0	1.2	6.2	6.3				
16	4.7	1.8	4.5	3.4	57.0	1.2	2.2	6.4				
17	3.1	1.7	4.3	3.0	54.0	1.2	2.0	6.1				
18	3.0	1.7	3.6	2.9	52.0	1.1	1.0	6.0				
19	2.8	1.7	3.2	2.7	51.0	1.1	1.0	5.9				
20	2.5	1.6	3.0	49.0	48.0	1.1	1.0	5.9				
21	3.1	1.5	2.8	81.0	46.0	1.1	0.88	6.0				
22	2.6	1.4	34.0	77.0	45.0	1.1	0.9	6.1				
23	2.4	1.4	92.0	70.0	45.0	1.1	0.9					
24	2.3	1.4	54.0	61.0	45.0	1.1	0.9					
25	2.2	1.4	36.0	23.0	46.0	1.1	0.9					
26	2.1	1.3	64.0	23.0	48.0	1.0	0.9					
27	2.0	1.3	28.0	62.0	25.0	1.0	0.8					
28	1.9	4.1	37.0	59.0	1.7	1.1	0.8					
29	1.9	—	24.0	59.0	1.6	1.0	0.8					
30	1.8	—	3.1	57.0	1.6	0.97	0.8					
31	1.7	—	2.8	—	1.5	—	0.8		—		—	

*Flow monitoring by Oregon Water Resources Division District 18 discontinued at this site in August 2011

LOCL — 14207000 — Oswego Canal near Lake Oswego, Oregon [RM 6.7]



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 2011

[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	0	163		163	290.66	39817	8	4	362	366	524	975	2460	4860	6154	6380	0.00	34	25	0	0	0	0	0
2	0	138		138	289.96	39128	-689	-347	605	258	446	1040	2240	4630	5817	6370	0.00	35	24	0	0	0	0	0
3	73	123		196	289.19	38376	-752	-379	590	211	395	968	2110	4350	5369	6110	0.00	39	22	0	0	0	0	0
4	63	111	14	188	287.92	37147	-1229	-620	780	160	354	1010	1970	4050	4974	5700	0.00	40	22	0	0	0	0	0
5	59	101	13	173	286.55	35838	-1309	-660	790	130	326	995	1920	3750	4562	5380	0.05	33	24	0	0	0	0	0
6	55	95	13	163	285.41	34763	-1075	-542	666	124	307	915	1870	3400	4251	4970	0.05	38	32	0	0	0	0	0
7	49	88	13	150	284.57	33979	-784	-395	516	121	294	821	1700	3180	3911	4540	0.00	43	38	0	0	0	0	0
8	47	88		135	284.16	33598	-381	-192	337	145	302	708	1480	2970	3604	4190	0.07	44	30	0	0	0	0	0
9	44	84		128	283.72	33191	-407	-205	337	132	286	666	1240	2710	3263	3780	0.01	37	30	0	0	0	0	0
10	42	78		120	283.28	32787	-404	-204	337	133	265	645	1090	2450	2888	3380	0.03	38	32	0	0	0	0	0
11	39	74	12	125	283.19	32704	-83	-42	162	120	201	522	899	2130	2504	2980	0.00	42	30	0	0	0	0	0
12	39	84		123	283.20	32713	9	5	154	159	216	486	787	1820	2113	2600	0.59	35	29	0	0	0	0	0
13	159	479		638	284.00	33450	737	372	157	529	1128	699	1380	2160	2567	3050	1.45	52	35	0	0	0	0	0
14	149	317	20	486	285.03	34407	957	482	157	639	833	1110	2010	2790	3230	3740	0.18	56	42	0	0	0	0	0
15	134	257		391	285.79	35120	713	359	81	440	696	991	2280	2920	3498	3980	0.08	58	46	0	0	0	0	0
16	410	470		880	287.25	36505	1385	698	40	738	1152	1200	2340	3350	4043	5040	1.56	55	48	0	0	0	0	0
17	345	387		732	289.19	38376	1871	943	39	982	1185	1840	2650	3980	4810	5760	0.41	56	50	0	0	0	0	0
18	143	266	20	429	290.41	39570	1194	602	39	641	866	1250	2680	4460	5252	5730	0.03	51	39	0	0	0	0	0
19	145	218		363	291.39	40490	920	464	40	504	674	945	2440	4840	5692	6260	0.26	45	31	0	0	0	0	0
20	112	163		275	291.41	40560	70	35	348	383	521	960	2200	4730	5812	6400	0.00	45	31	0	0	0	0	0
21	94	144	16	254	291.04	40193	-367	-185	496	311	440	983	2010	4450	5554	6520	0.18	39	34	0	0	0	0	0
22	82	125		207	290.77	39926	-267	-135	389	254	375	854	1880	4300	5364	6510	0.01	46	38	0	0	0	0	0
23	69	113		182	290.56	39718	-208	-105	333	228	332	780	1660	4040	5064	6140	0.00	50	34	0	0	0	0	0
24	63	103	14	180	290.31	39472	-246	-124	332	208	298	738	1470	3790	4882	5690	0.01	48	38	0	0	0	0	0
25	58	95		153	290.25	39413	-59	-30	199	169	271	641	1270	3440	4280	5210	0.00	50	38	0	0	0	0	0
26	51	87		138	290.29	39452	39	20	142	162	250	564	1010	3150	3844	4680	0.00	48	33	0	0	0	0	0
27	47	84		131	290.32	39482	30	15	142	157	234	528	837	2850	3402	4180	0.00	49	33	0	0	0	0	0
28	43	76	14	133	290.31	39472	-10	-5	141	136	218	492	708	2500	2942	3660	0.00	48	38	0	0	0	0	0
29	43	78		121	290.30	39462	-10	-5	141	136	216	462	631	2140	2480	3150	0.02	50	38	0	0	0	0	0
30	38	71		109	290.28	39442	-20	-10	141	131	200	434	551	1790	2040	3610	0.00	52	35	0	0	0	0	0
31	36	67	12	115	290.21	39374	-68	-34	141	107	189	404	625	1510	1690	2190	0.00	52	38	0	0	0	0	0
TOTALS																								
cfs	2731	4827		7719				-219	9134	8915	13994	25626	50398	103490	125856	147880	4.99 inches			0	0	0	0	0
ac-ft	5417	9574		15311			-435	-435	18117	17682	27757	50829	99964	205272	249635	293320	MAX	58	50	0	0	0	0	0
																	MIN	33	22	0	0	0	0	0

Water storage elevation ± to fill curve:	**3.3**
Water storage in ac-ft ± to fill curve:	**39089**
Percentage of full reservoir:	**73.8%**

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

SNOTEL Summary for Water Year 2011
Uptdated: January 31, 2011

SECO W/Y pc:	38.1"	sno depth/water content	0
SDMO W/Y pc:	54.6"	sno depth/water content	0

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	

SCOGGINS DAM -- RESERVOIR OPERATIONS

February 2011

[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	34	64	10	108	290.26	39423	49	25	78	103	180	316	549	1330	1474	1890	0.00	45	32	0	0	0	0	0
2	32	62	10	104	290.39	39551	128	65	36	101	174	255	456	1200	1288	1680	0.00	44	27	0	0	0	0	0
3	31	59	9	99	290.54	39698	147	74	29	103	167	731	420	1060	1155	1490	0.00	46	29	0	0	0	0	0
4	30	56	9	95	290.67	39827	129	65	27	92	161	216	393	958	1049	1360	0.00	48	32	0	0	0	0	0
5	29	55	9	93	290.80	39955	128	65	27	92	157	206	361	880	963	1270	0.00	52	41	0	0	0	0	0
6	28	53	9	90	290.92	40074	119	60	27	87	150	196	345	838	914	1190	0.01	52	43	0	0	0	0	0
7	28	53	10	91	291.05	40203	129	65	27	92	151	191	340	831	896	1160	0.10	55	38	0	0	0	0	0
8	28	54	10	92	291.17	40322	119	60	27	87	158	196	360	853	922	1180	0.05	49	37	0	0	0	0	0
9	26	50	9	85	291.28	40431	109	55	27	82	148	185	327	830	899	1160	0.01	47	28	0	0	0	0	0
10	25	49	9	83	291.39	40530	99	50	27	77	144	175	308	758	829	1100	0.00	51	27	0	0	0	0	0
11	24	46	9	79	291.48	40630	100	50	27	77	140	171	309	718	783	1030	0.00	51	28	0	0	0	0	0
12	24	45	9	78	291.55	40699	69	35	28	63	135	165	299	691	755	1000	0.00	49	34	0	0	0	0	0
13	31	59	10	100	291.73	40877	178	90	27	117	185	203	364	838	874	1140	0.49	56	35	0	0	0	0	0
14	32	64	11	107	291.91	41058	181	91	28	119	182	228	424	950	1019	1250	0.28	45	38	0	0	0	0	0
15	69	127	14	210	292.28	41429	371	187	29	216	310	335	685	1250	1299	1630	0.88	52	34	0	0	0	0	0
16	73	136	15	224	292.80	41952	523	264	28	292	325	492	1100	2050	2201	2500	0.45	42	33	0	0	0	0	0
17	61	113	14	188	293.21	42366	414	209	29	238	272	493	1150	2270	2547	3170	0.08	41	33	0	0	0	0	0
18	51	99	13	163	293.55	42711	345	174	29	203	240	457	1020	2260	2555	3150	0.02	43	30	0	0	0	0	0
19	49	90	12	151	293.86	43026	315	159	29	188	228	445	944	2300	2393	3270	0.29	40	32	0	0	0	0	0
20	46	82	12	140	294.09	43261	235	118	29	147	209	416	845	2210	2514	3130	0.00	48	27	0	0	0	0	0
21	43	78	12	133	294.34	43517	256	129	29	158	198	392	754	2040	2311	2900	0.06	43	28	0	0	0	0	0
22	42	76	12	130	294.58	43732	215	108	29	137	193	369	682	1870	2082	2620	0.12	46	31	0	0	0	0	0
23	40	76	11	127	294.81	43999	267	135	29	164	197	368	699	1770	1946	2420	0.36	45	33	0	0	0	0	0
24	37	75	11	123	295.07	44267	268	135	29	164	201	381	718	1720	1884	2320	0.24	41	29	0	0	0	0	0
25	36	71	11	118	295.27	44475	208	105	29	134	189	365	691	1710	1860	2260	0.24	36	23	0	0	0	0	0
26	36	65	11	112	295.44	44649	174	88	29	117	340	628	628	1610	1757	2170	0.00	34	17	0	0	0	0	0
27	35	64	11	110	295.63	44846	197	99	29	128	323	593	593	1500	1612	2110	0.00	35	19	0	0	0	0	0
28	152	176	17	345	296.04	45272	426	215	30	245	411	741	741	na	1704	2410	1.10	46	35	0	0	0	0	0
TOTALS																								
cfs	1172	2097	309	3578				2974	848	3822	5868	9909	16505	37295	42485	53960	4.78 inches			0	0	0	0	0
ac-ft	2325	4159	613	7097			5898	5898	1682	7580	11639	19655	32738	73975	84269	107030	MAX	56	43	0	0	0	0	0
																	MIN	34	17	0	0	0	0	0

Water storage elevation ± to fill curve:	**-2.16**
Water storage in ac-ft ± to fill curve:	**-2277**
Percentage of full reservoir:	**84.9%**

SNOTEL Summary for Water Year 2011

Uptdated: February 28, 2011

SECO W/Y pc:	46.4"	sno depth/water content	12.0/3.4"
SDMO W/Y pc:	72.0"	sno depth/water content	72.0/19.0"

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	

SCOGGINS DAM -- RESERVOIR OPERATIONS

March 2011

[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	94	127	17	238	296.77	46025	753	380	30	410	450	699	1460	2800	3223	4430	0.96	39	32	1	0	0	0	0
2	92	134	18	244	297.30	46592	567	286	29	315	446	789	1750	3290	3990	5090	0.85	46	33	0	0	0	0	0
3	117	167	18	302	297.99	47300	708	357	50	407	509	780	1910	3260	3975	4960	0.38	49	34	0	0	0	0	0
4	114	170	18	302	298.51	47875	575	290	100	390	440	766	1990	3240	3898	4760	0.06	49	36	1	0	0	0	0
5	162	203	18	383	298.97	48366	491	248	202	450	579	831	2040	3330	3975	4820	0.62	46	37	0	0	0	0	0
6	132	178	17	327	299.34	48763	397	200	201	401	461	823	2140	3370	4028	4730	0.00	53	30	0	0	0	0	0
7	104	153	17	274	299.57	49011	248	125	199	324	381	766	2060	3380	4031	4670	0.00	50	32	1	0	0	0	0
8	96	144	16	256	299.50	48935	-76	-38	356	318	347	787	1890	3360	4004	4630	0.16	51	36	0	0	0	0	0
9	117	176	17	310	299.38	48806	-129	-65	355	290	370	773	1780	3290	3929	4580	0.27	56	43	0	0	0	0	0
10	505	677	22	1204	300.17	49659	853	430	355	785	1161	997	1990	3330	4010	5460	1.25	53	45	1	0	0	0	0
11	311	387	18	716	301.04	50605	946	477	454	931	972	1480	2550	3590	4352	5270	0.12	50	36	0	0	0	0	0
12	202	260	18	480	300.45	49941	-664	-335	874	539	657	1470	2760	3740	4462	5170	0.11	54	40	0	0	0	0	0
13	172	223	19	414	299.25	48667	-1274	-642	1160	518	560	1450	2730	4080	4791	5310	0.36	52	43	1	0	0	0	0
14	283	363	20	666	298.94	48334	-333	-168	760	592	778	1550	2770	4500	5230	5980	1.17	49	44	0	0	0	0	0
15	303	359	19	681	299.12	48540	206	104	531	635	966	1500	2810	4830	5850	6250	0.47	51	44	0	0	0	0	0
16	276	371	18	665	299.98	49453	913	460	290	750	1014	1450	2800	5110	6327	6930	0.53	52	41	1	0	0	0	0
17	234	282	17	533	300.78	50321	868	438	208	646	836	1300	2780	5230	6769	7310	0.33	44	38	0	0	0	0	0
18	199	236	17	452	301.17	50747	426	215	307	522	671	1170	2650	5140	6794	7390	0.11	48	39	0	0	0	0	0
19	154	196	15	365	301.38	50977	230	116	307	423	564	987	2510	4910	6417	7340	0.13	47	36	1	0	0	0	0
20	123	167	13	303	301.46	51065	88	44	306	350	472	886	2300	4630	6022	7090	0.01	50	35	0	0	0	0	0
21	104	147	11	262	301.46	51065	0	0	304	304	411	823	2070	4310	5490	6690	0.11	50	41	0	0	0	0	0
22	88	132	13	233	301.37	50966	-99	-50	304	254	365	773	1850	4010	5076	6220	0.05	49	34	1	0	0	0	0
23	82	120	12	214	301.24	50824	-142	-72	302	230	335	734	1670	3660	4621	5640	0.02	48	33	0	0	0	0	0
24	75	120	12	207	301.10	50671	-153	-77	300	223	334	712	1530	3390	4205	5150	0.29	57	36	0	0	0	0	0
25	63	109	10	182	300.94	50496	-175	-88	298	210	322	697	1430	3160	3847	4720	0.14	50	34	1	0	0	0	0
26	73	129	9	211	300.94	50496	0	0	201	201	331	652	1330	2940	3517	4340	0.39	52	36	0	0	0	0	0
27	68	127	9	204	300.98	50540	44	22	202	224	341	659	1290	2790	3303	4030	0.29	51	37	0	0	0	0	0
28	74	136	12	222	301.06	50627	87	44	203	247	383	672	1300	2650	3097	3770	0.13	48	36	1	0	0	0	0
29	79	145	11	235	301.12	50692	65	33	203	236	368	679	1300	2550	2959	3530	0.17	51	40	0	0	0	0	0
30	97	170	12	279	301.28	50867	175	88	204	292	530	706	1330	2540	2916	3660	0.18	52	45	0	0	0	0	0
31	89	165	12	266	301.43	51032	165	83	198	281	517	743	1390	2520	2890	3500	0.01	58	49	1	0	0	0	0
TOTALS																								
cfs	4682	6473	475	11630				2904	9793	12697	16871	29104	62160	112930	137998	163420	9.67 inches			11	0	0	0	0
ac-ft	9287	12839	942	23068			5760	5760	19424	25185	33464	57728	123294	223997	273719	324144	MAX	58	49	22	0	0	0	0
																	MIN	39	30					

Water storage elevation ± to fill curve:	**-0.2**
Water storage in ac-ft ± to fill curve:	**-216**
Percentage of full reservoir:	**95.7%**

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

SNOTEL Summary for Water Year 2011

Uptdated: March 31, 2011

SECO W/Y pc:	59.3"	sno depth/water content	0
SDMO W/Y pc:	76.6"	sno depth/water content	28.0/7.7"

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	22	
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 2011

[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	77	147	12	236	301.74	51372	340	171	109	280	459	689	1400	2470	2817	3370	0.01	59	43	7	0	0	0	0
2	69	134	11	214	301.92	51570	198	100	137	237	390	666	1320	2420	2761	3400	0.01	64	37	7	0	0	0	0
3	59	118	11	188	302.03	51691	121	61	137	198	337	633	1220	2340	2667	3210	0.00	48	31	7	0	0	0	0
4	56	106	11	173	302.12	51790	99	50	137	187	300	600	1090	2210	2505	3040	0.05	50	33	7	0	0	0	0
5	80	140	12	232	302.15	51824	34	17	251	268	483	677	1110	2060	2433	3060	0.58	51	36	7	0	0	0	0
6	99	159	12	270	302.13	51802	-22	-11	251	240	495	723	1230	2090	2348	2860	0.35	50	37	7	0	0	0	0
7	88	155	12	255	302.19	51868	66	33	251	284	444	752	1350	2110	2355	2880	0.36	47	33	8	0	0	0	0
8	76	136	12	224	302.17	51848	-20	-10	251	241	370	718	1370	2100	2334	2790	0.00	51	32	8	0	0	0	0
9	65	120	11	196	302.05	51746	-102	-51	250	199	322	708	1300	2040	2281	2700	0.00	59	35	2	0	0	0	0
10	59	111	10	180	301.97	51625	-121	-61	250	189	292	674	1180	1960	2185	2620	0.02	56	40	2	0	0	0	0
11	59	111	10	180	301.84	51482	-143	-72	251	179	310	655	1090	1860	2066	2550	0.04	58	38	2	0	0	0	0
12	51	99	9	159	301.75	51385	-97	-49	203	154	295	620	997	1850	2212	2360	0.00	51	30	2	0	0	0	0
13	49	93	9	151	301.79	51427	42	21	135	156	270	555	918	1730	2049	2180	0.04	53	45	1	0	0	0	0
14	60	104	10	174	301.87	51515	88	44	135	179	295	537	835	1590	1897	2140	0.61	50	38	1	0	0	0	0
15	121	176	12	309	302.05	51713	198	100	202	302	497	650	1140	1930	2269	2700	0.81	48	39	1	0	0	0	0
16	159	231	13	403	302.41	52111	398	201	249	450	714	841	1460	2450	3043	3660	0.40	50	42	2	0	0	0	0
17	108	180	12	300	302.59	52310	199	100	249	349	519	875	1720	2540	3217	3700	0.01	55	30	2	0	0	0	0
18	69	147	12	228	302.66	52388	78	39	247	286	409	809	1740	2550	3198	3550	0.00	52	29	8	0	0	0	0
19	66	127	11	204	302.78	52521	133	67	160	227	376	712	1640	2540	3167	3450	0.01	51	32	8	0	0	0	0
20	63	111	10	184	302.84	52587	66	33	160	193	335	664	1460	2490	3085	3330	0.00	55	36	8	0	0	0	0
21	52	98	9	159	302.87	52621	34	17	160	177	314	631	1270	2350	2916	3120	0.00	57	34	8	0	0	0	0
22	49	90	8	147	302.29	52655	34	17	128	145	295	583	1100	2170	2662	2470	0.00	51	30	8	0	0	0	0
23	43	82	7	132	302.99	52754	99	50	102	152	277	532	948	1880	2299	2540	0.00	60	35	8	0	0	0	0
24	44	79	8	131	303.08	52854	100	50	102	152	268	494	854	1630	1979	2180	0.13	68	41	8	0	0	0	0
25	77	125	20	222	303.25	53044	190	96	102	198	335	508	833	1570	1860	2090	1.00	56	45	8	0	0	0	0
26	65	114	13	192	303.26	53055	11	6	214	220	404	639	1080	1950	2309	2350	0.36	53	42	8	0	0	0	0
27	56	103	12	171	303.20	52988	-67	-34	214	180	371	688	1160	1950	2329	2440	0.05	55	39	6	0	0	0	0
28	57	106	11	174	303.25	53044	56	28	159	187	366	633	1170	1910	2278	2380	0.21	54	34	6	0	0	0	0
29	57	106	11	174	303.34	53144	100	50	160	210	354	629	1190	1910	2262	2350	0.30	46	35	7	0	0	0	0
30	53	99	11	163	303.43	53244	100	50	128	178	325	588	1130	1880	2235	2290	0.00	55	36	7	0	0	0	0
TOTALS																	5.35 inches							
cfs	2086	3707	332	6125				1115	5484	6599	11221	19683	36305	62530	74018	83760	MAX	68	45	171	0	0	0	0
ac-ft	4138	7353	659	12149			2212	2212	10878	13090	22257	39041	72011	124028	146815	166138	MIN	46	29	339	0	0	0	0

Water storage elevation ± to fill curve:	**-0.03**
Water storage in ac-ft ± to fill curve:	**-35**
Percentage of full reservoir:	**99.9%**

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

SNOTEL Summary for Water Year 2011

Uptdated: April 30, 2011

SECO W/Y pc:	67.2"	sno depth/water content	0
SDMO W/Y pc:	86.8"	sno depth/water content	11.0/4.9"

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	361	
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

May 2011

[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	48	91	11	150	303.50	53323	79	40	129	169	303	563	1040	1770	2133	2200	0.00	57	32	0	0	0	0	0
2	44	85	11	140	303.57	53401	78	39	129	168	284	540	955	1680	2003	2090	0.00	65	39	0	0	0	0	0
3	41	82	11	134	303.55	53378	-23	-12	152	140	350	532	899	1570	1871	1940	0.04	54	42	0	0	0	0	0
4	38	78	11	127	303.52	53345	-33	-17	152	135	337	511	847	1470	1750	1820	0.00	59	34	0	0	0	0	0
5	36	74	11	121	303.50	53323	-22	-11	153	142	322	487	802	1370	1630	1700	0.10	70	42	0	0	0	0	0
6	34	69	11	114	303.44	53256	-67	-34	153	119	310	467	770	1310	1556	1590	0.01	58	47	0	0	0	0	0
7	34	75	11	120	303.47	53289	33	17	98	115	309	403	697	1300	1540	1600	0.23	54	47	0	0	0	0	0
8	32	67	11	110	303.52	53345	56	28	98	126	299	391	660	1240	1486	1520	0.09	55	43	0	0	0	0	0
9	30	63	11	104	303.54	53367	22	11	98	109	291	379	643	1250	1472	1520	0.21	54	37	0	0	0	0	0
10	28	61	10	99	303.54	53367	0	0	108	108	281	369	617	1150	1382	1460	0.00	59	39	0	0	0	0	0
11	28	58	10	96	303.54	53367	0	0	108	108	272	355	591	1060	1266	1330	0.00	64	45	0	0	0	0	0
12	28	58	9	95	303.49	53311	-56	-28	122	94	273	379	625	1110	1312	1340	0.18	52	32	0	0	0	0	0
13	25	55	9	89	303.46	53278	-33	-17	99	82	262	354	586	1070	1294	1320	0.00	60	38	0	0	0	0	1
14	25	53	8	86	303.47	53287	9	5	94	99	244	323	545	962	1184	1230	0.00	70	44	0	0	0	0	1
15	26	56	8	90	303.49	53311	24	12	95	107	217	327	524	900	1108	1200	0.23	61	48	0	0	0	0	1
16	24	52	7	83	303.48	53300	-11	-6	95	89	198	333	562	1150	1358	1320	0.20	56	41	0	0	0	0	1
17	23	50	7	80	303.49	53311	11	6	81	87	200	306	523	1030	1258	1340	0.00	59	37	0	0	0	0	1
18	22	48	7	77	303.50	53323	12	6	81	87	191	289	488	932	1148	1210	0.00	60	40	0	0	0	0	1
19	22	46	7	75	303.51	53334	11	6	82	88	171	271	441	836	1047	1090	0.00	69	37	0	0	0	0	1
20	22	45	7	74	303.51	53334	0	0	82	82	167	260	421	758	958	994	0.00	72	39	0	0	0	0	1
21	21	44	7	72	303.50	53323	-11	-6	83	77	159	251	399	712	896	918	0.00	72	49	0	0	0	0	1
22	20	42	7	69	303.49	53311	-12	-6	83	77	157	251	398	683	864	869	0.63	60	44	0	0	0	0	1
23	20	41	7	68	303.47	53289	-22	-11	83	72	156	247	408	684	858	845	0.00	56	44	0	0	0	0	1
24	18	41	7	66	303.49	53311	22	11	65	76	152	224	376	681	854	836	0.13	57	38	0	0	0	0	1
25	22	46	7	75	303.52	53345	34	17	65	82	153	218	364	657	835	834	0.18	65	44	0	0	0	0	1
26	19	42	7	68	303.54	53367	22	11	86	97	162	259	442	742	902	899	0.32	56	36	0	0	0	0	1
27	24	54	7	85	303.56	53390	23	12	86	98	194	280	458	797	982	1010	0.25	54	43	0	0	0	0	1
28	22	49	6	77	303.54	53367	-23	-12	99	87	187	292	488	819	1001	1110	0.06	55	41	0	0	0	0	1
29	20	48	6	74	303.52	53345	-22	-11	99	88	153	289	464	772	972	1040	0.00	56	39	0	0	0	0	1
30	19	46	6	71	303.48	53300	-45	-23	98	75	140	277	433	720	907	974	0.00	59	45	0	0	0	0	1
31	20	45	6	71	303.46	53278	-22	-11	98	87	137	272	426	687	866	924	0.10	62	49	0	0	0	0	1
TOTALS																								
cfs	835	1764	261	2860				17.14	3154	3171	7031	10699	17892	31872	38693	40073	2.96 inches			0	0	0	0	19
ac-ft	1656	3499	518	5673			34	34	6256	6290	13946	21221	35489	63218	76748	79485	MAX	72	49	0	0	0	0	38
																	MIN	52	32					

Water storage elevation ± to fill curve:	**-0.04**
Water storage in ac-ft ± to fill curve:	**-45**
Percentage of full reservoir:	**99.9%**

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

SNOTEL Summary for Water Year 2011

Uptdated: May 31, 2011

SECO W/Y pc:	69.6"	sno depth/water content	0
SDMO W/Y pc:	91.6"	sno depth/water content	0

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	361	
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	38	

SCOGGINS DAM -- RESERVOIR OPERATIONS
June 2011

[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	19	45	3	67	303.49	53311	33	17	71	88	134	246	423	690	872	1050	0.18	59	47	0	0	0	0	1
2	22	44	3	69	303.52	53345	34	17	71	88	131	243	425	745	932	1060	0.19	60	39	0	0	0	0	1
3	18	34	3	55	303.55	53378	33	17	71	88	125	234	418	712	904	1020	0.22	58	45	0	0	0	0	2
4	18	32	4	54	303.58	53412	34	17	71	88	115	221	382	680	869	955	0.00	74	49	0	0	0	0	2
5	17	31	3	51	303.59	53423	11	6	73	79	111	212	348	602	794	893	0.00	83	57	0	0	0	0	2
6	17	31	2	50	303.55	53378	-45	-23	91	68	112	235	364	619	767	869	0.00	79	48	0	0	0	0	2
7	17	30	2	49	303.49	53311	-67	-34	91	57	106	224	358	564	755	822	0.00	69	48	0	0	0	0	2
8	17	29	2	48	303.45	53267	-44	-22	75	53	105	200	338	536	717	759	0.00	61	51	0	0	0	0	2
9	16	28	2	46	303.46	53278	11	6	51	57	104	176	301	501	678	718	0.00	62	46	0	0	0	0	2
10	15	28	2	45	303.49	53311	33	17	40	57	101	163	285	451	624	662	0.00	72	49	0	0	0	0	2
11	16	28	2	46	303.51	53334	23	12	43	55	99	167	271	434	601	615	0.00	63	52	0	0	0	0	2
12	15	27	2	44	303.52	53345	11	6	44	50	98	161	281	428	594	595	0.00	68	42	0	0	0	0	2
13	17	28	2	47	303.55	53378	33	17	44	61	99	163	252	426	591	595	0.05	63	53	0	0	0	0	2
14	15	26	2	43	303.56	53390	12	6	44	50	101	168	269	418	577	578	0.00	64	47	0	0	0	0	2
15	14	25	2	41	303.56	53390	0	0	49	49	98	160	254	392	555	563	0.00	66	48	0	0	0	0	2
16	14	24	2	40	303.55	53378	-12	-6	53	47	97	165	258	368	521	532	0.01	61	41	0	0	0	0	2
17	14	24	2	40	303.53	53356	-22	-11	53	42	96	165	177	354	513	507	0.00	69	42	0	0	0	0	2
18	13	24	2	39	303.54	53367	11	6	53	59	94	161	182	340	493	478	0.00	73	51	0	0	0	0	2
19	13	24	2	39	303.52	53345	-22	-11	52	41	93	162	190	354	504	502	0.00	65	50	0	0	0	0	2
20	13	23	2	38	303.52	53345	0	0	53	53	91	158	188	360	520	497	0.00	65	55	0	0	0	0	2
21	12	23	2	37	303.52	53345	0	0	52	52	90	160	183	298	499	492	0.00	70	49	0	0	0	0	2
22	12	21	2	35	303.52	53345	0	0	52	52	87	153	138	284	492	468	0.00	81	53	0	0	0	0	2
23	12	21	2	35	303.49	53311	-34	-17	52	35	87	152	155	244	354	441	0.00	68	51	0	0	0	0	2
24	12	21	2	35	303.48	53300	-11	-6	44	38	85	142	137	246	353	410	0.00	65	45	0	0	0	0	3
25	11	21	2	34	303.48	53300	0	0	29	29	85	131	110	227	333	397	0.00	67	42	0	0	0	0	3
26	11	20	2	33	303.49	53311	11	6	29	35	84	128	107	210	314	376	0.00	70	44	0	0	0	0	3
27	11	20	2	33	303.51	53334	23	12	30	42	83	130	88	209	314	368	0.00	74	53	0	0	0	0	3
28	11	18	2	31	303.51	53334	0	0	52	52	105	157	104	204	307	405	0.13	70	59	20	0	0	0	3
29	11	17	2	30	303.48	53300	-34	-17	52	35	102	153	134	259	361	388	0.00	71	52	20	0	0	0	3
30	11	17	2	30	303.45	53267	-33	-17	52	35	100	151	129	244	356	423	0.00	65	52	20	0	0	0	3
TOTALS																	0.78 inches							
cfs	434	784	66	1284				-5.55	1637	1631	3018	5241	7249	12399	17064	18438	MAX	83	59	60	0	0	0	65
ac-ft	861	1555	131	2547			-11	-11	3247	3236	5986	10396	14378	24593	33846	36572	MIN	58	39	119	0	0	0	129

Water storage elevation ± to fill curve:	**-0.05**
Water storage in ac-ft ± to fill curve:	**-56**
Percentage of full reservoir:	**99.9%**

SNOTEL Summary for Water Year 2011

Uptdated: June 30, 2011

SECO W/Y pc:	93.4"	sno depth/water content	0
SDMO W/Y pc:	70.3"	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	480	
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	167	

SCOGGINS DAM -- RESERVOIR OPERATIONS

July 2011

[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	10	16	2	28	303.42	53233	-34	-17	51	34	98	150	129	232	337	397	0.00	66	45	20	0	0	0	3
2	9	16	2	27	303.37	53177	-56	-28	79	51	95	174	128	213	323	376	0.00	78	47	43	0	0	6	3
3	9	16	2	27	303.29	53088	-89	-45	82	37	94	173	121	199	306	352	0.00	83	49	45	0	0	8	3
4	9	16	2	27	303.19	52977	-111	-56	82	26	94	174	144	202	302	340	0.00	73	47	45	0	0	8	3
5	8	14	2	24	303.10	52876	-101	-51	82	31	92	171	122	196	304	340	0.00	80	49	48	0	0	8	3
6	7	14	1	22	303.02	52787	-89	-45	80	35	88	165	84	170	286	321	0.00	85	53	48	0	0	8	3
7	7	14	1	22	302.86	52610	-177	-89	118	29	87	217	110	139	251	289	0.00	87	52	70	0	0	23	3
8	7	14	1	22	302.66	52388	-222	-112	130	18	88	225	127	163	257	262	0.00	67	47	77	0	0	28	3
9	7	14	1	22	302.49	52199	-189	-95	107	12	87	196	102	174	271	272	0.00	69	44	64	0	0	18	3
10	7	13	1	21	302.36	52056	-143	-72	107	35	86	198	108	154	258	282	0.00	76	50	65	0	0	18	3
11	7	13	1	21	302.21	51890	-166	-84	107	23	86	195	109	165	265	275	0.00	77	51	65	0	0	18	3
12	7	14	1	22	302.08	51746	-144	-73	100	27	88	186	98	141	255	285	0.12	71	56	63	0	0	12	3
13	7	14	1	22	301.97	51625	-121	-61	99	38	90	190	139	167	268	278	0.12	66	50	62	0	0	12	3
14	7	14	1	22	301.88	51526	-99	-50	76	26	88	161	113	269	336	299	0.04	66	49	51	0	0	0	3
15	7	13	1	21	301.79	51427	-99	-50	76	26	88	161	124	195	287	372	0.00	67	48	52	0	0	0	3
16	12	21	2	35	301.77	51405	-22	-11	65	54	96	157	179	191	273	348	0.42	74	57	27	0	0	0	3
17	10	15	2	27	301.71	51339	-66	-33	65	32	90	162	156	226	297	364	0.07	71	56	35	0	0	0	3
18	9	16	1	26	301.66	51284	-55	-28	65	37	93	167	170	471	568	589	0.31	63	50	36	0	0	0	3
19	8	14	1	23	301.62	51240	-44	-22	65	43	90	161	164	332	445	636	0.03	70	56	39	0	0	0	3
20	8	13	1	22	301.54	51152	-88	-44	65	21	87	154	158	259	354	517	0.00	69	48	40	0	0	0	3
21	7	12	1	20	301.48	51087	-65	-33	65	32	85	151	123	227	317	432	0.00	73	54	39	0	3	0	3
22	7	12	1	20	301.40	50999	-88	-44	65	21	84	149	119	190	276	388	0.00	71	44	39	0	3	0	3
23	7	12	1	20	301.25	50835	-164	-83	105	22	83	192	144	168	253	344	0.00	72	47	59	20	3	0	3
24	7	11	1	19	301.11	50682	-153	-77	105	28	80	190	136	183	267	321	0.00	83	52	60	20	3	0	3
25	7	11	1	19	300.91	50529	-153	-77	105	28	79	187	143	177	258	321	0.00	87	54	60	20	3	0	3
26	7	12	1	20	300.80	50343	-186	-94	105	11	79	189	122	168	256	317	0.00	71	51	59	20	3	0	3
27	7	11	1	19	300.65	50180	-163	-82	106	24	81	190	132	158	238	306	0.00	72	50	61	20	3	0	3
28	6	11	1	18	300.47	49984	-196	-99	114	15	87	206	157	159	239	296	0.00	79	49	70	20	3	0	3
29	5	10	1	16	300.29	49787	-197	-99	120	21	85	211	116	159	240	292	0.00	83	51	70	20	3	8	3
30	6	10	1	17	300.10	49583	-204	-103	119	16	84	211	108	130	223	285	0.00	81	52	68	20	3	8	3
31	6	10	1	17	299.92	49388	-195	-98	119	21	84	207	116	131	214	262	0.00	82	51	68	20	3	8	3
TOTALS																	1.11 inches							
cfs	234	416	38	688				-1956	2829	873	2716	5620	4001	6108	9024	10758	MAX	87	57	1648	180	33	191	93
ac-ft	464	825	75	1365			-3879	-3879	5611	1732	5387	11147	7936	12115	17899	21338	MIN	63	44	3269	357	65	379	184

Water storage elevation ± to fill curve:	**-3.58**
Water storage in ac-ft ± to fill curve:	**-3935**
Percentage of full reservoir:	**92.6%**

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

SNOTEL Summary for Water Year 2011

Uptdated: July 31, 2011

SECO W/Y pc:	72.5"	sno depth/water content	0
SDMO W/Y pc:	94.9"	sno depth/water content	0

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	3749	
remaining are provisional and subject	CWS	357	12261
to daily changes as the WS elevation	LO	65	435
rises and falls. These numbers are for	MUNI	379	13121
planning purposes only	Other	351	

SCOGGINS DAM -- RESERVOIR OPERATIONS

August 2011

[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	6	10	1	17	299.72	49172	-216	-109	120	11	85	211	125	145	227	262	0.00	76	47	69	20	3	8	3
2	6	9	1	16	299.50	48935	-237	-119	129	10	82	219	127	147	230	268	0.00	83	50	69	30	3	8	3
3	5	9	1	15	299.28	48699	-236	-119	139	20	82	239	137	134	222	265	0.00	81	51	80	30	3	8	3
4	5	9	1	15	299.05	48452	-247	-125	137	12	81	230	129	158	236	255	0.00	83	54	83	30	3	3	3
5	5	9	1	15	298.81	48195	-257	-130	137	7	81	227	125	145	231	272	0.00	82	51	77	30	3	8	4
6	5	9	1	15	298.59	47960	-235	-118	126	8	86	219	109	141	228	268	0.00	77	58	68	30	3	6	4
7	5	9	1	15	298.38	47736	-224	-113	126	13	86	219	115	127	215	262	0.00	75	50	69	30	3	5	4
8	5	9	1	15	298.14	47481	-255	-129	135	6	84	245	124	130	221	266	0.00	79	52	78	30	3	5	4
9	5	9	1	15	297.92	47247	-234	-118	129	11	84	220	132	155	232	252	0.00	74	55	77	30	3	0	4
10	5	9	1	15	297.72	47035	-212	-107	118	11	84	210	111	148	233	262	0.00	71	48	66	30	3	0	4
11	5	9	1	15	297.51	46813	-222	-112	123	11	86	223	127	132	215	252	0.00	77	48	71	30	3	0	4
12	5	8	1	14	297.28	46571	-242	-122	126	4	84	218	139	145	224	242	0.00	79	49	75	30	3	0	4
13	5	8	1	14	297.09	46371	-200	-101	117	16	84	210	108	129	219	252	0.00	81	51	66	30	3	0	4
14	5	9	1	15	296.89	46161	-210	-106	117	11	85	212	129	124	210	246	0.00	70	55	65	30	3	0	4
15	5	8	1	14	296.69	45951	-210	-106	117	11	84	210	125	148	227	246	0.00	73	53	66	30	3	0	4
16	5	8	1	14	296.49	45742	-209	-105	117	12	83	206	108	137	222	258	0.00	78	48	66	30	3	0	4
17	5	7	1	13	296.27	45512	-230	-116	127	11	81	219	115	115	207	252	0.00	82	48	77	30	3	0	4
18	5	7	1	13	296.01	45241	-271	-137	144	7	82	243	129	117	206	227	0.00	82	48	84	40	3	0	4
19	4	7	1	12	295.74	44960	-281	-142	147	5	82	245	133	137	220	227	0.00	77	49	83	40	3	5	4
20	4	7	1	12	295.46	44670	-290	-146	154	8	81	251	132	133	220	255	0.00	81	52	82	40	3	13	4
21	4	6	1	11	295.18	44380	-290	-146	154	8	80	250	127	129	218	255	0.00	94	55	83	40	3	13	4
22	4	6	1	11	294.91	44102	-278	-140	153	13	79	251	132	136	220	255	0.00	90	53	82	40	3	13	4
23	4	7	1	12	294.64	43824	-278	-140	146	6	78	241	115	134	221	262	0.00	78	57	74	40	3	13	4
24	4	7	1	12	294.37	43547	-277	-140	146	6	79	241	112	125	211	258	0.00	84	58	79	40	3	8	4
25	4	6	1	11	294.12	43292	-255	-129	141	12	77	232	123	117	206	249	0.00	88	62	80	40	3	3	4
26	3	6	1	10	293.87	43037	-255	-129	141	12	78	230	119	124	210	242	0.00	88	56	74	40	3	10	4
27	3	6	1	10	293.59	42752	-285	-144	148	4	78	237	119	121	208	242	0.00	89	55	73	40	3	18	4
28	3	6	1	10	293.31	42467	-285	-144	148	4	77	234	1145	115	203	239	0.00	87	51	73	40	3	18	4
29	3	6	1	10	293.01	42164	-303	-153	147	-6	77	235	128	127	207	236	0.00	83	52	72	40	3	18	4
30	3	6	1	10	292.79	41942	-222	-112	116	4	79	190	126	140	218	239	0.00	74	55	59	40	3	0	4
31	3	6	1	10	292.57	41720	-222	-112	118	6	79	188	99	122	210	258	0.00	65	54	57	44	3	0	4
TOTALS																	0.00 inches							
cfs	138	237	31	406				-3866	4143	277	2528	7005	4824	4137	6777	7824	MAX	94	62	2277	1064	93	183	120
ac-ft	274	470	61	805			-7668	-7668	8218	550	5014	13894	9568	8206	13442	15519	MIN	65	47	4516	2110	184	363	238

Water storage elevation ± to fill curve:	**-10.93**
Water storage in ac-ft ± to fill curve:	**-11603**
Percentage of full reservoir:	**78.2%**

SNOTEL Summary for Water Year 2011

Uptdated: August 31, 2011

SECO W/Y pc:	72.7"	sno depth/water content	0
SDMO W/Y pc:	94.9"	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	8265	
remaining are provisional and subject	CWS	2467	10151
to daily changes as the WS elevation	LO	250	250
rises and falls. These numbers are for	MUNI	742	12758
planning purposes only	Other	589	

SCOGGINS DAM -- RESERVOIR OPERATIONS

September 2011

[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	3	6	1	10	292.36	41509	-211	-106	122	16	78	183	86	110	201	246	0.00	66	42	56	45	3	5	4
2	3	6	1	10	292.13	41278	-231	-116	137	21	77	206	73	100	186	230	0.00	77	47	50	55	3	15	4
3	3	5	1	9	291.84	40988	-290	-146	163	17	76	241	108	90	182	218	0.00	76	47	67	60	3	20	4
4	3	5	1	9	291.55	40699	-289	-146	168	22	75	239	113	109	196	215	0.00	85	49	72	60	3	20	4
5	3	5	1	9	291.27	40421	-278	-140	168	28	75	240	113	115	199	227	0.00	90	50	72	60	3	20	4
6	3	5	1	9	290.99	40143	-278	-140	168	28	74	236	116	117	204	236	0.00	89	48	72	60	3	20	4
7	2	5	1	8	290.66	39817	-326	-164	183	19	73	272	91	115	199	239	0.00	91	52	73	60	3	35	4
8	2	4	1	7	290.37	39531	-286	-144	171	27	71	239	99	115	195	230	0.00	94	56	76	60	3	20	4
9	2	4	1	7	290.03	39197	-334	-168	186	18	70	256	113	101	192	233	0.00	92	53	76	70	3	26	4
10	2	4	1	7	289.69	38864	-333	-168	193	25	70	263	114	106	197	227	0.00	92	54	77	70	3	32	4
11	2	4	1	7	289.34	38522	-342	-172	193	21	70	262	121	111	201	236	0.00	97	55	77	70	3	32	4
12	2	4	1	7	288.99	38181	-341	-172	193	21	70	261	131	121	205	242	0.00	94	51	77	70	3	32	4
13	2	4	1	7	287.67	37871	-310	-156	170	14	70	232	124	134	214	249	0.00	77	52	61	80	3	15	4
14	2	5	1	8	288.38	37590	-281	-142	160	18	71	214	104	127	210	265	0.00	70	56	50	80	3	15	4
15	2	5	1	8	288.07	37291	-299	-151	160	9	71	214	131	117	200	265	0.00	67	55	62	80	3	3	4
16	2	5	1	8	287.78	37012	-279	-141	154	13	71	212	128	137	218	na	0.00	66	50	52	80	3	8	3
17	2	5	1	8	287.53	36773	-239	-120	146	26	71	200	126	134	218	275	0.00	67	47	39	80	3	13	3
18	3	7	1	11	287.28	36533	-240	-121	146	25	74	206	142	138	222	292	0.04	61	50	36	80	3	13	3
19	3	7	1	11	287.08	36343	-190	-96	126	30	74	187	132	161	238	310	0.01	68	59	16	80	3	13	3
20	3	5	1	9	286.89	36161	-182	-92	126	34	72	180	121	148	231	na	0.00	71	43	38	60	3	13	3
21	2	5	1	8	286.69	35971	-190	-96	121	25	70	173	105	130	218	275	0.00	82	47	42	60	3	5	3
22	2	5	1	8	286.51	35800	-171	-86	123	37	69	173	123	122	207	258	0.00	84	52	49	60	3	0	3
23	2	5	1	8	286.32	35620	-180	-91	118	27	67	163	117	121	208	252	0.00	79	55	44	60	3	0	3
24	2	5	1	8	286.15	35460	-160	-81	111	30	66	na	100	1147	205	252	0.00	84	54	37	60	3	0	3
25	2	5	1	8	285.97	35290	-170	-86	111	25	66	na	103	109	198	249	0.00	81	57	37	60	3	0	3
26	3	6	1	10	285.80	35130	-160	-81	111	30	68	163	110	119	206	na	0.22	66	48	35	60	3	0	3
27	3	8	1	12	285.59	34913	-217	-109	137	28	na	182	168	140	220	268	0.08	69	55	34	60	3	27	3
28	3	7	1	11	285.29	34651	-262	-132	145	13	na	153	119	184	265	285	0.00	68	42	28	60	3	40	3
29	3	6	1	10	285.08	34454	-197	-99	131	32	na	134	87	147	235	299	0.00	72	43	25	50	3	40	3
30	2	5	1	8	284.84	34230	-224	-113	138	25	13	137	87	108	201	275	0.00	81	47	29	50	3	45	3
TOTALS																	0.35 inches							
cfs	73	157	30	260				-3776	4479	703	1872	5821	3405		6271	6848	MAX	97	59	1559	1940	90	527	105
ac-ft	145	311	60	516			-7490	-7490	8884	1394	3713	11546	6754		12439	13583	MIN	61	42	3092	3848	179	1045	208

Water storage elevation ± to fill curve:	**-18.66**
Water storage in ac-ft ± to fill curve:	**-19093**
Percentage of full reservoir:	**64.2%**

SNOTEL Summary for Water Year 2011

Uptdated: September 30, 2011

SECO W/Y pc:	73.6"	sno depth/water content	0
SDMO W/Y pc:	96.8"	sno depth/water content	0

Minimum Required Discharges

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

RESERVOIR DELIVERY STATUS

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

	USED	REMAINING
TVID	11358	
CWS	6315	6303
LO	428	72
MUNI	1787	11713
Other	797	

SCOGGINS DAM -- RESERVOIR OPERATIONS

October 2011

[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	4	6	1	11	284.62	34025	-205	-103	134	31	13	129	99	105	193	242	0.00	75	49	31	50	3	35	3
2	5	7	1	13	284.44	33802	-223	-112	134	22	13	129	99	107	198	242	0.01	63	52	29	50	3	35	3
3	5	13	1	19	284.19	33626	-176	-89	135	46	17	135	102	117	201	265	0.37	63	54	24	50	3	35*	3
4	5	9	1	15	283.99	33441	-185	-93	124	31	19	128	113	158	233	303	0.01	60	52	17	50	3	35	3
5	8	20	1	29	283.89	33348	-93	-47	102	55	31	112	102	202	281	368	0.59	60	49	0	40	3	35	3
6	4	11	1	16	283.76	33228	-120	-61	98	37	23	109	117	188	267	360	0.02	57	46	22	20	3	35	3
7	4	10	1	15	283.65	33127	-101	-51	84	33	18	86	69	175	272	348	0.00	58	47	19	10	3	35	3
8	4	10	1	15	283.53	33016	-111	-56	97	41	20	100	59	111	210	317	0.01	60	52	18	20	3	40	1
9	4	11	1	16	283.41	32906	-110	-55	97	42	17	96	71	97	190	262	0.11	66	52	17	20	3	40	1
10	5	12	1	18	283.28	32787	-119	-60	97	37	19	99	68	na	201	252	0.11	58	49	17	20	3	40	1
11	7	21	1	29	283.21	32722	-65	-33	100	67	38	123	101	212	292	380	0.46	63	49	5	40	3	32	1
12	9	23	1	33	283.12	32640	-82	-41	100	59	66	162	169	na	340	482	0.18	60	49	5	40	3	32	1
13	5	16	1	22	283.08	32608	-32	-16	63	47	48	104	136	279	371	441	0.00	61	49	10	10	0	20	1
14	3	11	1	15	283.02	32548	-60	-30	63	33	41	97	99	192	288	427	0.06	57	45	17	10	0	20	1
15	4	10	1	15	282.93	32466	-82	-41	71	30	38	101	91	152	241	352	0.02	59	45	5	30	0	20	1
16	4	8	1	13	282.86	32402	-64	-32	71	39	36	99	84	139	227	306	0.00	64	45	7	30	0	20	1
17	3	8	1	12	282.72	32329	-73	-37	72	35	34	96	65	125	210	285	0.00	63	41	9	30	0	20	1
18	3	8	1	12	282.66	32219	-110	-55	94	39	33	119	95	102	192	262	0.00	68	42	11	50	0	20	1
19	3	8	1	12	282.54	32110	-109	-55	95	40	32	117	94	118	203	236	0.00	74	43	12	50	0	20	1
20	4	8	1	13	282.38	31964	-146	-74	94	20	32	118	89	116	204	246	0.00	61	44	10	50	0	20	1
21	4	9	1	14	282.26	31855	-109	-55	94	39	31	118	91	114	200	249	0.00	59	47	9	50	0	20	1
22	4	9	1	14	282.17	31707	-148	-75	103	28	24	123	105	116	206	240	0.00	62	52	8	60	0	20	1
23	4	10	1	15	281.97	31592	-115	-58	103	45	29	128	102	121	210	252	0.00	66	53	7	60	0	20	1
24	4	10	1	15	281.80	31438	-154	-78	103	25	28	127	102	124	211	252	0.00	61	39	7	60	0	20	1
25	4	8	1	13	281.68	31285	-153	-77	103	26	27	127	108	121	183	255	0.00	58	34	9	60	0	20	1
26	3	8	1	12	281.43	31105	-180	-91	108	17	22	134	105	122	183	249	0.00	58	33	8	60	0	27	1
27	3	9	1	13	281.22	30916	-189	-95	122	27	18	138	110	120	190	242	0.00	51	34	8	70	0	30	1
28	3	9	1	13	281.06	30772	-144	-73	122	49	17	129	105	139	190	242	0.00	58	34	8	70	0	30	1
29	7	16	2	25	280.86	30593	-179	-90	128	38	32	142	108	124	190	278	0.28	55	40	4	70	0	36	1
30	5	12	2	19	280.68	30432	-161	-81	128	47	25	149	148	144	196	265	0.03	59	44	4	70	0	36	1
31	4	11	1	16	280.49	30263	-169	-85	128	43	24	150	133	160	217	282	0.03	64	39	5	70	0	36	1
TOTALS																								
cfs	138	341	33	512				-2000	3167	1167	865	3724	3139	4100	6990	9182	2.29 inches			362	1370	36	884	45
ac-ft	274	676	65	1016			-3967	-3967	6282	2315	1716	7387	6226	8132	13865	18212	MAX	75	54	718	2717	71	1753	89
																	MIN	51	33					

Water storage elevation ± to fill curve:	**-23.01**
Water storage in ac-ft ± to fill curve:	**-23060**
Percentage of full reservoir:	**56.8%**

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

SNOTEL Summary for Water Year 2012

Uptdated: October 31, 2011

SECO W/Y pc:	4.6"	sno depth/water content	0
SDMO W/Y pc:	5.9"	sno depth/water content	0

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	12076	
remaining are provisional and subject	CWS	9033	3585
to daily changes as the WS elevation	LO	500	0
rises and falls. These numbers are for	MUNI	3541	9959
planning purposes only	Other	887	

SCOGGINS DAM -- RESERVOIR OPERATIONS

November 2011

[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	4	12	1	17	280.30	30094	-169	-85	110	25	26	126	94	163	219	292	0.00	54	32	6	50	0	36	1
2	4	11	1	16	280.12	29934	-160	-81	110	29	23	123	97	140	203	285	0.00	51	30	7	50	0	36	1
3	6	15	1	22	279.99	29818	-116	-58	104	46	25	128	114	236	250	445	0.28	50	31	4	50	0	30	1
4	5	17	1	23	279.82	29668	-150	-76	104	28	30	134	133	259	334	414	0.01	48	33	4	50	0	30	1
5	5	16	1	22	279.77	29624	-44	-22	59	37	28	78	88	205	268	394	0.11	46	34	3	10	0	24	1
6	6	17	1	24	279.72	29580	-44	-22	59	37	34	84	64	175	240	364	0.15	44	35	3	10	0	24	1
7	5	15	1	21	279.69	29553	-27	-14	59	45	29	79	63	147	208	319	0.02	53	35	3	10	0	24	1
8	4	15	1	20	279.65	29535	-18	-9	44	35	27	61	40	134	197	285	0.00	47	43	3	40	0	0	1
9	4	14	1	19	279.64	29509	-26	-13	46	33	26	74	38	104	175	265	0.02	50	43	3	40	0	0	1
10	4	14	1	19	279.52	29403	-106	-53	84	31	24	114	63	106	170	239	0.00	55	35	3	60	0	0	1
11	4	14	1	19	279.36	29262	-141	-71	84	13	26	111	77	122	180	233	0.00	58	33	3	60	0	0	0
12	5	17	1	23	279.24	29157	-105	-53	84	31	26	113	88	133	195	275	0.14	44	34	3	60	0	0	0
13	8	20	1	29	279.13	29060	-97	-49	84	35	27	121	123	159	219	292	0.09	48	38	3	60	0	0	0
14	6	18	1	25	279.03	28972	-88	-44	84	40	39	132	153	192	240	306	0.02	52	43	3	60	0	0	0
15	6	18	1	25	278.95	28902	-70	-35	43	8	42	89	103	207	263	325	0.03	50	34	3	40	0	0	0
16	5	17	1	23	278.94	28894	-8	-4	40	36	37	80	76	168	237	333	0.09	45	31	3	30	0	0	0
17	9	56	1	66	278.99	28937	43	22	40	62	171	119	89	236	281	459	0.57	53	36	3	20	0	0	0
18	23	56	2	81	279.18	29104	167	84	39	123	208	274	349	415	444	578	0.78	47	35	3	20	0	0	0
19	18	40	1	59	279.30	29209	105	53	39	92	111	190	324	634	700	748	0.18	42	35	3	0	0	0	0
20	16	32	1	49	279.33	29236	27	14	39	53	78	144	232	516	624	776	0.01	40	29	3	0	0	0	0
21	13	32	1	46	279.62	29262	26	13	39	52	65	121	162	366	464	657	0.33	43	36	3	0	0	0	0
22	268	285	14	567	279.84	29686	424	214	41	255	584	386	368	521	561	881	1.76	53	44	3	0	0	0	0
23	608	531	18	1157	281.89	31520	1834	925	40	965	1117	870	1470	2340	2452	2590	2.35	56	48	2	0	0	0	0
24	112	180		292	283.02	32548	1028	518	40	558	677	991	1910	2720	3175	3530	0.16	48	38	2	0	0	0	0
25	69	161		230	283.81	33274	726	366	40	406	596	816	3010	2700	3159	3550	0.65	46	36	2	0	0	0	0
26	38	116		154	284.29	33719	445	224	40	264	410	703	1740	2640	3061	3320	0.03	49	37	2	0	0	0	0
27	36	90		126	284.56	33969	250	126	97	223	272	604	1390	2500	2952	3160	0.00	51	39	2	0	0	0	0
28	38	78	3	119	284.73	34127	158	80	98	178	249	534	1030	2480	2862	3190	0.15	52	36	2	0	0	0	0
29	32	65		97	284.83	34221	94	47	104	151	195	456	805	2160	2514	2870	0.00	60	33	2	0	0	0	0
30	32	61	1	94	285.00	34379	158	80	53	133	189	354	639	1630	1904	2360	0.19	44	35	2	0	0	0	0
TOTALS																								
cfs	1393	2033		3484				2075	1947	4022	5391	8209	14932	24508	28751	33735	8.12 inches							
ac-ft	2763	4032		6911			4116	4116	3862	7978	10693	16283	29618	48612	57028	66913	MAX	60	48	91	720	0	204	10
																	MIN	40	29	180	1428	0	405	20

Water storage elevation ± to fill curve:	**1.50**
Water storage in ac-ft ± to fill curve:	**1390**
Percentage of full reservoir:	**64.5%**

SNOTEL Summary for Water Year 2012

Uptdated: November 30, 2011

SECO W/Y pc:	14.8"	sno depth/water content	0
SDMO W/Y pc:	20.4"	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	12256	
remaining are provisional and subject	CWS	10461	2157
to daily changes as the WS elevation	LO	500	0
rises and falls. These numbers are for	MUNI	3945	9555
planning purposes only	Other	906	

SCOGGINS DAM -- RESERVOIR OPERATIONS
December 2011

[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	28	53	1	82	285.14	34470	91	46	53	99	154	305	541	1260	1422	1790	0.00	52	31	0	0	0	0	0
2	25	48	1	74	285.25	34613	143	72	54	126	156	272	478	1010	1139	1420	0.00	52	31	0	0	0	0	0
3	23	42	1	66	285.35	34707	94	47	54	101	119	240	423	874	981	1200	0.00	51	28	0	0	0	0	0
4	21	39	1	61	285.41	34763	56	28	54	82	105	217	373	760	859	1060	0.00	44	29	0	0	0	0	0
5	19	36	1	56	285.48	34829	66	33	54	87	96	198	345	668	759	948	0.00	44	26	0	0	0	0	0
6	18	34	2	54	285.51	34857	28	14	54	68	88	184	324	607	693	851	0.00	48	27	0	0	0	0	0
7	16	32	2	50	285.58	34923	66	33	54	87	81	173	302	562	644	787	0.00	32	29	0	0	0	0	0
8	16	30	2	48	285.60	34941	18	9	54	63	76	163	265	520	598	743	0.00	41	28	0	0	0	0	0
9	15	28	2	45	285.63	34970	29	15	54	69	71	154	245	469	546	689	0.00	49	27	0	0	0	0	0
10	14	27	2	43	285.64	34979	9	5	54	59	67	148	231	435	507	641	0.00	50	26	0	0	0	0	0
11	14	26	2	42	285.67	35007	28	14	54	68	65	144	236	415	480	600	0.00	33	27	0	0	0	0	0
12	13	24	2	39	285.65	34988	-19	-10	54	44	61	138	219	405	468	584	0.01	46	28	0	0	0	0	0
13	12	24	1	37	285.67	35007	19	10	54	64	58	131	208	380	442	563	0.00	48	27	0	0	0	0	0
14	12	23	1	36	285.67	35007	0	0	54	54	56	126	194	358	416	527	0.00	43	25	0	0	0	0	0
15	13	24	2	39	285.68	35026	19	10	54	64	57	130	207	340	396	512	0.19	36	26	0	0	0	0	0
16	12	23	1	36	285.67	35007	-19	-10	54	44	56	128	207	358	416	502	0.02	43	36	0	0	0	0	0
17	11	21	1	33	285.68	35017	10	5	54	59	52	122	191	339	404	507	0.00	45	32	0	0	0	0	0
18	11	21	1	33	285.68	35017	0	0	54	54	50	119	191	324	384	492	0.00	42	33	0	0	0	0	0
19	11	20	1	32	285.67	35007	-10	-5	54	49	47	115	185	313	372	473	0.00	43	36	0	0	0	0	0
20	10	20	1	31	285.64	34970	-37	-19	55	36	46	113	168	289	349	459	0.00	47	34	0	0	0	0	0
21	10	19	1	30	285.61	34951	-19	-10	55	45	44	111	160	279	333	436	0.00	42	31	0	0	0	0	0
22	10	18	1	29	285.61	34951	0	0	55	55	43	107	152	271	324	418	0.00	39	27	0	0	0	0	0
23	9	18	1	28	285.59	34932	-19	-10	55	45	42	105	158	263	312	405	0.00	43	27	0	0	0	0	0
24	9	18	1	28	285.40	34754	-178	-90	159	69	41	217	244	253	307	401	0.00	44	31	0	0	0	0	0
25	10	18	1	29	285.15	34520	-234	-118	158	40	40	216	259	339	380	405	0.00	50	33	0	0	0	0	0
26	10	20	1	31	284.91	34295	-225	-113	157	44	50	232	283	348	402	473	0.15	49	32	0	0	0	0	0
27	14	31	2	47	284.71	34109	-186	-94	157	63	47	225	289	386	440	492	0.18	43	35	0	0	0	0	0
28	162	213	8	383	284.79	34183	74	37	304	341	901	602	850	652	645	793	1.07	53	43	0	0	0	0	0
29	307	317	12	636	286.05	35365	1182	596	161	757	1077	875	1490	1890	1955	1890	0.93	55	43	0	0	0	0	0
30	500	527	14	1041	287.62	36859	1494	753	55	808	1149	1020	2040	2410	2734	3380	1.29	52	43	0	0	0	0	0
31	218	257	10	485	289.08	38269	1410	711	55	766	895	1240	2440	2800	3268	3740	0.09	46	31	0	0	0	0	0
TOTALS																	3.93 inches							
cfs	1573	2051	80	3704				1961	2451	4412	5890	8270	13898	20577	23375	28181	MAX	55	43	0	0	0	0	0
ac-ft	3120	4068	159	7347			3890	3890	4862	8752	11683	16404	27567	40814	46364	55897	MIN	32	25	0	0	0	0	0

Water storage elevation ± to fill curve:	**5.58**
Water storage in ac-ft ± to fill curve:	**5280**
Percentage of full reservoir:	**71.8%**

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

SNOTEL Summary for Water Year 2012
Uptdated: December 31, 2011

SECO W/Y pc:	22.8	sno depth/water content	0
SDMO W/Y pc:	32.5	sno depth/water content	0

RESERVOIR DELIVERY STATUS		USED	REMAINING
These allocations, amounts used and	TVID	12256	
remaining are provisional and subject	CWS	10461	2157
to daily changes as the WS elevation	LO	500	0
rises and falls. These numbers are for	MUNI	3945	9555
planning purposes only	Other	906	

(this page intentionally blank)

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 2011

[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														
2														
3	1640.7	20000	200	0.00	21	30	47.0	0.0	0	0	0	0	0	0
4														
5	1640.7	20000	0	0.11	24	32	47.0	0.0	0	0	0	0	0	0
6														
7	1640.8	20000	0	0.15	32	38	47.0	0.0	0	0	0	0	0	0
8														
9														
10	1640.7	20000	0	0.77	28	38	41.0	0.0	0	0	0	0	0	0
11	1640.7	20000	0	0.00	28	38	41.0	0.0	0	0	0	0	0	0
12														
13	1641.0	20000	0	2.90	32	45	215.1	0.0	0	0	0	0	0	0
14	1640.9	20000	0	0.67	42	48	142.0	0.0	0	0	0	0	0	0
15														
16														
17														
18	1640.9	20000	0	5.03	38	50	160.0	0.0	0	0	0	0	0	0
19														
20	1640.8	20000	0	0.47	27	38	95.2	0.0	0	0	0	0	0	0
21	1640.8	20000	0	0.14	29	42	79.6	0.0	0	0	0	0	0	0
22														
23														
24	1640.7	20000	0	0.08	33	43	55.5	0.0	0	0	0	0	0	0
25														
26	1640.7	20000	0	0.04	36	44	47.0	0.0	0	0	0	0	0	0
27														
28	1640.7	20000	0	0.03	37	49	41.0	0.0	0	0	0	0	0	0
29														
30														
31	1640.7	20000	0	0.33	34	44	35.0	0.0	0	0	0	0	0	0
Monthly Totals			200	10.72						0		0		0
Year to Date Totals			200	15.52						127		0		0

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF FEBRUARY 2011

[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														
2	1640.7	20000	0	0.00	27	40	35.0	0.0	0	0	0	0	0	0
3														
4	1640.7	20000	0	0.00	29	48	31.3	0.0	0	0	0	0	0	0
5														
6														
7	1640.7	20000	0	0.78	36	44	41.0	0.0	0	0	0	0	0	0
8														
9	1640.7	20000	0	0.34	26	44	35.0	0.0	0	0	0	0	0	0
10														
11	1640.7	20000	0	0.02	28	48	31.3	0.0	0	0	0	0	0	0
12														
13														
14	1640.7	20000	0	1.17	32	41	41.0	0.0	0	0	0	0	0	0
15														
16	1640.8	20000	0	2.15	32	42	64.0	0.0	0	0	0	0	0	0
17														
18	1640.7	20000	0	0.54	28	42	47.0	0.0	0	0	0	0	0	0
19														
20														
21														
22	1640.7	20000	0	0.61	26	36	41.0	0.0	0	0	0	0	0	0
23														
24	1640.7	20000	0	0.93	22	34	47.0	0.0	0	0	0	0	0	0
25	1640.7	20000	0	na	22	33	35.0	0.0	0	0	0	0	0	0
26														
27										0				
28	1640.9	20000	0	na	12	35	107.0	0.0	0	0	0	0	0	0
Monthly Totals														
Year to Date Totals			0	6.54						0		0		0

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF MARCH 2011

[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														
2	1640.8	20000	0	2.85	32	36	64.0	0.0	0	0	0	0	0	0
3														
4	1640.8	20000	0	na	30	44	64.0	0.0	0	0	0	0	0	0
5														
6														
7	1640.8	20000	0	1.55	28	38	55.5	0.0	0	0	0	0	0	0
8														
9	1640.8	20000	0	1.03	32	41	77.0	0.0	0	0	0	0	0	0
10														
11	1641.0	20000	0	2.30	32	42	178.6	0.0	0	0	0	0	0	0
12														
13	1640.9	20000	0				140.0	0.0			0	0	0	0
14	1641.0	20000	0	2.16	33	43	200.0	0.0	10	20	0	0	0	0
15														
16	1641.0	20000	0	1.75	32	43	200.0	0.0	10	20	0	0	0	0
17														
18	1640.9	20000	0	0.77	32	42	107.0	0.0	0	0	0	0	0	0
19														
20														
21	1640.8	20000	0	0.64	32	41	79.6	0.0	0	0	0	0	0	0
22														
23	1640.8	20000	0	0.34	31	42	64.0	0.0	0	0	0	0	0	0
24														
25	1640.8	20000	0	0.52	26	44	55.5	0.0	0	0	0	0	0	0
26														
27														
28	1640.8	20000	0	1.87	31	41	79.6	0.0	0	0	0	0	0	0
29														
30	1640.9	20000	0	1.44	37	43	110.8	0.0	0	0	0	0	0	0
31														
Monthly Totals			0	17.22						40		0		0
Year to Date Totals			200	34.48						40		0		0

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF APRIL 2011

[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	1640.8	20000	0	0.43	39	47	79.6	0.0	0	0	0	0	0	0
2														
3														
4	1640.8	20000	0	0.89	31	51	64.0	0.0	0	0	0	0	0	0
5														
6	1640.9	20000	0	2.73	32	44	126.4	0.0	0	0	0	0	0	0
7														
8	1640.8	20000	0	0.24	30	52	79.6	0.0	0	0	0	0	0	0
9														
10														
11	1640.8	20000	0	0.96	33	45	64.0	0.0	0	0	0	0	0	0
12														
13	1640.7	20000	0	0.21	32	43	47.0	0.0	0	0	0	0	0	0
14														
15	1640.9	20000	0	2.60	38	42	126.4	20.0	10	20	0	0	20	40
16									10	20			20	40
17									10	20			20	40
18	1640.7	20000	0	0.53	32	45	47.0	40.0	20	40	0	0	40	79
19									20	40			40	79
20	1640.5	20000	0	0.02	33	45	35.0	50.0	20	40	0	0	50	99
21									20	40			50	99
22	1640.0	19800	-200	0.15	29	48	35.0	50.8	20	40	0	0	50	99
23									20	40			50	99
24									20	40			50	99
25	1639.6	19640	-160	1.64	56	36	35.0	50.8	20	40	0	0	50	99
26									20	40			50	99
27	1639.3	19520	-120	1.10	35	43	35.0	50.2	20	40	0	0	50	99
28									20	40			50	99
29	1639.2	19480	-40	1.20	32	43	35.0	50.8	20	40	0	0	50	99
30									20	40			50	99
Monthly Totals			-520	12.70						575		0		1369
Year to Date Totals			-320	47.18						615		0		1369

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF MAY 2011

[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									20	40			50	99
2	1638.6	19240	-240	0.14	31	54	35.0	50.8	20	40	0	0	50	99
3									20	40			50	99
4	1638.1	19040	-200	0.14	33	48	35.0	50.8	20	40	0	0	50	99
5									20	40			50	99
6	1637.5	18750	-290	0.17	40	58	35.0	50.2	20	40	0	0	50	99
7									20	40			50	99
8									20	40			50	99
9	1636.8	18400	-350	0.73	34	46	35.0	50.2	20	40	0	0	50	99
10									20	40			50	99
11	1636.2	18100	-300	0.04	40	52	35.0	50.2	20	40	0	0	50	100
12									20	40			50	99
13	1635.7	17888	-212	0.35	33	52	35.0	50.2	20	40	0	0	50	99
14									20	40			50	99
15									20	40			50	99
16	1634.8	17550	-338	0.39	37	58	35.0	49.7	20	40	0	0	50	99
17									20	40			50	99
18	1634.1	17288	-262	0.01	39	50	35.0	49.7	20	40	0	0	50	99
19									20	40			50	99
20	1633.5	17063	-225	0.00			31.3	44.7	15	30	0	0	45	89
21									15	30			45	89
22									15	30			45	89
23									15	30			45	89
24	1632.4	16650	-413	0.06	39	59	31.2	44.7	15	30	0	0	45	89
25	1632.1	16538	-112	0.76	43	53	31.3	44.7	15	30	0	0	45	89
26									15	30			45	89
27	1631.7	16388	-150	0.85	35	45	31.3	44.7	15	30	0	0	45	89
28									15	30			45	89
29									15	30			45	89
30									15	30			45	89
31	1630.6	15975	-413	1.21	36	49	31.3	44.2	15	30	0	0	45	89
Monthly Totals			-3505	4.85						1111		0		2954
Year to Date Totals			-3825	52.03						1726		0		4323

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF JUNE 2011

[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	1630.4	15900	-75	0.03	40	50	31.3	44.2	15	30	0	0	45	89
2									15	30			45	89
3	1629.9	15713	-187	0.14	40	59	23.9	44.2	10	20	0	0	45	89
4									10	20			45	89
5									10	20			45	89
6	1629.1	15413	-300	0.00	48	70	23.9	43.7	10	20	0	0	45	89
7									10	20			45	89
8	1628.5	15188	-225	0.00	44	69	23.9	44.2	10	20	0	0	45	89
9									10	20			45	89
10	1627.8	14963	-225	0.00	44	60	16.5	44.2	10	20	0	0	45	89
11									10	20			45	89
12									10	20			45	89
13	1627.1	14663	-300	0.13	41	57	16.5	44.2	10	20	0	0	45	89
14									10	20			45	89
15	1626.5	14438	-225	0.02	42	53	16.5	49.7	10	20	0	0	50	99
16									10	20			50	99
17	1625.8	14175	-263	0.00	40	60	16.5	49.7	8	16	0	0	50	99
18									8	16			50	99
19									8	16			50	99
20	1625.0	13875	-300	0.10	46	52	6.2	49.7	8	16	0	0	50	99
21									8	16			50	99
22	1624.2	13575	-300	0.00	48	66	7.3	49.2	8	16	0	0	50	99
23									8	16			50	99
24	1623.8	13425	-150	0.00	43	56	8.5	49.2	8	16	0	0	50	99
25									8	16			50	99
26									8	16			50	99
27	1622.9	13088	-337	0.00	40	62	8.4	49.2	8	16	0	0	50	99
28									8	16			50	99
29	1622.3	12863	-225	0.15	50	61	8.4	49.2	8	16	0	0	50	99
30									8	16			50	99
Monthly Totals			-3112	0.57						559		0		2836
Year to Date Totals			-6937	52.60						2286		0		7159

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF JULY 2011

[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	1621.6	12600	-263	0.04	40	55	8.4	49.2	8	16	9	18	40	80
2									8	16	9	18	40	79
3									8	16	9	18	40	79
4									8	16	9	18	40	79
5									8	16	9	18	40	79
6	1620.0	12000	-600	0.00	54	74	8.4	48.7	8	16	9	18	40	79
7									8	16	9	18	40	79
8	1619.3	11766	-234	0.00	53	74	7.3	48.7	8	16	9	18	40	79
9									8	16	9	18	40	79
10									8	16	9	18	40	79
11	1618.2	11400	-366	0.00	43	64	8.4	49.2	8	16	9	18	40	80
12									8	16	9	18	40	79
13	1617.6	11200	-200	0.17	49	60	8.4	49.2	8	16	9	18	40	80
14									8	16	9	18	40	79
15	1616.9	10966	-234	0.03	48	61	8.4	49.2	8	16	9	18	40	80
16									8	16	9	18	40	79
17									8	16	9	18	40	79
18	1616.0	10666	-300	1.13	48	61	7.3	48.7	8	16	9	18	40	79
19									8	16	9	18	40	79
20	1615.3	10433	-233	0.04	45	58	7.3	48.7	8	16	9	18	40	79
21									8	16	9	18	40	79
22	1614.7	10233	-200	0.02	47	59	8.2	48.7	8	16	9	18	40	79
23									8	16	9	18	40	79
24									8	16	9	18	40	79
25	1613.6	9900	-333	0.00	47	72	8.2	48.2	8	16	9	18	40	79
26									8	16	9	18	40	79
27	1612.8	9700	-200	0.00	47	74	8.4	55.0	8	16	9	18	46	91
28									8	16	9	18	46	91
29	1612.0	9500	-200	0.00	47	70	8.4	55.0	8	16	9	18	46	91
30									8	16	9	18	46	91
31									8	16	9	18	46	91
Monthly Totals			-3363	1.43						492		554		2519
Year to Date Totals			-10300	54.03						2778		554		9679

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF AUGUST 2011

[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	1610.7	9175	-325	0.00	47	70	8.4	54.5	8	16	9	18	46	90
2									8	16	9	18	46	91
3	1609.9	8866	-309	0.00	49	68	8.4	54.5	8	16	9	18	46	90
4									8	16	9	18	46	91
5	1609.1	8700	-166	0.00	54	68	8.4	60.0	6	12	9	18	51	101
6									6	12	9	18	51	101
7									6	12	9	18	51	101
8	1607.6	8200	-500	0.00	50	65	5.1	59.5	6	12	9	18	51	100
9									6	12	9	18	51	101
10	1606.8	7933	-267	0.00	45	61	5.1	59.0	8	16	9	18	50	99
11									8	16	9	18	50	99
12	1605.8	7600	-333	0.00	48	67	8.4	61.8	8	16	9	18	52	103
13									8	16	9	18	52	103
14									8	16	9	18	52	103
15	1604.2	7066	-534	0.00	46	68	8.4	61.3	8	16	9	18	52	104
16									8	16	9	18	52	103
17	1603.2	6800	-266	0.00	48	68	8.4	60.7	8	16	9	18	52	103
18									8	16	9	18	52	103
19	1602.2	6550	-250	0.02	46	68	8.4	60.1	8	16	9	18	51	101
20									8	16	9	18	51	101
21									8	16	9	18	51	101
22	1600.5	6125	-425	0.00	54	78	8.4	59.9	10	20	9	18	51	101
23									10	20	9	18	51	101
24	1599.5	5875	-250	0.04	56	66	11.3	59.5	10	20	9	18	50	99
25									10	20	9	18	50	99
26	1598.2	5525	-350	0.00	54	75	9.5	59.0	10	19	9	18	50	99
27									10	20	9	18	50	99
28									10	20	9	18	50	99
29	1596.5	5125	-400	0.00	51	74	9.5	57.3	10	19	9	18	48	96
30									10	20	9	18	48	95
31	1595.4	4899	-226	0.02	48	60	9.5	56.7	10	19	9	18	48	95
Monthly Totals			-4601	0.08						509		554		3076
Year to Date Totals			-14901	54.11						3286		1107		12755

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF SEPTEMBER 2011

[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									10	20	0	0	57	113
2	1594.2	4699	-200	0.00	42	63	9.5	56.1	10	19	0	0	57	113
3									10	20	0	0	56	111
4									10	20	0	0	55	109
5									10	20	0	0	55	109
6	1591.8	4313	-386	0.00	54	72	9.5	54.5	10	19	0	0	55	109
7	1591.2	4253	-60	0.00	57	75	9.5	54.0	8	17	0	0	53	105
8									8	16	0	0	51	101
9	1590.0	4041	-212	0.00	58	76	8.4	51.3	8	17	0	0	51	101
10									8	16	0	0	50	99
11									8	16	0	0	50	99
12	1588.0	3652	-389	0.00	53	80	9.5	50.2	9	18	0	0	50	99
13									9	18	0	0	49	97
14	1586.7	3411	-241	0.00	51	64	9.5	49.7	9	18	0	0	49	97
15									9	18	0	0	48	95
16	1585.4	3180	-231	0.00	48	62	9.5	49.2	9	18	0	0	49	97
17									9	18	0	0	48	95
18									9	18	0	0	48	95
19	1583.3	2827	-353	0.32	42	58	9.5	48.2	8	16	0	0	48	95
20									8	16	0	0	47	93
21	1581.8	2589	-238	0.00	43	56	8.4	47.6	8	17	0	0	47	93
22									8	16	0	0	46	91
23	1580.0	2321	-268	0.00	52	68	8.4	43.2	8	17	0	0	46	91
24									8	16	0	0	46	91
25									8	16	0	0	46	91
26	1578.0	2043	-278	0.50	45	65	8.4	44.7	5	10	0	0	46	91
27									5	10	0	0	0	0
28	1577.9	2030	-13	0.39	42	56	5.1	0.0	5	10	0	0	0	0
29									5	10	0	0	0	0
30	1577.9	2030	0	0.00	42	57	6.2	0.0	6	12	0	0	0	0
Monthly Totals			-2869	1.21						488		0		2585
Year to Date Totals			-17770	55.32						3774		1107		15340

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF OCTOBER 2011

[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									6	12			0	0
2									6	12			0	0
3	1577.9	2030	452	0.70	48	59	6.2	0.0	6	12	0	0	0	0
4									6	12			0	0
5	1577.9	2030	0	1.00	42	50	16.5	0.0	16	32	0	0	0	0
6									10	20			0	0
7	1577.8	2017	-13	0.16	40	48	6.2	0.0	6	12	0	0	0	0
8									6	12			0	0
9									6	12			0	0
10	1578.1	2056	39	0.71	45	52	7.3	9.8	7	14	0	0	10	19
11									7	14			10	20
12	1578.2	2070	14	1.58	43	52	16.5	15.3	17	33	0	0	15	30
13									15	30			15	30
14	1577.6	1990	-80	0.09	42	47	11.3	15.3	11	22	0	0	15	30
15									10	20			15	30
16									10	20			15	30
17	1576.6	1862	-128	0.08	40	50	9.5	15.0	10	19	0	0	15	30
18									10	20			15	30
19	1576.0	1788	-74	0.00	43	57	9.5	15.3	10	19	0	0	15	30
20									10	20			15	30
21	1575.3	1704	-84	0.03	43	50	9.5	15.0	10	19	0	0	10	20
22									10	20			10	20
23									10	20			10	20
24	1574.5	1611	-93	0.30	38	52	9.5	10.3	10	19	0	0	10	20
25									10	20			10	20
26	1574.2	1578	-33	0.00	33	45	5.1	0.0	5	10	0	0	0	0
27									5	10			0	0
28	1574.2	1578	0	0.00	34	45	5.1	0.0	5	10	0	0	0	0
29									5	10			0	0
30									5	10			0	0
31	1574.5	1611	33	1.13	38	53	6.0	0.0	6	12	0	0	0	0
Monthly Totals			33	5.78						525		0		408
Year to Date Totals			-17737	61.10						4299		1107		15748

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF NOVEMBER 2011

[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									6	12				
2	1574.5	1611	0	0.04	30	42	7.3	0.0	7	14	0	0	0	0
3									6	12				
4	1574.6	1623	12	0.68	29	42	6.2	0.0	6	12	0	0	0	0
5									6	12				
6									6	12				
7	1574.8	1646	23	0.50	32	42	6.2	0.0	6	12	0	0	0	0
8									6	12				
9	1574.8	1646	0	0.09	34	46	6.2	0.0	6	12	0	0	0	0
10	1574.8	1646	0	0.00	32	44	6.2	0.0	6	12	0	0	0	0
11									6	12				
12									6	12				
13									6	12				
14	1575.1	1681	35	1.54	40	45	7.3	0.0	6	12	0	0	0	0
15									6	12				
16	1575.4	1716	35	0.43	30	42	7.3	0.0	6	12	0	0	0	0
17	1576.0	1788	72	1.54	34	45	14.8	0.0	6	12	0	0	0	0
18									6	12				
19									6	12				
20									6	12				
21	1577.8	2017	229	2.05	28	38	7.3	0.0	6	12	0	0	0	0
22									6	12				
23	1585.1	3128	1111	7.00	39	48	9.5	0.0	6	12	0	0	0	0
24									6	12				
25	1587.8	3614	486	1.48	32	40	8.4	0.0	6	12	0	0	0	0
26									6	12				
27									6	12				
28	1589.4	3922	308	0.69	32	48	7.3	0.0	6	12	0	0	0	0
29									6	12				
30	1590.2	4081	159	0.51	32	40	7.3	0.0	6	12	0	0	0	0
Monthly Totals			2470	16.55						364		0		0
Year to Date Totals			-15267	77.65						4664		1107		15748

BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF DECEMBER 2011

[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	1590.4	4121	40	0.00	32	40	6.2	0.0	6	12	0	0	0	0
2									6	12				
3									6	12				
4									6	12				
5	1591.2	4253	132	0.00	28	40	6.2	0.0	6	12	0	0	0	0
6									6	12				
7	1591.5	4283	30	0.00	28	42	6.2	0.0	6	12	0	0	0	0
8									6	12				
9	1591.5	4283	0	0.04	28	41	6.4	0.0	6	13	0	0	0	0
10									6	12				
11									6	12				
12	1592.0	4333	50	0.00	29	39	6.2	0.0	6	12	0	0	0	0
13									6	12				
14	1592.1	4350	17	0.00	26	34	6.2	0.0	6	12	0	0	0	0
15									6	12				
16	1592.3	4383	33	0.33	31	39	6.2	0.0	6	12	0	0	0	0
17									6	12				
18									6	12				
19	1592.5	4416	33	0.00	28	38	6.2	0.0	6	12	0	0	0	0
20									6	12				
21	1592.6	4432	16	0.00			6.2	0.0	6	12	0	0	0	0
22									6	12				
23	1592.7	4449	17	0.03	25	36	7.3	0.0	6	12	0	0	0	0
24									6	12				
25									6	12				
26									6	12				
27	1593.1	4515	66	1.15	32	44	7.3	0.0	6	12	0	0	0	0
28									6	12				
29	1595.5	4915	400	4.15	37	48	8.4	0.0	6	12	0	0	0	0
30	1597.5	5375	460	2.86	38	44	9.5	0.0	6	12	0	0	0	0
31									6	12				
Monthly Totals			1294	8.56						374		0		0
Year to Date Totals			-13973	86.21						5038		1107		15748

(this page intentionally blank)

Appendix E

Municipal Water Use Allocations
Monthly Records

MONTHLY SUMMARIES OF MUNICIPAL ALLOCATIONS

MUNICIPAL ALLOCATIONS FOR THE MONTH OF JUNE 2011

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	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0
28	49	49	0	16	0	1	0	17	0	15
29	49	49	0	17	0	1	0	18	0	13
30	49	49	0	20	0	0	0	17	0	11
Monthly Totals										
cfs	147	147	0	53	0	2	0	52	0	39
ac-ft	292	292	0	106	0	5	0	103	0	78
Year-to-Date Totals										
cfs	147	147	0	53	0	2	0	52	0	39
ac-ft	292	292	0	106	0	5	0	103	0	78

MUNICIPAL ALLOCATIONS FOR THE MONTH OF JULY 2011

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	49	49	0	18	0	2	0	17	0	11
2	46	40	6	14	3	2	0	13	3	11
3	48	40	8	14	4	2	1	12	4	12
4	48	40	8	13	4	1	0	12	4	14
5	48	40	8	15	5	2	0	9	3	14
6	48	40	8	15	5	2	1	9	3	14
7	63	40	23	9	11	2	2	9	10	20
8	68	40	28	9	14	1	2	8	12	23
9	58	40	18	13	10	1	1	8	7	18
10	58	40	18	13	10	2	1	8	7	17
11	58	40	18	14	11	2	1	8	6	16
12	52	40	12	13	6	1	1	10	5	16
13	52	40	12	15	7	1	0	11	5	12
14	40	40	0	14	0	2	0	16	0	9
15	40	40	0	14	0	2	0	16	0	8
16	40	40	0	20	0	2	0	13	0	5
17	40	40	0	21	0	2	0	12	0	5
18	40	40	0	12	0	2	0	19	0	6
19	40	40	0	18	0	2	0	16	0	3
20	40	40	0	20	0	1	0	16	0	3
21	40	40	0	23	0	1	0	12	0	4
22	40	40	0	21	0	3	0	15	0	2
23	40	40	0	18	0	3	0	17	0	2
24	40	40	0	20	0	3	0	15	0	2
25	40	40	0	15	0	4	0	16	0	5
26	40	40	0	19	0	4	0	11	0	7
27	40	40	0	19	0	3	0	10	0	9
28	46	46	0	22	0	3	0	12	0	8
29	54	46	8	16	4	4	1	14	3	12
30	54	46	8	18	4	4	1	11	3	13
31	54	46	8	19	5	3	1	11	3	13
Monthly Totals										
cfs	1464	1273	191	502	102	68	13	390	76	313
ac-ft	2904	2525	379	997	201	134	26	773	151	622
Year-to-Date Totals										
cfs	1611	1420	191	556	102	70	13	441	76	353
ac-ft	3195	2817	379	1102	201	139	26	875	151	700

MUNICIPAL ALLOCATIONS FOR THE MONTH OF AUGUST 2011

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	54	46	8	19	5	3	1	11	3	13
2	54	46	8	18	4	4	1	12	3	12
3	54	46	8	22	5	4	1	11	2	10
4	49	46	3	20	2	4	0	10	1	13
5	54	46	8	16	4	4	1	11	3	15
6	57	51	6	21	3	4	1	12	2	14
7	56	51	5	21	3	3	0	14	2	14
8	56	51	5	19	3	4	0	14	2	15
9	51	51	0	23	0	4	0	13	0	11
10	51	51	0	25	0	4	0	14	0	8
11	52	52	0	20	0	4	0	14	0	13
12	52	52	0	22	0	4	0	14	0	12
13	52	52	0	24	0	4	0	14	0	10
14	52	52	0	24	0	4	0	14	0	10
15	52	52	0	20	0	5	0	15	0	12
16	52	52	0	22	0	5	0	15	0	11
17	51	51	0	24	0	4	0	12	0	11
18	51	51	0	24	0	4	0	13	0	11
19	56	51	5	17	2	4	1	15	2	15
20	64	51	13	18	7	3	1	11	4	18
21	64	51	13	23	8	3	1	10	4	16
22	63	50	13	15	6	4	2	12	5	20
23	63	50	13	20	7	4	1	11	4	15
24	58	50	8	21	5	4	1	12	3	13
25	53	50	3	19	2	5	0	12	1	14
26	60	50	10	19	6	4	1	10	3	17
27	67	49	18	18	10	4	2	10	6	17
28	66	48	18	19	11	3	2	9	5	17
29	66	48	18	16	9	3	2	11	7	18
30	48	48	0	16	0	5	0	16	0	11
31	48	48	0	19	0	3	0	14	0	12
Monthly Totals										
cfs	1726	1543	183	620	102	120	20	387	61	417
ac-ft	3424	3061	363	1229	202	237	39	768	121	826
Year-to-Date Totals										
cfs	3337	2963	374	1175	203	190	33	829	138	769
ac-ft	6619	5877	742	2331	404	376	65	1643	273	1526

MUNICIPAL ALLOCATIONS FOR THE MONTH OF SEPTEMBER 2011

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	62	57	5	23	3	4	0	12	2	19
2	72	57	15	18	8	4	2	12	5	23
3	76	56	20	18	11	3	2	10	7	24
4	75	55	20	19	12	3	2	10	6	23
5	75	55	20	18	11	3	2	10	6	23
6	75	55	20	19	11	4	2	10	6	22
7	88	53	35	16	21	3	4	8	11	25
8	71	51	20	15	11	4	3	10	7	22
9	77	51	26	14	13	4	3	9	9	25
10	82	50	32	19	21	3	3	8	8	21
11	82	50	32	18	20	3	3	8	9	21
12	82	50	32	12	16	3	4	9	12	26
13	64	49	15	15	8	4	2	10	5	21
14	64	49	15	15	8	4	2	10	5	20
15	51	48	3	21	2	4	0	11	1	13
16	57	49	8	18	4	3	1	11	3	16
17	61	48	13	19	8	3	1	11	4	15
18	61	48	13	22	8	2	1	10	4	13
19	61	48	13	18	7	2	1	12	5	15
20	60	47	13	19	7	3	1	12	5	13
21	52	47	5	24	3	4	0	12	2	7
22	46	46	0	17	0	5	0	15	0	9
23	46	46	0	14	0	4	0	11	0	17
24	46	46	0	19	0	3	0	10	0	15
25	46	46	0	19	0	3	0	12	0	12
26	46	46	0	20	0	2	0	15	0	9
27	27	0	27	-4	17	0	2	-2	8	6
28	40	0	40	-5	24	-1	3	-3	13	8
29	40	0	40	-4	22	-1	3	-3	15	7
30	45	0	45	-5	20	-1	3	-5	21	11
Monthly Totals										
cfs	1830	1303	527	451	298	84	52	267	177	501
ac-ft	3630	2585	1045	895	591	166	103	530	352	994
Year-to-Date Totals										
cfs	5167	4266	901	1626	501	273	85	1096	315	1271
ac-ft	10249	8462	1787	3226	994	542	168	2173	625	2520

MUNICIPAL ALLOCATIONS FOR THE MONTH OF OCTOBER 2011

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	35	0	35	-5	19	0	2	-4	15	10
2	35	0	35	-5	19	-1	2	-4	14	9
3	35	0	35	-4	18	-1	3	-3	14	8
4	35	0	35	-3	14	-1	3	-3	18	6
5	35	0	35	-3	18	0	3	-2	14	6
6	35	0	35	-4	22	-1	3	-2	10	6
7	35	0	35	-5	19	-1	2	-3	14	9
8	40	0	40	-6	17	-1	4	-7	19	14
9	40	0	40	-7	21	-1	3	-5	16	13
10	40	0	40	-6	23	-1	3	-4	14	10
11	42	10	32	2	18	0	2	1	12	7
12	42	10	32	2	17	0	2	1	12	7
13	35	15	20	6	11	1	1	4	7	4
14	35	15	20	4	10	1	2	3	8	8
15	35	15	20	3	11	0	1	2	8	10
16	35	15	20	3	11	0	1	2	7	9
17	35	15	20	3	10	0	1	3	9	9
18	35	15	20	4	12	0	1	2	7	8
19	35	15	20	4	11	1	2	3	8	7
20	35	15	20	4	11	1	1	3	8	7
21	35	15	20	4	10	1	2	3	8	7
22	30	10	20	2	12	0	2	1	7	6
23	30	10	20	2	11	0	2	2	7	6
24	30	10	20	1	9	0	2	1	10	8
25	30	10	20	1	10	0	1	1	8	8
26	27	0	27	-4	16	0	2	-2	9	7
27	30	0	30	-4	17	0	2	-3	11	7
28	30	0	30	-4	13	-1	3	-5	14	10
29	36	0	36	-5	18	-1	3	-4	15	10
30	36	0	36	-5	22	0	2	-3	12	8
31	36	0	36	-5	22	0	2	-3	12	9
Monthly Totals										
cfs	1079	195	884	-31	472	-4	64	-25	348	255
ac-ft	2140	387	1753	-61	937	-8	127	-50	690	506
Year-to-Date Totals										
cfs	6246	4461	1785	1596	974	269	149	1071	663	1526
ac-ft	12389	8848	3541	3165	1931	534	295	2124	1314	3026

MUNICIPAL ALLOCATIONS FOR THE MONTH OF NOVEMBER 2011

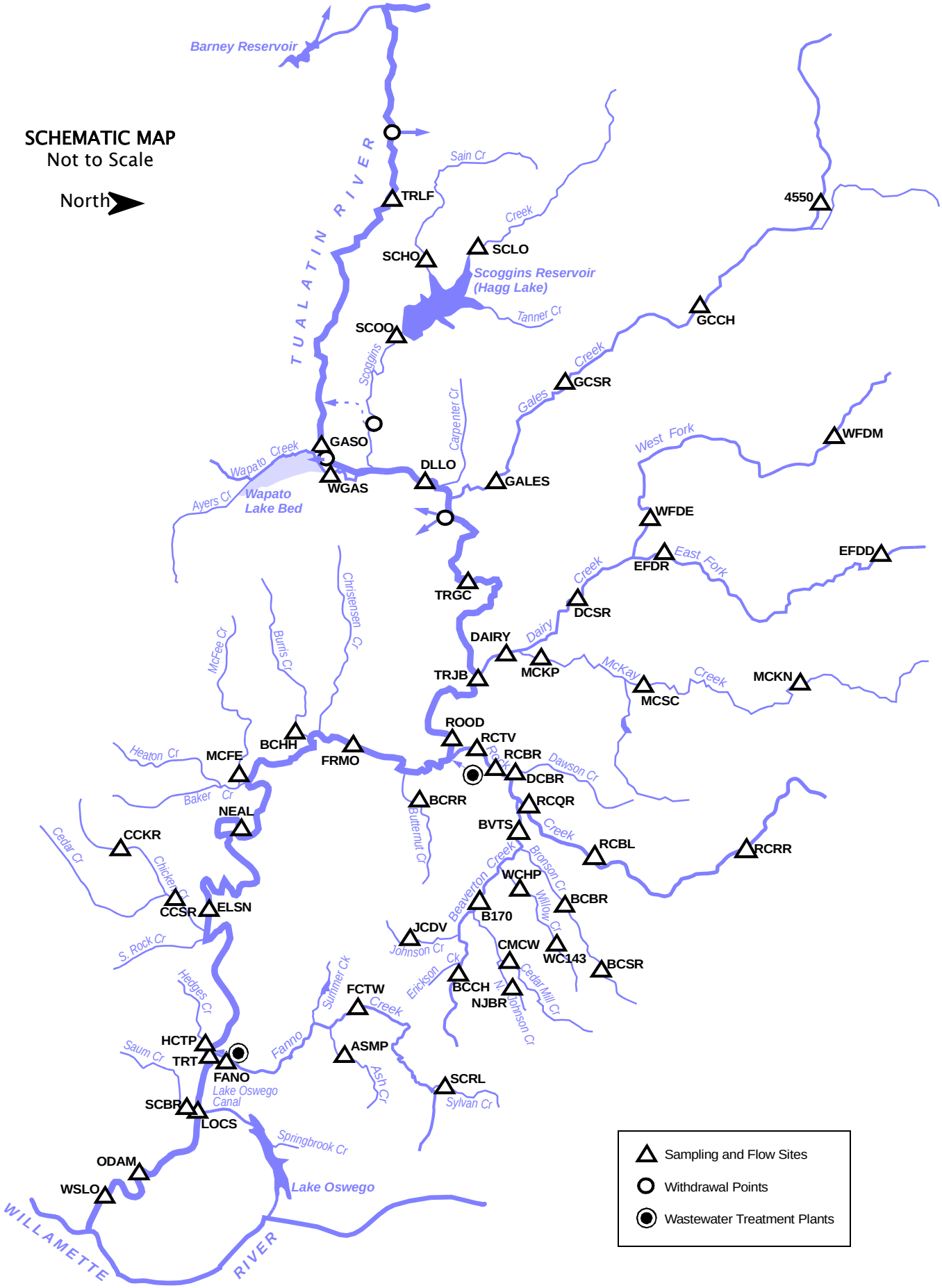
Source: Joint Water Commission

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	36	0	36	-5	22	0	2	-3	12	8
2	36	0	36	-5	20	0	2	-3	14	8
3	30	0	30	-2	15	0	2	-2	13	5
4	30	0	30	-2	13	0	3	-2	15	5
5	24	0	24	-2	14	0	1	-1	9	3
6	24	0	24	-2	14	0	1	-1	9	3
7	24	0	24	-2	12	0	1	-2	10	4
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	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0
Monthly Totals										
cfs	204	0	204	-20	110	-2	12	-14	82	36
ac-ft	405	0	405	-39	219	-4	23	-28	162	71
Year-to-Date Totals										
cfs	6450	4461	1989	1576	1084	267	161	1056	744	1562
ac-ft	12794	8848	3945	3126	2150	530	318	2095	1477	3097

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
4550	Gales Creek above Glenwood, Oregon	19.9	14204550	F-11
ASMP	Ash Creek at Metzger Park at Metzger, Oregon	1.25	14206933	F-52
B170	Beaverton Creek at 170th Ave, Beaverton, Oregon	4.9	—	F-33
BCBR	Bronson Creek at Bronson Road near Orenco, Oregon	2.1	14206423	F-37
BCCH	Beaverton Creek at Cedar Hills Blvd at Beaverton, Oregon	7.45	14206360	F-29
BCHH	Burris Creek at Hwy 219	0.38	—	F-44
BCRR	Butternut Creek at Rosa Road near Farmington, Oregon	1.0	14206483	F-42
BCSR	Bronson Creek at Saltzman Road near Orenco, Oregon	5.1	14206419	F-36
BVTS	Beaverton Creek at NE Guston Court near Orenco, Oregon	1.2	14206435	F-38
CCKR	Chicken Creek at Kruger Road	4.5	—	F-48
CCSR	Chicken Creek at Roy Rogers Road	2.3	14206750	F-49
CMCW	Cedar Mill Creek above Johnson Creek	2.1	14206385	F-31
DAIRY	Dairy Creek at Hwy 8 near Hillsboro, Oregon	2.06	14206200	F-23
DCBR	Dawson Creek at Brookwood Road near Hillsboro, Oregon	0.7	14206443	F-39
DCSR	Dairy Creek at Susbauer Road	6.02	—	F-19
DLLO	Tualatin River at Dilley, Oregon	58.8	14203500	F-10
EFDD	East Fork Dairy Creek near Dairy Creek Road near Mountaindale, Oregon	12.33	14205480	ND*
EFDR	East Fork Dairy Creek at Roy Road	1.24	—	F-18
ELSN	Tualatin River at Elsner Road near Sherwood, Oregon	16.2	14206600	F-47
FANO	Fanno Creek at Durham Road near Tigard, Oregon	1.2	14206950	F-53
FCTW	Fanno Creek at Tuckerwood	7.3	14206927	F-51
FRMO	Tualatin River at Farmington, Oregon	33.3	14206500	F-43
GALES	Gales Creek at Old Hwy 47 near Forest Grove, Oregon	2.36	14204530	F-14
GASO	Tualatin River at Gaston, Oregon	62.3	14202510	F-10
GCCH	Gales Creek at Clapshaw Hill Road near Gales Creek, Oregon	12.36	14204540	F-12
GCSR	Gales Creek at Stringtown Road	6.98	—	F-13
HCTP	Hedges Creek at Tualatin Community Park at Tualatin, Oregon	0.3	14206958	F-54
LOCS	Tualatin River at Oswego Canal near Lake Oswego, Oregon	6.7	14206990	F-57
JCDV	Johnson Creek at Davis Road	1.3	14206372	F-30
MCKN	McKay Creek at Northrup Road near North Plains, Oregon	15.5	14205980	F-20
MCKP	McKay Creek at Padgett Road	1.31	14206190	F-22
MCFE	McFee Creek at Hwy 219 near Scholls, Oregon	0.8	14206670	F-45
MCSC	McKay Creek at Scotch Church Road above Waible Ck near North Plains, Oregon	6.3	14206070	F-21
NEAL	Tualatin River at RM 24.5 near Scholls, Oregon	24.5	14206694	F-46
ODAM	Tualatin River at Oswego Dam near West Linn, Oregon	3.4	14207200	F-58
NJBR	North Johnson Creek at Butner Road	1.0	14206392	F-32
RCBL	Rock Creek below Bethany Lake	8.9	14206340	F-27
RCBR	Rock Creek at Brookwood Avenue, Hillsboro, Oregon	2.4	—	F-40
RCQR	Rock Creek at Quatama near Orenco, Oregon	4.9	14206347	F-28
RCRR	Rock Creek at Rock Creek Road near Bowers Junction, Oregon	15.8	14206305	F-26
RCTV	Rock Creek at Hwy 8 near Hillsboro, Oregon	1.2	14206450	F-41
ROOD	Tualatin River at Rood Bridge Road near Hillsboro, Oregon	38.4	14206295	F-25
SCBR	Saum Creek at Borland Road	0.6	—	F-56
SCHO	Sain Creek above Henry Hagg Lake near Gaston, Oregon	1.6	14202920	F-8
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-9
SCRL	Sylvan Creek at Raleighwood Lane near West Slope, Oregon	1.0	14206905	F-50
TRGC	Tualatin River at Golf Course Road near Cornelius, Oregon	51.5	14204800	F-15
TRJB	Tualatin River at Hwy 219 Bridge	44.4	14206241	F-24
TRLF	Tualatin River below Lee Falls near Cherry Grove, Oregon	70.7	14202450	F-4
TRT	Tualatin River at Tualatin, Oregon	8.9	14206956	F-55
WC143	Willow Creek at 143rd Avenue near Beaverton, Oregon	3.5	14206410	F-34
WCHP	Willow Creek at Heritage Parkway near Beaverton, Oregon	0.75	14206413	F-35
WFDE	West Fork Dairy Creek at Evers Road	1.96	14205160	F-17
WFDM	West Fork Dairy Creek at Manning, Oregon	12.9	—	F-16
WGAS	Wapato Creek at Gaston Road at Gaston, Oregon	—	14202650	F-6
WSLO	Tualatin River at West Linn	1.75	14207500	F-59

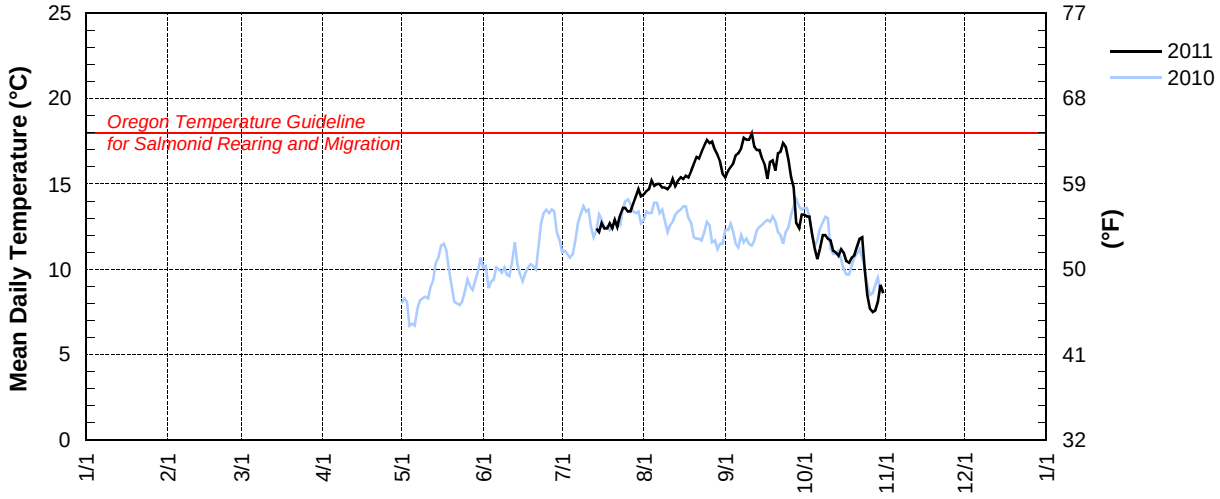
TRLF – 14202450 – TUALATIN RIVER BELOW LEE FALLS NEAR CHERRY GROVE, OREGON [RM 70.7]

Latitude: 45 30 21 Longitude: 123 13 06 Source Agency: WEST Consultants for Clean Water Services

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL*	AUG	SEP	OCT	NOV	DEC
1								14.4	15.4	13.2		
2								14.6	15.8	13.1		
3								14.7	16.0	13.1		
4								15.2	16.2	12.0		
5								14.9	16.7	11.2		
6								15.0	16.8	10.6		
7								15.0	17.1	11.2		
8								14.8	17.7	12.0		
9								14.8	17.6	12.0		
10								14.7	17.6	11.8		
11								14.9	18.0	11.7		
12								15.3	17.2	11.1		
13								14.9	17.0	11.0		
14							12.4	15.2	17.0	10.8		
15							12.2	15.4	16.5	11.2		
16							12.7	15.3	16.1	11.0		
17							12.4	15.5	15.3	10.5		
18							12.4	15.4	16.3	10.4		
19							12.7	15.8	16.4	10.7		
20							12.4	16.2	15.8	10.8		
21							12.9	16.6	16.8	11.3		
22							12.5	16.5	16.9	11.8		
23							13.2	16.9	17.4	11.9		
24							13.6	17.3	17.2	10.0		
25							13.6	17.6	16.4	8.5		
26							13.4	17.4	15.4	7.7		
27							13.4	17.5	14.8	7.5		
28							13.9	17.0	12.7	7.6		
29		—					14.3	16.7	12.4	8.1		
30		—					14.7	16.3	13.2	9.1		
31		—		—			14.3	15.6	—	8.6	—	
MEAN							13.2	15.7	16.2	10.7		
MAX							14.7	17.6	18.0	13.2		
MIN							12.2	14.4	12.4	7.5		

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

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

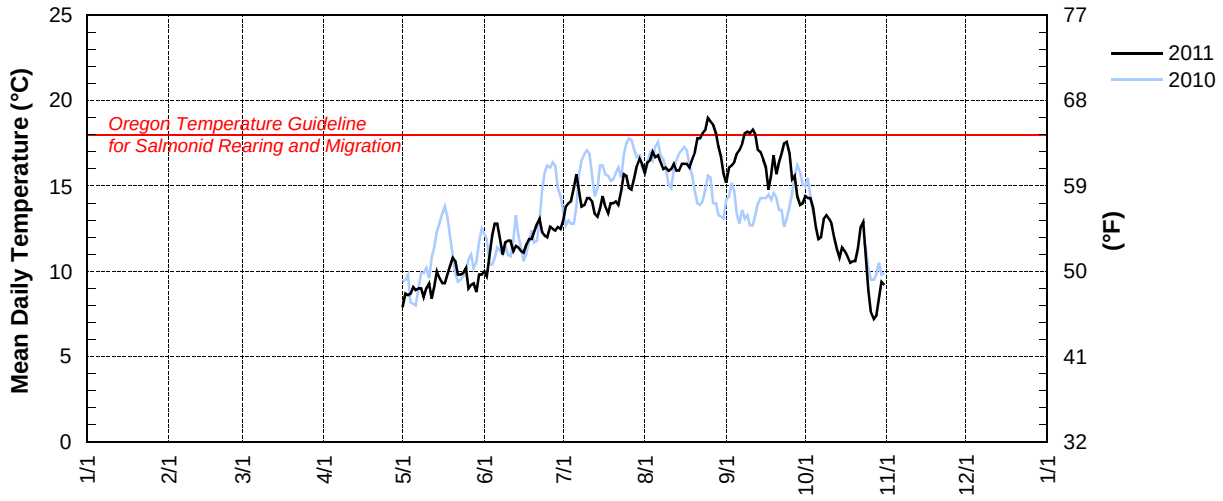


GASO– 14202510 – TUALATIN RIVER AT GASTON, OREGON [RM 62.3]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					7.9	10.0	13.0	15.8	15.2	14.4		
2					8.7	9.7	13.8	16.4	16.1	14.3		
3					8.6	10.9	14.0	16.5	16.2	14.3		
4					8.7	12.1	14.1	17.0	16.4	13.7		
5					9.1	12.8	14.9	16.7	16.9	12.6		
6					8.9	12.8	15.7	16.8	17.1	11.9		
7					9.0	11.8	14.8	16.4	17.5	12.0		
8					9.0	11.0	13.8	16.0	18.1	13.1		
9					8.5	11.7	13.9	16.1	18.2	13.3		
10					9.0	11.8	14.3	15.9	18.1	13.1		
11					9.3	11.8	14.3	16.0	18.3	12.8		
12					8.4	11.2	14.1	16.3	18.0	12.0		
13					9.1	11.5	13.4	15.9	17.1	11.3		
14					10.0	11.4	13.2	15.9	17.0	10.8		
15					9.6	11.2	13.7	16.3	16.6	11.4		
16					9.3	11.1	14.4	16.3	16.1	11.2		
17					9.3	11.6	13.8	16.3	14.8	10.9		
18					9.8	11.9	13.4	16.1	15.6	10.5		
19					10.3	11.9	14.0	16.6	16.8	10.6		
20					10.8	12.3	14.0	17.0	15.7	10.6		
21					10.6	12.8	14.1	17.8	16.4	11.3		
22					9.8	13.1	13.9	17.8	16.9	12.6		
23					9.8	12.3	14.7	18.1	17.5	12.9		
24					9.9	12.1	15.7	18.3	17.6	11.1		
25					10.2	12.0	15.6	19.0	16.9	8.9		
26					9.0	12.6	14.9	18.8	15.4	7.6		
27					9.2	12.5	14.8	18.6	15.6	7.2		
28					9.3	12.4	15.5	18.1	14.4	7.4		
29		—			8.8	12.6	16.2	17.3	13.9	8.4		
30		—			9.8	12.5	16.6	16.7	14.0	9.4		
31		—		—	9.8	—	16.3	15.7	—	9.2	—	
MEAN					9.3	11.8	14.5	16.9	16.5	11.4		
MAX					10.8	13.1	16.6	19.0	18.3	14.4		
MIN					7.9	9.7	13.0	15.7	13.9	7.2		

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



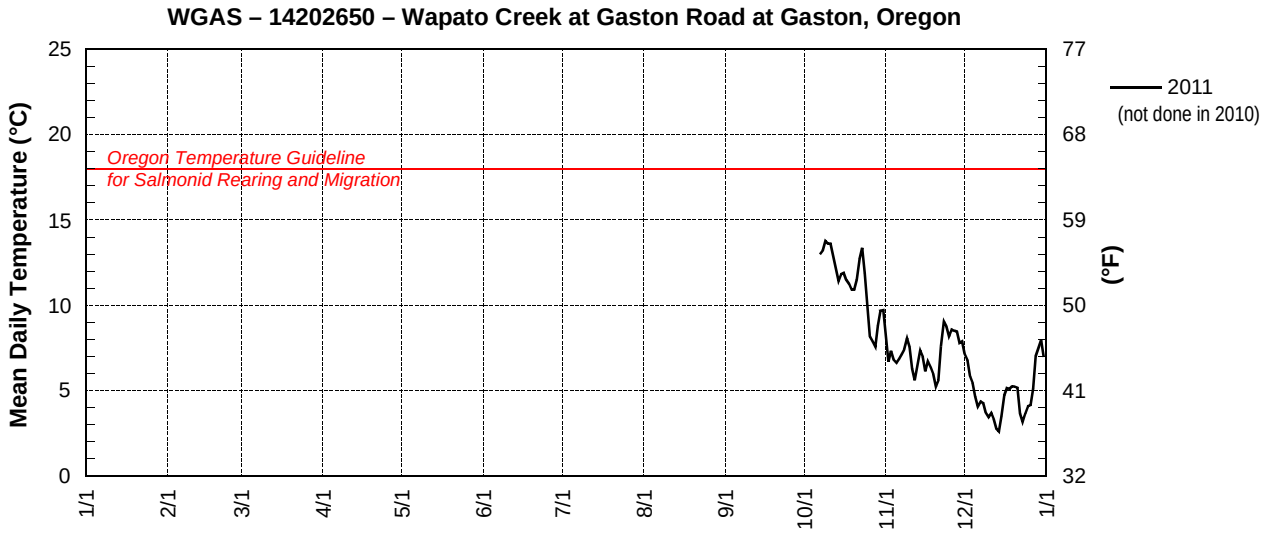
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

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

LATITUDE: 452626 LONGITUDE: 1230730

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT*	NOV	DEC
1											8.2	7.1
2											6.7	6.8
3											7.3	5.9
4											6.8	5.5
5											6.6	4.7
6											6.9	4.1
7											7.1	4.4
8										13.2	7.4	4.3
9										13.8	8.1	3.7
10										13.6	7.6	3.5
11										13.6	6.3	3.7
12										12.9	5.6	3.3
13										12.1	6.5	2.8
14										11.5	7.4	2.6
15										11.8	7.0	3.5
16										11.9	6.1	4.7
17										11.5	6.7	5.2
18										11.3	6.4	5.1
19										10.9	6.0	5.3
20										10.9	5.3	5.2
21										11.5	5.6	5.2
22										12.7	7.6	3.7
23										13.4	9.0	3.2
24										11.9	8.8	3.7
25										9.9	8.2	4.1
26										8.2	8.6	4.2
27										7.9	8.5	5.1
28										7.5	8.5	7.0
29		—								8.8	7.8	7.5
30		—								9.7	7.9	8.0
31		—		—		—			—	9.7	—	7.0
MEAN											7.2	4.8
MAX											9.0	8.0
MIN											5.3	2.6

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

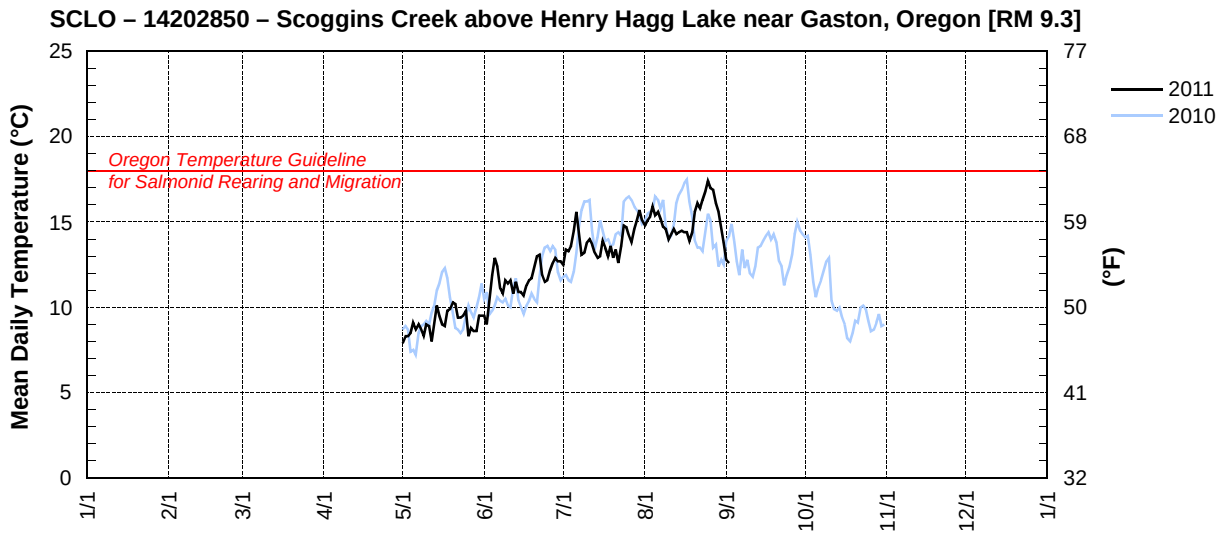


SCLO – 14202850 — SCOGGINS CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 9.3]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP*	OCT	NOV	DEC
1					7.9	9.5	12.5	14.8	12.8			
2					8.3	9.0	13.4	15.1	12.6			
3					8.3	10.6	13.3	15.3				
4					8.5	11.9	13.6	15.9				
5					9.1	12.9	14.5	15.4				
6					8.7	12.4	15.6	15.6				
7					9.0	11.1	14.4	15.2				
8					8.7	10.8	13.1	14.7				
9					8.3	11.6	13.2	14.6				
10					9.0	11.4	13.8	14.0				
11					8.9	11.6	14.0	14.3				
12					8.0	10.8	13.7	14.6				
13					9.1	11.5	13.2	14.3				
14					10.1	10.9	12.9	14.4				
15					9.5	10.9	13.0	14.5				
16					9.0	10.7	13.9	14.4				
17					8.9	11.3	13.5	14.4				
18					9.8	11.6	13.0	13.9				
19					9.9	11.7	13.6	14.4				
20					10.3	12.3	12.9	15.6				
21					10.2	13.0	13.4	16.1				
22					9.4	13.1	12.6	15.8				
23					9.4	11.9	13.6	16.3				
24					9.5	11.5	14.8	16.8				
25					9.8	11.6	14.7	17.4				
26					8.3	12.2	14.2	17.0				
27					8.8	12.6	13.8	16.9				
28					8.6	12.9	14.6	16.1				
29		—			8.6	12.7	15.1	15.6				
30		—			9.5	12.7	15.7	14.7				
31		—		—	9.5	—	15.1	13.8	—		—	
MEAN					9.1	11.6	13.8	15.2				
MAX					10.3	13.1	15.7	17.4				
MIN					7.9	9.0	12.5	13.8				

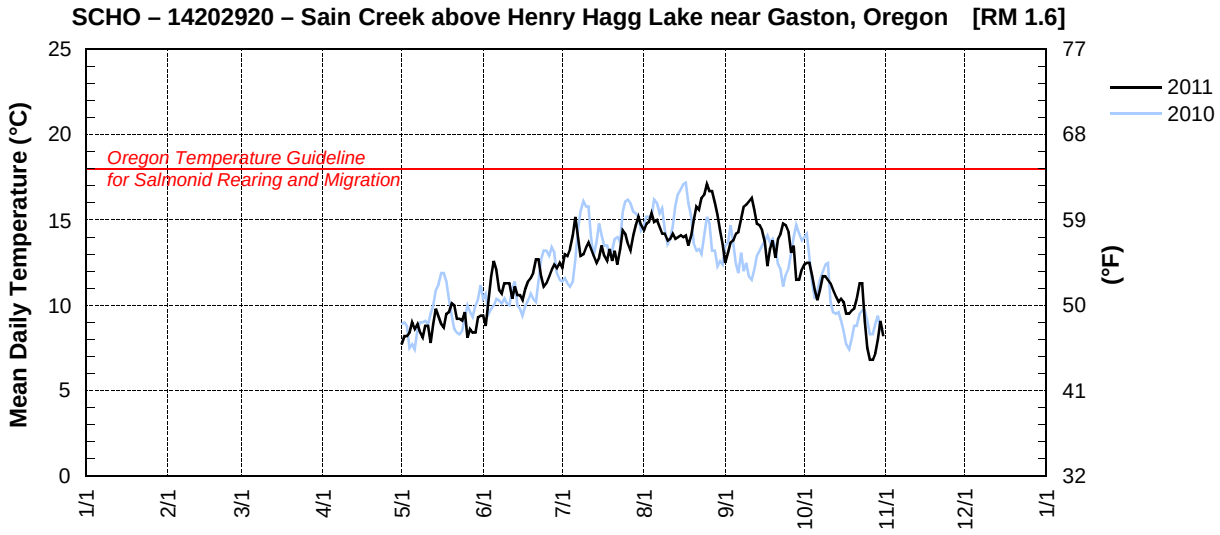
* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month)



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

Latitude: 45 28 50 Longitude: 123 14 40 Source Agency: WEST Consultants for Clean Water Services

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG*	SEP*	OCT*	NOV	DEC
1					7.7	9.4	12.2	14.4	12.5	12.4		
2					8.2	8.8	13.0	14.8	13.1	12.5		
3					8.2	10.4	12.9	14.9	13.7	12.5		
4					8.4	11.7	13.3	15.4	13.8	11.7		
5					9.0	12.6	14.1	14.9	14.2	10.9		
6					8.6	12.1	15.2	15.0	14.3	10.3		
7					8.9	10.9	14.0	14.6	15.1	10.9		
8					8.4	10.7	12.9	14.2	15.8	11.7		
9					8.1	11.3	13.0	14.2	15.9	11.7		
10					8.8	11.3	13.4	13.8	16.1	11.5		
11					8.8	11.3	13.7	13.9	16.3	11.3		
12					7.8	10.4	13.3	14.2	15.6	10.9		
13					8.9	11.1	12.9	13.9	14.8	10.5		
14					9.8	10.6	12.5	14.0	14.7	10.2		
15					9.4	10.6	12.8	14.1	14.4	10.4		
16					8.9	10.3	13.5	14.0	13.7	10.2		
17					8.7	11.0	12.9	14.1	12.3	9.5		
18					9.5	11.4	12.6	13.5	13.3	9.5		
19					9.6	11.6	13.3	14.1	13.8	9.7		
20					10.1	11.9	12.6	15.0	12.8	9.8		
21					10.0	12.7	13.2	15.8	13.9	10.4		
22					9.2	12.7	12.4	15.6	14.2	11.3		
23					9.2	11.7	13.3	16.3	14.8	11.3		
24					9.1	11.1	14.4	16.5	14.7	9.1		
25					9.6	11.3	14.2	17.1	14.3	7.5		
26					8.1	11.7	13.6	16.7	13.1	6.8		
27					8.6	12.1	13.2	16.7	13.5	6.8		
28					8.4	12.4	14.1	16.0	11.5	7.2		
29		—			8.4	12.2	14.7	15.3	11.5	8.0		
30		—			9.3	12.5	15.2	14.4	12.1	9.1		
31		—		—	9.4	—	14.7	13.6	—	8.2	—	
MEAN					8.9	11.3	13.5	14.9	14.0	10.1		
MAX					10.1	12.7	15.2	17.1	16.3	12.5		
MIN					7.7	8.8	12.2	13.5	11.5	6.8		



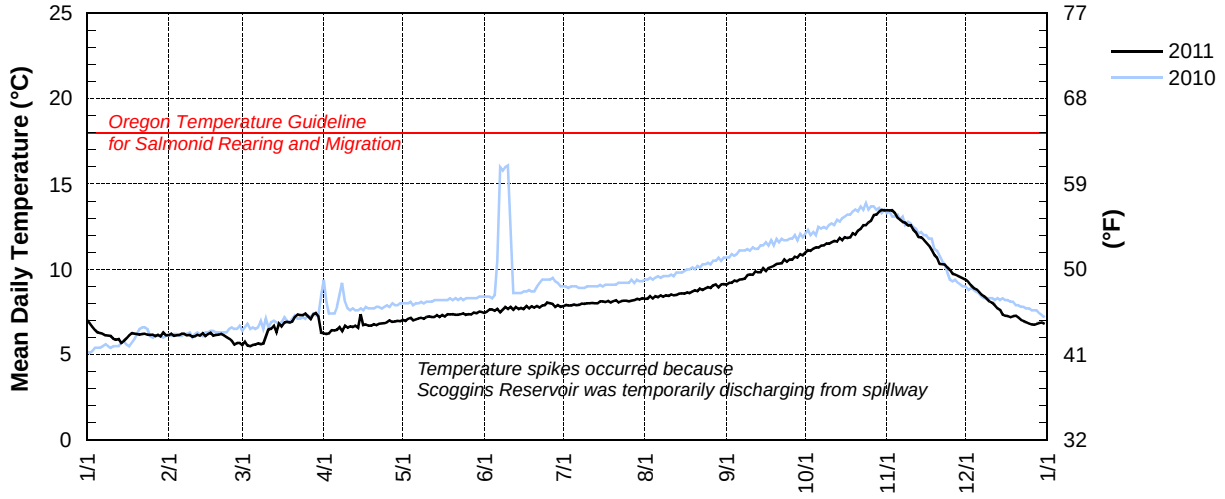
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

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

LATITUDE: 452810 LONGITUDE: 12311561

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7.1	6.1	5.6	6.3	7.0	7.4	7.8	8.3	9.1	11.0	13.5	9.4
2	6.9	6.2	5.8	6.2	7.0	7.5	7.9	8.3	9.2	11.1	13.5	9.3
3	6.7	6.1	5.5	6.2	7.1	7.7	7.9	8.4	9.2	11.1	13.5	9.1
4	6.5	6.1	5.5	6.4	7.2	7.7	7.9	8.3	9.3	11.2	13.3	8.9
5	6.3	6.2	5.6	6.4	7.0	7.6	8.0	8.4	9.3	11.3	13.0	8.8
6	6.3	6.2	5.6	6.4	7.1	7.7	7.9	8.4	9.4	11.3	12.9	8.7
7	6.2	6.2	5.7	6.6	7.1	7.5	7.9	8.5	9.4	11.4	12.8	8.5
8	6.1	6.1	5.6	6.4	7.2	7.6	8.0	8.4	9.5	11.4	12.7	8.4
9	6.1	6.2	5.7	6.7	7.1	7.8	8.0	8.5	9.7	11.5	12.6	8.3
10	6.1	6.0	6.0	6.6	7.2	7.7	8.0	8.5	9.7	11.5	12.6	8.1
11	6.0	6.1	6.5	6.7	7.2	7.8	8.0	8.5	9.7	11.6	12.3	8.1
12	5.9	6.2	6.5	6.6	7.2	7.6	8.0	8.5	9.9	11.7	12.2	7.9
13	5.9	6.1	6.7	6.7	7.2	7.8	8.0	8.5	9.8	11.6	11.9	7.7
14	5.7	6.3	6.3	6.6	7.3	7.7	8.0	8.6	9.8	11.8	11.9	7.6
15	5.8	6.1	6.8	7.4	7.2	7.8	8.1	8.6	10.1	11.7	11.8	7.4
16	6.0	6.2	6.7	6.7	7.3	7.7	8.1	8.6	9.9	11.9	11.6	7.3
17	6.1	6.3	6.9	6.8	7.2	7.8	8.1	8.7	10.1	11.8	11.4	7.3
18	6.3	6.1	6.9	6.7	7.4	7.7	8.2	8.6	10.1	11.9	11.1	7.2
19	6.2	6.2	6.9	6.7	7.4	7.8	8.1	8.7	10.2	12.1	10.9	7.3
20	6.2	6.2	6.9	6.8	7.4	7.8	8.1	8.8	10.3	12.0	10.7	7.3
21	6.2	6.2	7.2	6.7	7.3	7.9	8.2	8.7	10.3	12.3	10.3	7.2
22	6.2	6.2	7.4	6.8	7.3	7.8	8.1	8.9	10.4	12.4	10.3	7.0
23	6.2	6.0	7.3	6.8	7.4	7.9	8.1	8.8	10.6	12.6	10.3	7.0
24	6.2	6.0	7.3	6.8	7.4	7.9	8.2	8.9	10.4	12.6	10.1	6.9
25	6.2	5.8	7.4	6.9	7.3	8.0	8.2	9.0	10.6	12.8	10.0	6.8
26	6.2	5.6	7.3	7.0	7.4	8.0	8.1	8.9	10.6	12.8	9.7	6.8
27	6.1	5.7	7.1	6.9	7.4	8.0	8.2	9.1	10.8	13.2	9.7	6.8
28	6.2	5.7	7.4	7.0	7.5	7.8	8.2	9.1	10.7	13.2	9.6	6.8
29	6.1	—	7.4	7.0	7.4	7.9	8.3	9.0	10.9	13.4	9.5	6.9
30	6.3	—	7.3	7.0	7.5	7.8	8.3	9.1	10.8	13.5	9.5	6.9
31	6.1	—	6.3	—	7.5	—	8.3	9.1	—	13.5	—	6.8
MEAN	6.2	6.1	6.5	6.7	7.3	7.8	8.1	8.7	10.0	12.0	11.5	7.7
MAX	7.1	6.3	7.4	7.4	7.5	8.0	8.3	9.1	10.9	13.5	13.5	9.4
MIN	5.7	5.6	5.5	6.2	7.0	7.4	7.8	8.3	9.1	11.0	9.5	6.8

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

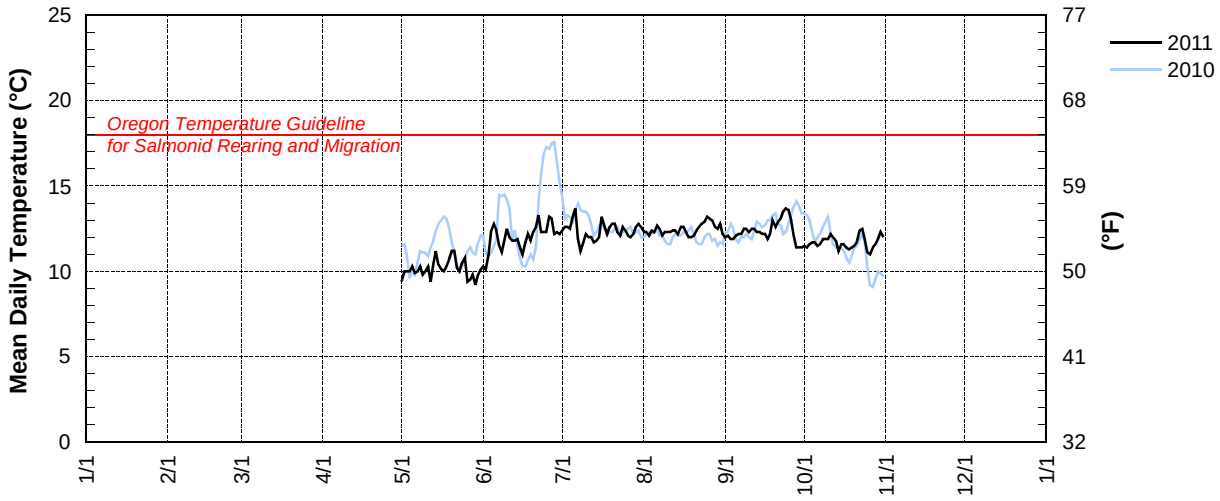


DLLO – 14203500 – TUALATIN RIVER AT DILLEY, OREGON [RM 58.8]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					9.4	10.3	12.4	12.3	12.0	11.5		
2					10.0	10.1	12.6	12.3	12.1	11.4		
3					10.0	11.0	12.6	12.1	11.9	11.6		
4					10.0	12.4	12.5	12.4	11.9	11.7		
5					10.3	12.8	13.2	12.3	12.1	11.7		
6					9.9	12.4	13.7	12.7	12.2	11.5		
7					10.0	11.5	11.9	12.5	12.2	11.6		
8					10.3	11.1	11.2	12.1	12.5	11.9		
9					9.8	11.8	11.7	12.3	12.5	11.9		
10					10.0	12.5	12.2	12.3	12.3	11.9		
11					10.3	12.0	12.0	12.3	12.5	12.2		
12					9.4	11.8	12.0	12.4	12.5	12.0		
13					10.4	11.8	11.7	12.4	12.3	11.8		
14					11.2	11.9	11.8	12.2	12.3	11.2		
15					10.4	11.4	12.0	12.6	12.2	11.6		
16					10.1	11.0	13.2	12.6	12.2	11.6		
17					10.0	11.7	12.7	12.3	11.9	11.4		
18					10.3	12.2	12.2	12.0	12.2	11.3		
19					10.7	11.8	12.6	12.0	13.0	11.4		
20					11.2	12.3	12.8	12.1	12.6	11.5		
21					11.2	12.6	12.8	12.4	12.9	11.7		
22					10.2	13.3	12.3	12.6	13.1	12.4		
23					10.0	12.3	12.1	12.8	13.5	12.5		
24					10.5	12.3	12.6	12.9	13.7	11.9		
25					10.8	12.3	12.4	13.2	13.6	11.1		
26					9.4	13.2	12.1	13.1	13.0	11.0		
27					9.5	13.1	12.0	13.0	12.1	11.4		
28					9.8	12.2	12.2	12.6	11.4	11.6		
29		—			9.2	12.3	12.6	12.5	11.4	11.9		
30		—			9.8	12.2	12.8	12.8	11.4	12.3		
31		—		—	10.1	—	12.6	12.2	—	12.0	—	
MEAN					10.1	12.0	12.4	12.5	12.4	11.7		
MAX					11.2	13.3	13.7	13.2	13.7	12.5		
MIN					9.2	10.1	11.2	12.0	11.4	11.0		

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

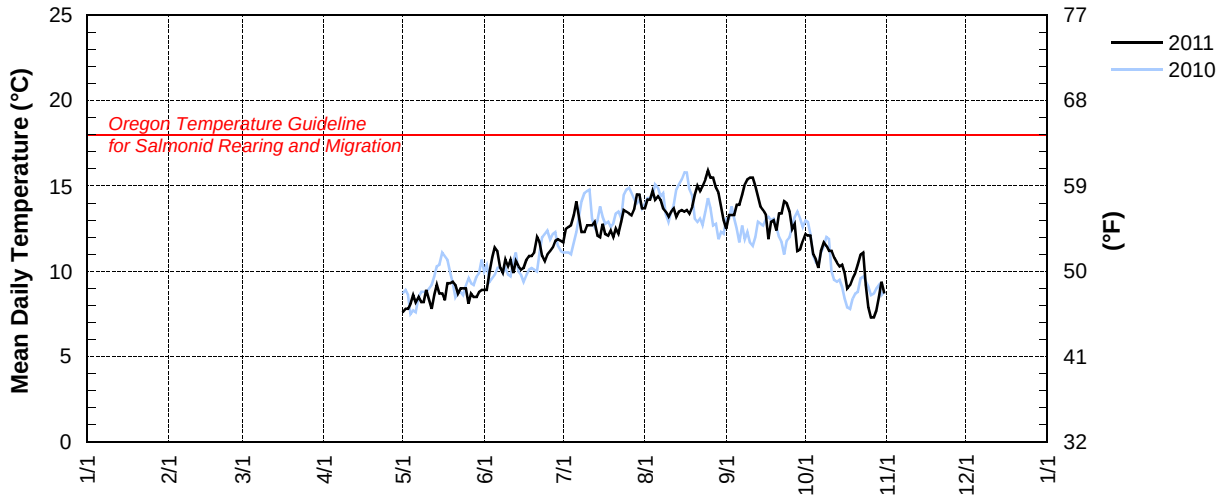


4550 – 14204550 – GALES CREEK ABOVE GLENWOOD, OREGON [RM 19.9]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					7.6	8.9	11.7	13.7	12.5	12.2		
2					7.8	8.9	12.5	14.2	13.3	12.1		
3					7.8	10.0	12.6	14.2	13.3	12.1		
4					8.1	10.8	12.7	14.7	13.3	11.0		
5					8.6	11.4	13.3	14.2	13.9	10.7		
6					8.2	11.2	14.1	14.4	13.9	10.2		
7					8.5	10.2	13.2	14.2	14.5	11.2		
8					8.2	9.9	12.3	13.7	15.1	11.7		
9					8.2	10.7	12.3	13.5	15.4	11.5		
10					8.9	10.3	12.7	13.2	15.5	11.2		
11					8.3	10.7	12.7	13.5	15.5	11.2		
12					7.8	9.9	12.7	13.7	15.0	10.8		
13					8.6	10.6	12.9	13.2	14.4	10.5		
14					9.2	10.3	12.1	13.5	13.8	10.3		
15					8.7	10.1	12.0	13.6	13.6	10.4		
16					8.7	10.2	12.8	13.5	13.3	9.9		
17					8.3	10.7	12.2	13.6	11.9	9.0		
18					9.3	10.9	12.1	13.4	12.9	9.2		
19					9.3	10.9	12.4	13.8	13.0	9.6		
20					9.4	11.1	12.0	14.5	12.4	9.9		
21					9.2	12.0	12.5	15.0	13.4	10.4		
22					8.7	11.7	12.2	14.7	13.4	11.0		
23					9.0	10.9	12.9	15.0	14.1	11.1		
24					9.0	10.6	13.6	15.4	14.0	9.2		
25					9.0	11.0	13.5	15.9	13.5	7.9		
26					8.1	11.2	13.4	15.5	12.5	7.3		
27					8.7	11.4	13.3	15.5	12.8	7.3		
28					8.5	11.8	13.7	14.9	11.2	7.7		
29		—			8.5	11.9	14.5	14.6	11.3	8.5		
30		—			8.8	11.8	14.5	13.8	11.8	9.4		
31		—		—	8.9	—	13.7	13.0	—	8.7	—	
MEAN					8.6	10.7	12.9	14.2	13.5	10.1		
MAX					9.4	12.0	14.5	15.9	15.5	12.2		
MIN					7.6	8.9	11.7	13	11.2	7.3		

14204550 – Gales Creek above Glenwood, Oregon [RM 19.9]

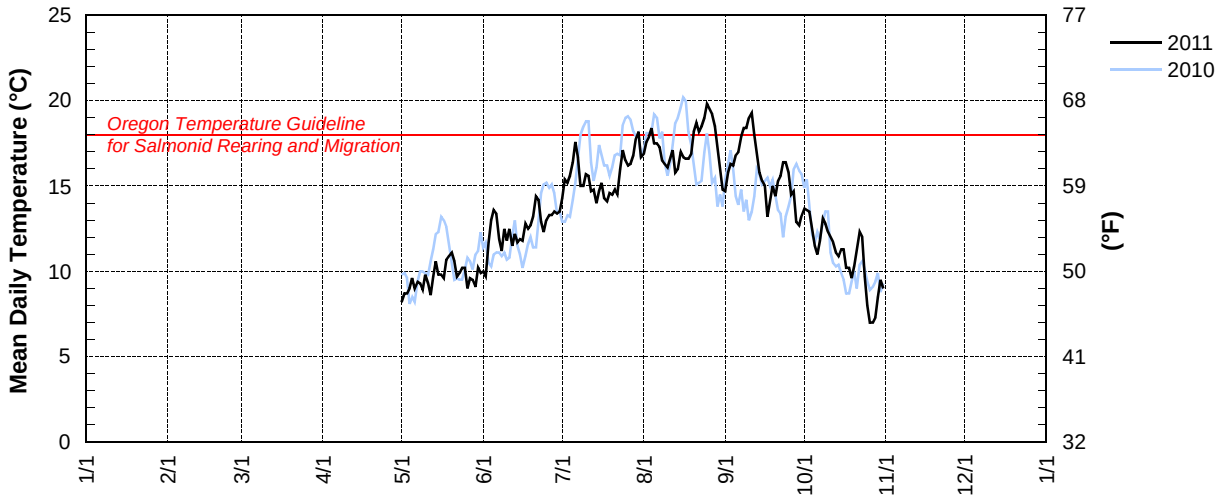


GCCH – 14204540 – GALES CREEK AT CLAPSHAW HILL ROAD NEAR GALES CREEK, OREGON [RM 12.36]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					8.2	10.0	14.3	16.9	14.7	13.7		
2					8.7	9.7	15.4	17.6	15.8	13.6		
3					8.7	11.7	15.2	17.9	16.3	13.5		
4					9.0	13.0	15.6	18.4	16.2	12.4		
5					9.6	13.6	16.4	17.5	16.8	11.5		
6					9.0	13.4	17.6	17.5	17.0	11.0		
7					9.4	11.9	16.7	17.3	17.9	11.8		
8					9.3	11.2	15.0	16.5	18.4	13.1		
9					8.9	12.5	15.0	16.3	18.4	12.8		
10					9.8	11.8	15.7	16.1	19.0	12.3		
11					9.3	12.5	15.6	16.6	19.3	12.0		
12					8.6	11.5	14.7	17.1	18.0	11.7		
13					9.7	12.2	14.8	15.8	16.9	11.1		
14					10.6	11.7	14.0	16.0	15.8	10.9		
15					9.8	11.9	14.7	17.0	15.3	11.3		
16					9.8	11.8	15.2	16.7	15.0	11.3		
17					9.6	12.8	14.3	16.6	13.2	10.2		
18					10.7	12.5	14.1	16.6	14.1	10.2		
19					10.9	12.7	14.6	16.9	15.0	9.6		
20					11.1	13.2	14.5	18.2	14.4	10.3		
21					10.6	14.4	14.8	18.7	15.3	11.3		
22					9.7	14.2	14.5	18.2	15.6	12.3		
23					9.9	12.9	16.0	18.5	16.4	12.0		
24					10.2	12.3	17.1	19.0	16.4	9.7		
25					10.2	13.0	16.5	19.8	15.8	8.0		
26					9.0	13.3	16.2	19.5	14.5	7.0		
27					9.6	13.3	16.3	19.2	14.7	7.0		
28					9.5	13.5	16.8	18.5	12.9	7.3		
29		—			9.1	13.4	17.8	17.3	12.7	8.5		
30		—			10.2	13.5	18.2	16.1	13.3	9.5		
31		—		—	9.9	—	16.7	14.8	—	9.0	—	
MEAN					9.6	12.5	15.6	17.4	15.8	10.8		
MAX					11.1	14.4	18.2	19.8	19.3	13.7		
MIN					8.2	9.7	14.0	14.8	12.7	7.0		

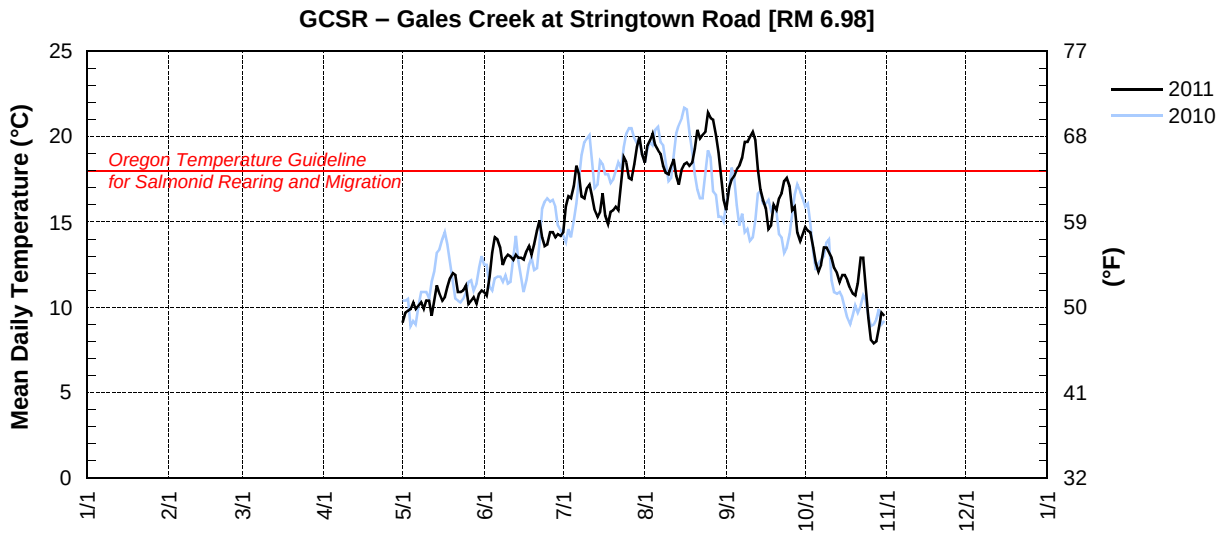
GCCH – 14204540 – Gales Creek at Clapshaw Hill Road near Gales Creek, Oregon [RM 12.36]



GCSR – GALES CREEK AT STRINGTOWN ROAD [RM 6.98]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					9.1	10.9	14.4	18.5	15.7	14.7		
2					9.7	10.7	15.9	19.5	17.0	14.5		
3					9.8	11.8	16.5	19.8	17.5	14.4		
4					9.9	13.2	16.4	20.2	17.7	13.5		
5					10.3	14.1	17.1	19.5	18.1	12.6		
6					9.9	14.0	18.3	19.2	18.3	12.1		
7					10.1	13.5	17.8	19.0	18.8	12.5		
8					10.3	12.5	16.5	18.3	19.7	13.5		
9					9.9	12.9	16.4	17.9	19.7	13.5		
10					10.4	13.1	17.0	17.8	20.0	13.2		
11					10.4	13.0	17.2	18.3	20.3	12.9		
12					9.5	12.8	16.5	18.7	19.8	12.3		
13					10.4	13.1	15.7	17.7	18.1	12.0		
14					11.3	12.9	15.3	17.2	16.9	11.5		
15					10.8	12.9	15.6	18.1	16.3	11.9		
16					10.4	12.8	16.7	18.4	15.8	11.9		
17					10.6	13.3	15.4	18.5	14.6	11.6		
18					11.2	13.6	14.9	18.3	14.8	11.1		
19					11.7	13.1	15.6	18.5	16.0	10.8		
20					12.0	13.7	15.7	19.3	15.7	10.7		
21					11.9	14.5	15.9	20.4	16.4	11.4		
22					10.9	15.1	15.7	19.9	16.7	12.9		
23					10.9	14.1	17.3	20.1	17.4	12.9		
24					11.0	13.6	18.8	20.3	17.6	11.2		
25					11.3	13.7	18.5	21.4	17.1	9.4		
26					10.2	14.4	17.6	21.1	15.7	8.1		
27					10.4	14.4	17.5	21.0	15.9	7.9		
28					10.6	14.1	18.4	20.1	14.4	8.0		
29		—			10.2	14.3	19.4	19.1	13.9	8.8		
30		—			10.8	14.2	20.0	17.6	14.3	9.7		
31		—		—	11.0	—	19.0	16.3	—	9.5	—	
MEAN					10.5	13.3	16.9	19.0	17.0	11.6		
MAX					12.0	15.1	20.0	21.4	20.3	14.7		
MIN					9.1	10.7	14.4	16.3	13.9	7.9		



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

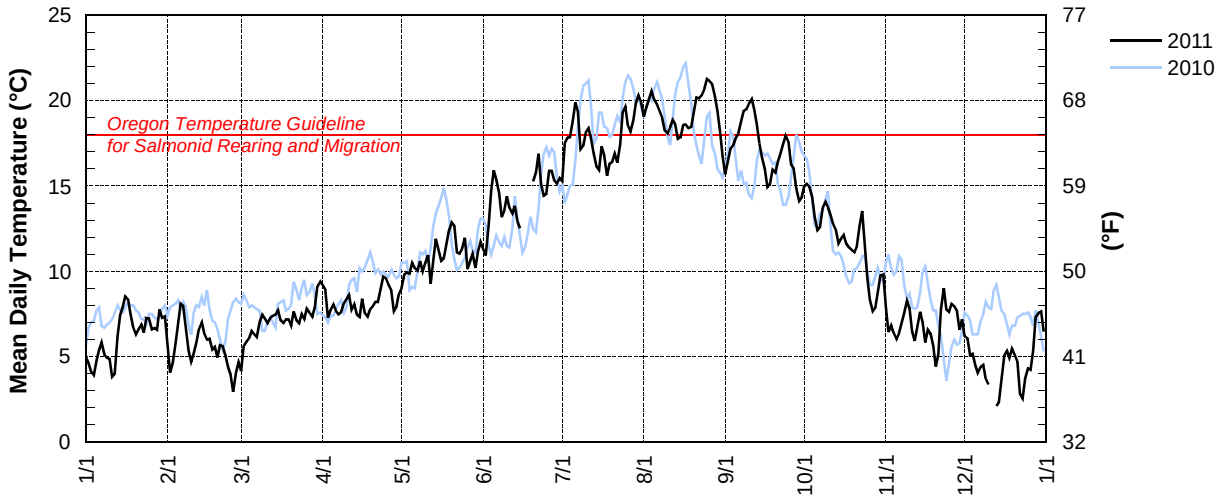
STATION NUMBER 453040123065201* GALES CREEK AT OLD HWY 47, FOREST GROVE, OR

LATITUDE: 453039.75 LONGITUDE: 1230652.0

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN*	JUL	AUG	SEP	OCT	NOV	DEC*
1	5.0	5.8	4.1	9.2	9.0	11.3	15.2	19.1	15.7	15.0	8.0	6.2
2	4.6	4.1	5.6	8.9	9.8	10.9	17.5	19.6	16.5	15.1	6.5	6.1
3	4.2	4.6	5.9	7.3	9.9	12.6	17.9	20.1	17.2	15.0	6.8	5.1
4	3.9	5.8	6.1	7.7	9.9	14.7	17.8	20.6	17.4	14.3	6.4	5.2
5	4.7	7.0	6.5	8.0	10.5	15.9	18.8	20.1	17.8	13.2	6.0	4.5
6	5.4	8.1	6.3	7.7	10.2	15.4	19.9	19.8	18.1	12.4	6.4	4.1
7	5.8	8.0	6.2	7.4	10.0	14.6	19.4	19.4	18.8	12.6	7.0	4.4
8	5.1	6.8	7.0	7.6	10.6	13.2	17.2	19.0	19.4	13.7	7.5	4.5
9	4.9	5.4	7.5	8.1	10.0	13.5	17.4	18.3	19.5	14.1	8.3	3.7
10	4.9	4.7	7.2	8.4	10.5	14.5	18.2	18.1	19.8	13.8	7.9	3.4
11	3.8	5.2	7.0	8.6	11.0	13.7	18.4	18.5	20.1	13.3	6.5	
12	4.0	5.8	7.2	7.8	9.3	13.4	17.8	18.9	19.5	12.8	5.9	
13	6.2	6.6	7.4	8.1	10.6	13.8	16.9	18.6	18.6	12.4	6.7	2.1
14	7.4	7.0	7.5	7.5	11.9	13.0	16.2	17.8	17.5	11.7	7.6	2.3
15	7.9	6.4	7.7	7.3	11.3	12.5	15.9	17.9	16.7	11.9	7.0	3.6
16	8.5	6.0	7.1	8.4	10.6		17.3	18.6	16.0	12.1	5.8	5.1
17	8.4	6.1	7.0	7.6	10.8		16.9	18.6	15.0	11.7	6.5	5.4
18	7.5	5.5	7.2	7.4	11.6		15.6	18.4	15.1	11.4	6.4	4.9
19	6.7	5.6	7.2	7.8	12.4		16.3	18.5	16.0	11.3	5.6	5.5
20	6.3	5.0	6.8	8.0	12.9	15.3	16.4	19.3	15.8	11.1	4.5	5.1
21	6.6	5.7	7.6	8.2	12.7	15.8	16.9	20.2	16.4	11.4	5.1	4.7
22	6.9	5.6	7.1	8.2	11.2	16.9	16.4	20.2	16.9	12.7	7.7	2.8
23	6.4	5.1	7.0	9.0	11.0	15.1	17.4	20.3	17.5	13.6	9.0	2.5
24	7.2	4.4	7.5	9.7	11.3	14.4	19.3	20.7	17.9	11.8	7.8	3.7
25	7.3	4.0	7.2	9.6	12.0	14.5	19.7	21.3	17.6	9.7	7.6	4.3
26	6.6	3.0	7.8	9.2	10.2	15.9	18.6	21.2	16.3	8.3	8.1	4.2
27	6.7	4.0	7.6	8.9	10.6	15.9	18.2	21.0	16.0	7.7	8.0	5.3
28	6.6	4.7	7.3	7.7	11.0	15.4	18.8	20.3	14.9	7.9	7.7	7.3
29	7.8	—	7.9	7.9	10.3	15.1	19.8	19.4	14.1	8.8	6.6	7.6
30	7.3	—	9.1	8.7	11.1	15.5	20.3	18.2	14.3	9.7	7.2	7.7
31	7.4	—	9.4	—	11.8	—	19.9	16.8	—	9.8	—	6.5
MEAN	6.2	5.6	7.1	8.2	10.8	14.3	17.8	19.3	17.1	11.9	6.9	4.7
MAX	8.5	8.1	9.4	9.7	12.9	16.9	20.3	21.3	20.1	15.1	9.0	7.7
MIN	3.8	3.0	4.1	7.3	9.0	10.9	15.2	16.8	14.1	7.7	4.5	2.1

* 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]



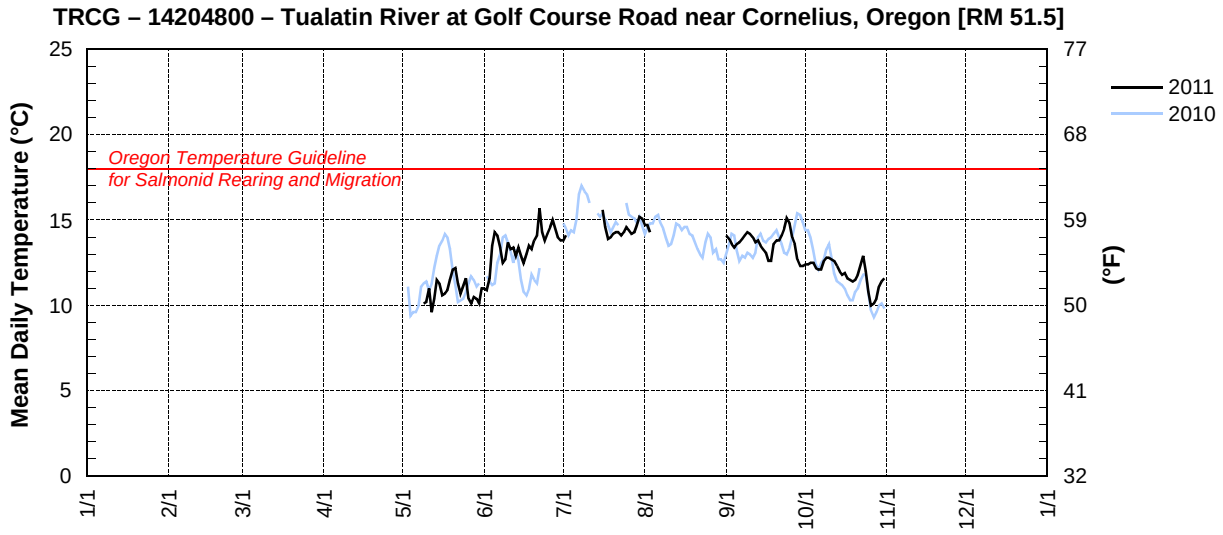
*USGS #453040123065201 is equivalent to OWRD #14204530.

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

Latitude: 45 30 39 Longitude: 123 06 56 Source Agency: WEST Consultants for Clean Water Services

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY*	JUN*	JUL*	AUG*	SEP	OCT	NOV	DEC
1						11.0	13.8	14.7	14.1**	12.4		
2						10.9	14.1**	14.7	13.9	12.4		
3						11.6		14.3**	13.6	12.5		
4						13.5			13.4	12.5		
5						14.3			13.6	12.2		
6						14.1			13.7	12.1		
7						13.4			13.9	12.1		
8						12.5			14.1	12.6		
9					10.1**	12.7			14.3	12.8		
10					10.2	13.7			14.2	12.8		
11					11.0	13.3			14.0	12.7		
12					9.6	13.4			13.7	12.6		
13					10.4	12.9			13.8	12.3		
14					11.5	13.4			13.5	12.0		
15					11.3	12.9			13.3	11.8		
16					10.6	12.5	15.6**		13.1	11.9		
17					10.7	13.0	14.6		12.6	11.6		
18					10.9	13.5	13.9		12.6	11.5		
19					11.5	13.3	14.0		13.6	11.4		
20					12.1	13.8	14.2		13.8	11.5		
21					12.2	14.1	14.3		13.8	11.8		
22					11.3	15.7	14.3		14.1	12.4		
23					10.7	14.3	14.1		14.5	12.9		
24					11.1	13.8	14.3		15.1	12.0		
25					11.6	14.2	14.6		14.8	10.8		
26					10.4	14.6	14.4		14.0	10.0		
27					10.1	15.0	14.2		13.6	10.1		
28					10.5	14.5	14.3		12.7	10.4		
29		—			10.4	14.0	14.7		12.3	11.1		
30		—			10.1	13.8	15.2		12.3	11.4		
31		—		—	11.0	—	15.1		—	11.6	—	
MEAN						13.5			13.7	11.9		
MAX						15.7			15.1	12.9		
MIN						10.9			12.3	10.0		

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

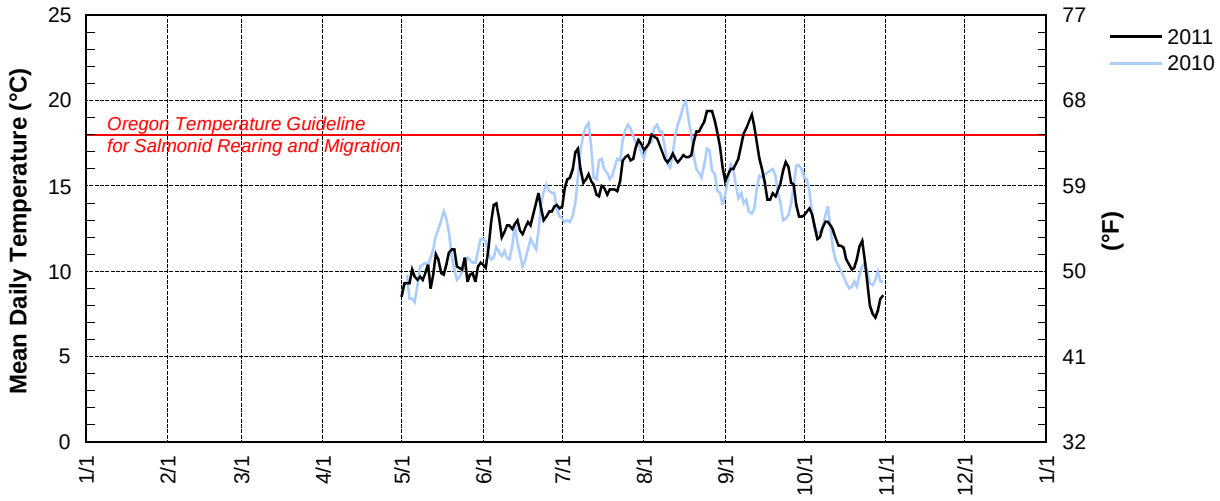


WFDM – WEST FORK DAIRY CREEK AT MANNING, OREGON [RM 12.9]

Latitude: 45 39 36 Longitude 123 09 18 Source Agency: WEST Consultants for Clean Water Services

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					8.5	10.4	13.8	17.1	15.3	13.3		
2					9.3	10.2	14.9	17.3	15.7	13.5		
3					9.3	11.4	15.4	17.5	16.0	13.7		
4					9.3	12.9	15.5	18.0	16.0	13.3		
5					10.1	13.9	16.0	17.9	16.3	12.6		
6					9.7	14.0	17.0	17.8	16.6	11.9		
7					9.5	13.1	17.2	17.4	17.4	12.0		
8					9.7	12.0	16.0	17.0	18.1	12.6		
9					9.5	12.3	15.2	16.6	18.4	12.9		
10					9.9	12.7	15.4	16.4	18.8	12.9		
11					10.4	12.7	15.7	16.6	19.2	12.7		
12					9.0	12.5	15.3	16.9	18.5	12.4		
13					9.8	12.8	15.1	16.6	17.6	11.9		
14					11.0	13.0	14.5	16.4	16.6	11.5		
15					10.7	12.4	14.4	16.6	16.0	11.5		
16					9.9	12.2	15.0	16.8	15.2	11.4		
17					9.8	12.6	14.9	16.7	14.2	10.7		
18					10.4	12.9	14.5	16.7	14.2	10.4		
19					11.1	12.7	14.8	16.8	14.6	10.1		
20					11.3	13.3	14.8	17.6	14.4	10.2		
21					11.3	14.0	14.8	18.2	14.8	10.7		
22					10.3	14.6	14.7	18.2	15.2	11.5		
23					10.2	13.7	15.3	18.5	15.9	11.8		
24					10.1	13.0	16.5	18.8	16.4	10.7		
25					10.8	13.2	16.7	19.4	16.1	9.3		
26					9.4	13.5	16.8	19.4	15.2	8.0		
27					9.8	13.5	16.5	19.4	15.1	7.5		
28					9.9	13.8	16.6	18.8	13.9	7.3		
29		—			9.4	13.9	17.3	18.1	13.2	7.7		
30		—			10.3	13.7	17.7	17.3	13.2	8.4		
31		—		—	10.5	—	17.5	16.1	—	8.6	—	
MEAN					10.0	12.9	15.7	17.5	15.9	11.1		
MAX					11.3	14.6	17.7	19.4	19.2	13.7		
MIN					8.5	10.2	13.8	16.1	13.2	7.3		

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

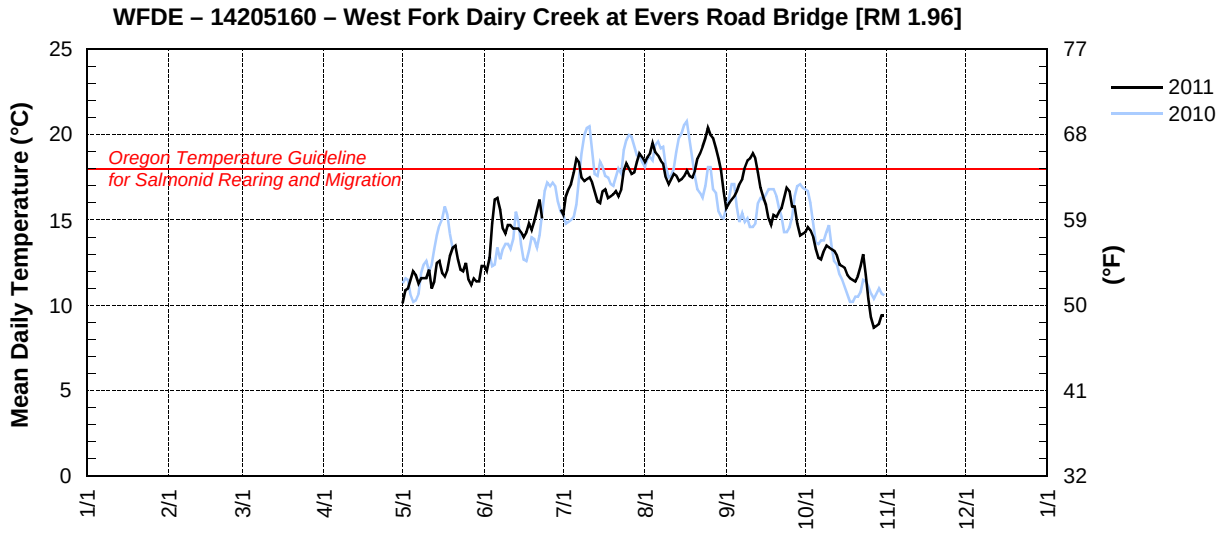


WFDE – 14205160 – WEST FORK DAIRY CREEK AT EVERS ROAD BRIDGE [RM 1.96]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN*	JUL	AUG	SEP	OCT	NOV	DEC
1					10.1	12.3	15.3	18.4	15.7	14.3		
2					10.9	12.0	16.4	18.7	16.0	14.6		
3					11.0	12.8	16.8	18.9	16.2	14.4		
4					11.5	14.8	17.1	19.5	16.4	14.0		
5					12.0	16.2	17.8	19.0	16.7	13.3		
6					11.8	16.3	18.6	18.8	17.1	12.8		
7					11.3	15.6	18.4	18.5	17.4	12.7		
8					11.6	14.5	17.5	18.3	18.1	13.2		
9					11.6	14.2	17.3	17.5	18.5	13.5		
10					11.6	14.7	17.4	17.1	18.6	13.4		
11					12.1	14.7	17.5	17.4	18.9	13.3		
12					11.0	14.5	17.2	17.7	18.6	13.2		
13					11.4	14.5	16.7	17.6	17.8	12.9		
14					12.5	14.5	16.1	17.3	16.9	12.4		
15					12.6	14.3	16.0	17.4	16.4	12.3		
16					11.9	14.0	16.7	17.6	15.9	12.2		
17					11.7	14.3	16.8	17.9	15.1	11.8		
18					12.1	14.8	16.3	17.6	14.7	11.6		
19					12.9	14.4	16.4	17.5	15.3	11.5		
20					13.4	14.9	16.5	17.9	15.2	11.4		
21					13.5	15.6	16.7	18.6	15.5	11.7		
22					12.7	16.2	16.4	18.9	15.7	12.3		
23					12.1	15.1**	16.8	19.3	16.3	13.0		
24					12.0		17.9	19.8	16.9	11.8		
25					12.5		18.3	20.4	16.7	10.4		
26					11.5		18.0	20.0	15.8	9.3		
27					11.2		17.7	19.8	15.8	8.7		
28					11.6		17.8	19.2	14.8	8.8		
29		—			11.4		18.4	18.6	14.1	8.9		
30		—			11.4	15.6**	18.9	17.9	14.2	9.4		
31		—		—	12.3	—	18.7	16.7	—	9.4	—	
MEAN					11.8	14.6	17.2	18.4	16.4	12.0		
MAX					13.5	16.3	18.9	20.4	18.9	14.6		
MIN					10.1	12.0	15.3	16.7	14.1	8.7		

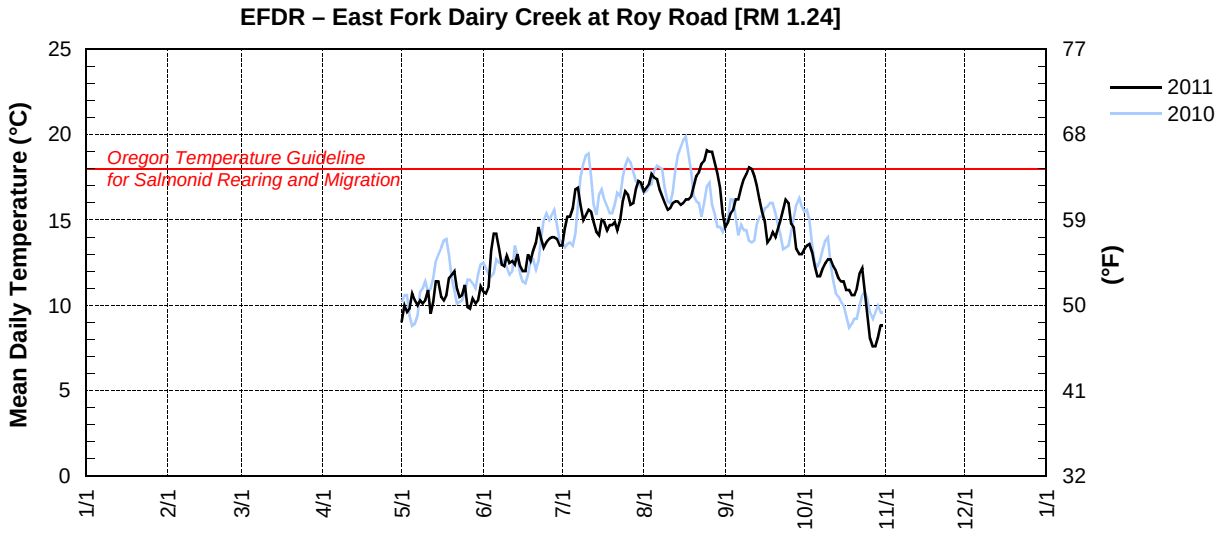
* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month); **Mean daily value based on incomplete record



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

Latitude: 45 34 43 Longitude: 123 04 14 Source Agency: WEST Consultants for Clean Water Services

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					9.0	10.8	13.5	16.7	14.6	13.3		
2					10.0	10.7	14.5	16.9	14.9	13.5		
3					9.6	11.1	15.2	17.1	15.4	13.6		
4					9.8	13.2	15.2	17.7	15.6	13.1		
5					10.7	14.2	15.7	17.5	16.2	12.3		
6					10.3	14.2	16.8	17.4	16.2	11.7		
7					10.0	13.3	16.9	16.8	16.9	11.7		
8					10.3	12.4	15.9	16.4	17.4	12.2		
9					10.1	12.3	15.0	16.0	17.7	12.5		
10					10.3	12.9	15.3	15.6	18.1	12.7		
11					10.9	12.5	15.6	15.7	18.0	12.7		
12					9.5	12.6	15.5	16.0	17.6	12.3		
13					10.2	12.4	14.9	16.1	17.0	12.0		
14					11.4	13.0	14.3	16.1	16.2	11.6		
15					11.4	12.3	14.1	15.9	15.5	11.4		
16					10.5	12.0	15.0	16.0	14.9	11.4		
17					10.3	12.0	14.9	16.2	13.7	10.9		
18					10.6	13.0	14.4	16.2	13.9	10.9		
19					11.6	12.6	14.7	16.4	14.3	10.6		
20					11.8	13.2	14.7	17.0	14.0	10.6		
21					12.0	13.7	14.9	17.6	14.5	11.0		
22					11.0	14.6	14.4	17.8	15.0	11.9		
23					10.5	13.9	15.0	18.3	15.6	12.2		
24					10.6	13.4	16.1	18.5	16.2	10.8		
25					11.2	13.7	16.7	19.1	16.0	9.4		
26					9.9	13.9	16.5	19.0	14.8	8.1		
27					9.8	14.0	15.9	19.0	14.6	7.6		
28					10.4	14.0	16.0	18.3	13.3	7.6		
29		—			10.1	13.9	16.8	17.7	13.0	8.1		
30		—			10.3	13.5	17.3	16.9	13.0	8.8		
31		—		—	11.1	—	17.2	15.4	—	8.8	—	
MEAN					10.5	13.0	15.4	17.0	15.5	11.1		
MAX					12.0	14.6	17.3	19.1	18.1	13.6		
MIN					9.0	10.7	13.5	15.4	13.0	7.6		

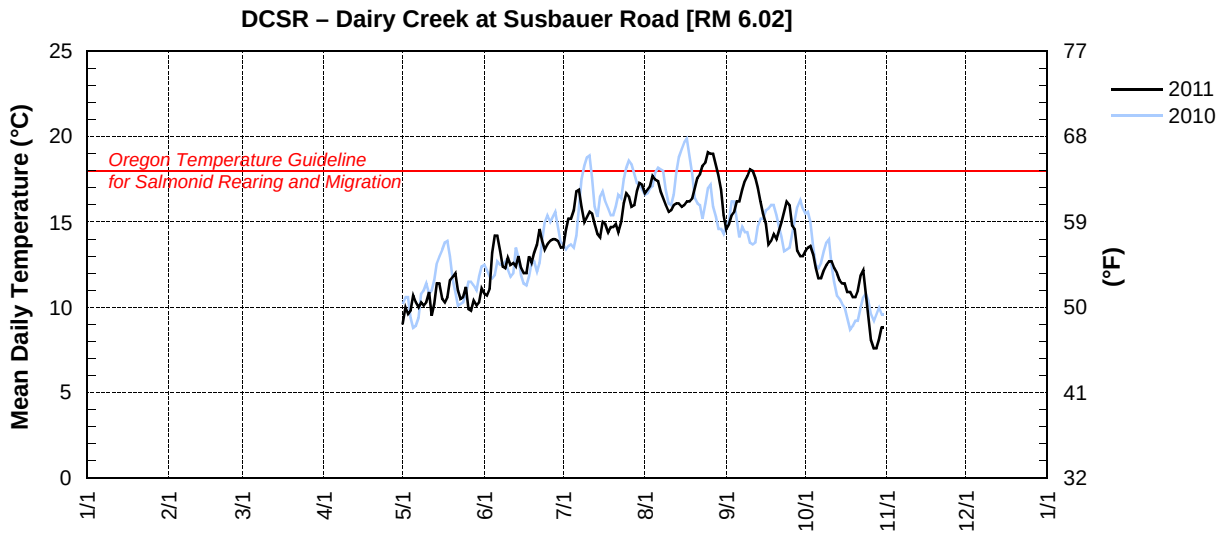


DCSR – DAIRY CREEK AT SUSBAUER ROAD [RM 6.02]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN*	JUL	AUG	SEP	OCT	NOV	DEC
1					9.8	11.7	14.4	17.7	15.3	13.8		
2					10.6	11.4	15.2	17.8	15.6	13.9		
3					10.6	11.8	15.9	18.0	15.9	14.0		
4					10.9	13.6	16.1	18.5	16.2	13.6		
5					11.5	15.0	16.6	18.3	16.5	12.9		
6					11.4	15.3	17.6	18.1	16.8	12.3		
7					10.9	14.7	17.6	17.8	17.2	12.4		
8					11.2	13.7	16.6	17.3	18.0	12.8		
9					11.1	13.2**	16.2	16.9	18.2	13.0		
10					11.2		16.4	16.5	18.5	13.0		
11					11.6		16.5	16.6	18.6	13.1		
12					10.7		16.3	16.9	18.2	13.0		
13					10.9		16.0	16.8	17.5	12.5		
14					11.9		15.3	16.7	16.9	12.1		
15					12.2		15.2	16.8	16.3	12.0		
16					11.4		15.7	16.9	15.6	11.8		
17					11.3		15.8	16.9	14.5	11.4		
18					11.4		15.5	16.8	14.4	11.2		
19					12.3		15.5	16.9	15.0	11.2		
20					12.8		15.6	17.4	14.6	11.1		
21					12.9		15.9	18.3	14.9	11.3		
22					12.2		15.5	18.4	15.4	12.0		
23					11.5		15.8	18.8	15.9	12.6		
24					11.3		16.8	19.2	16.5	11.7		
25					11.8		17.2	19.7	16.5	10.1		
26					11.0		17.2	19.7	15.4	9.0		
27					10.5		16.8	19.6	15.2	8.3		
28					10.9		17.0	19.0	14.3	8.1		
29		—			10.9		17.6	18.1	13.6	8.5		
30		—			10.8	14.6**	18.2	17.4	13.6	9.1		
31		—		—	11.6	—	18.0	16.3	—	9.2	—	
MEAN					11.3		16.3	17.7	16.0	11.6		
MAX					12.9		18.2	19.7	18.6	14.0		
MIN					9.8		14.4	16.3	13.6	8.1		

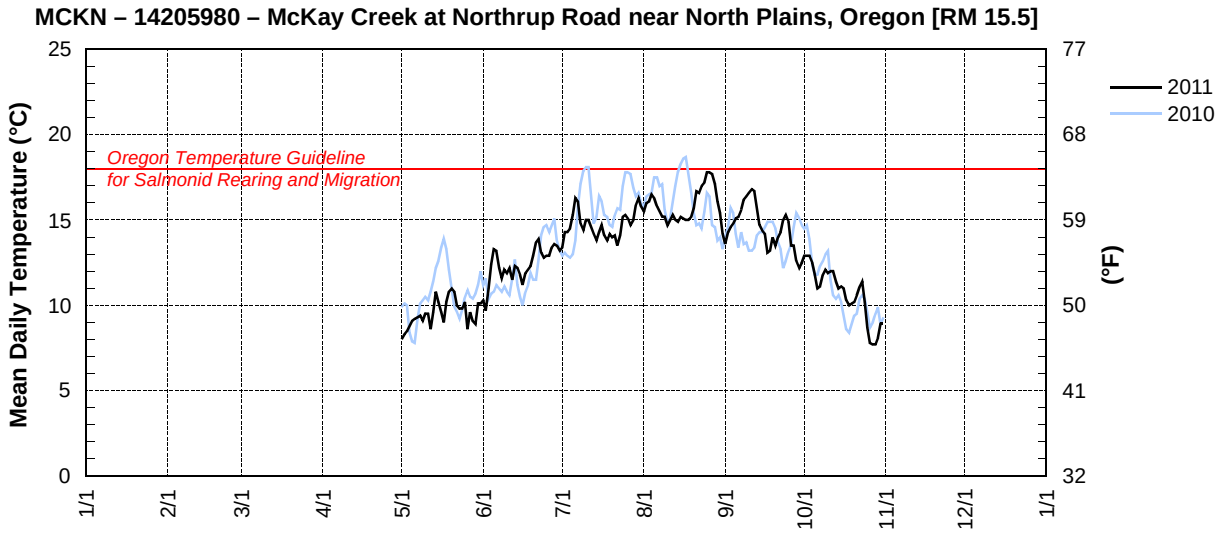
* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month); **Mean daily value based on incomplete record



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

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

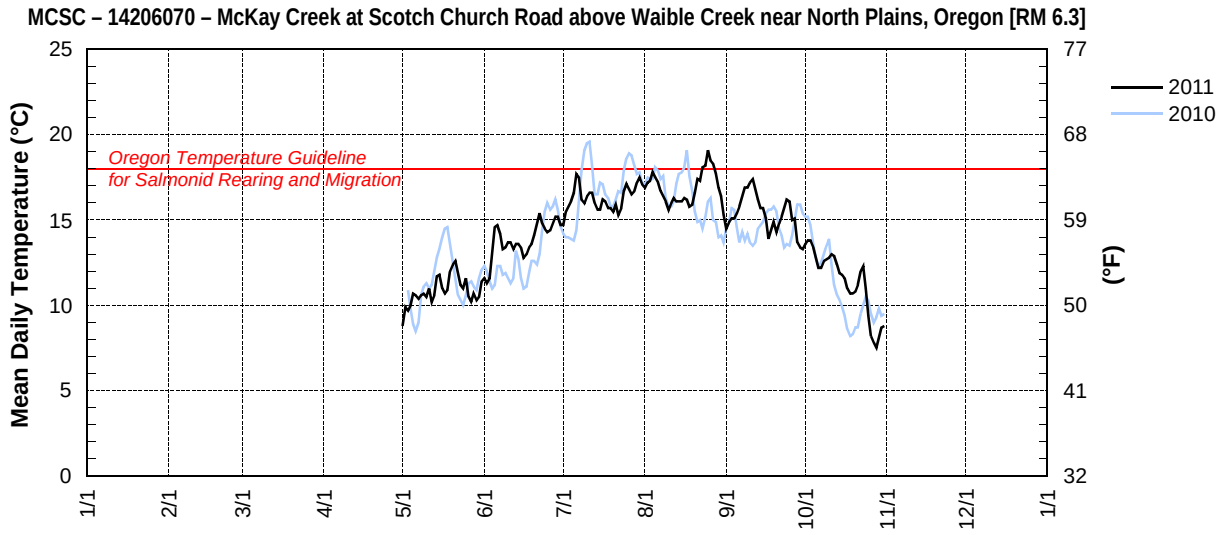
Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					8.0	10.3	13.4	15.5	13.6	12.9		
2					8.3	9.7	14.3	16.0	14.3	12.9		
3					8.5	11.0	14.3	16.1	14.6	12.9		
4					8.8	12.4	14.5	16.5	14.8	12.5		
5					9.1	13.3	15.3	16.3	15.1	11.8		
6					9.2	13.2	16.3	15.8	15.2	11.0		
7					9.3	12.2	16.1	15.5	15.6	11.1		
8					9.4	11.6	14.8	15.2	16.2	11.8		
9					9.1	12.1	14.4	15.2	16.4	12.1		
10					9.5	11.9	15.0	14.7	16.6	11.9		
11					9.5	12.2	15.0	15.0	16.8	12.0		
12					8.6	11.5	14.6	15.3	16.7	12.0		
13					9.6	12.3	14.2	15.0	15.7	11.4		
14					10.8	12.2	13.8	14.9	14.7	11.0		
15					10.2	11.8	14.3	15.2	14.4	11.1		
16					9.6	11.2	14.7	15.1	14.2	11.0		
17					9.0	11.9	14.1	15.0	13.1	10.3		
18					10.2	12.1	13.8	15.0	13.2	10.0		
19					10.8	12.3	14.2	15.2	14.0	10.1		
20					11.0	12.9	14.0	15.7	13.5	10.2		
21					10.8	13.7	14.1	16.7	14.0	10.6		
22					10.0	13.9	13.5	16.6	14.3	11.1		
23					9.8	13.1	14.1	17.0	15.0	11.4		
24					9.8	12.8	15.2	17.2	15.3	10.2		
25					10.2	12.9	15.3	17.8	14.9	8.7		
26					8.6	12.9	15.1	17.8	13.5	7.8		
27					9.6	13.4	14.7	17.7	13.5	7.7		
28					9.1	13.6	15.0	17.1	12.6	7.7		
29		—			8.9	13.5	15.9	16.1	12.2	8.1		
30		—			10.1	13.2	16.3	15.4	12.5	8.9		
31		—		—	10.1	—	15.8	14.2	—	8.9	—	
MEAN					9.5	12.4	14.7	15.9	14.6	10.7		
MAX					11.0	13.9	16.3	17.8	16.8	12.9		
MIN					8.0	9.7	13.4	14.2	12.2	7.7		



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

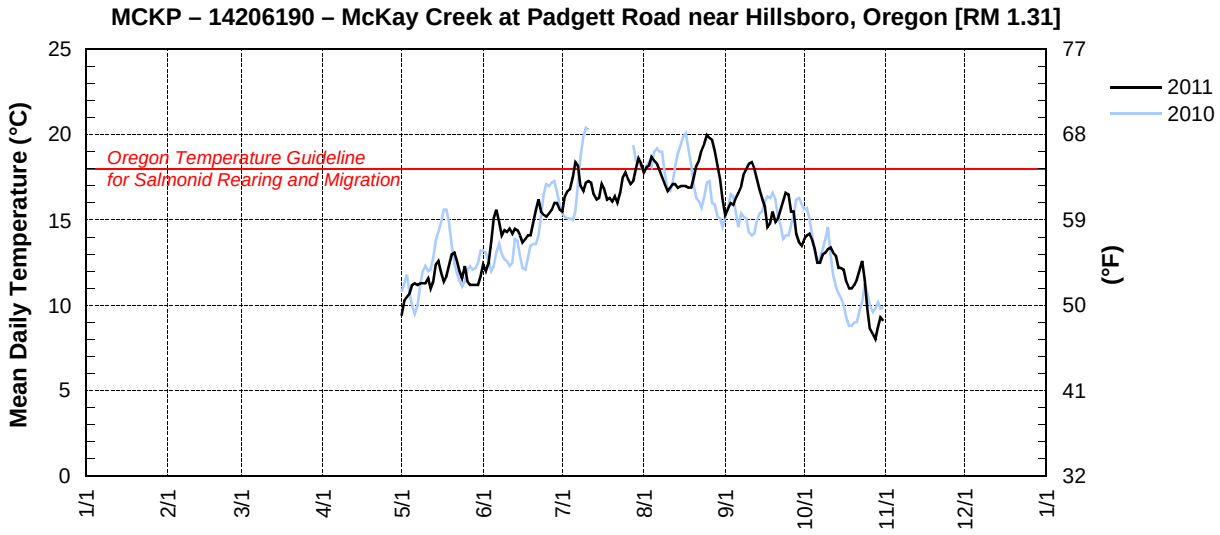
Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					8.8	11.6	14.7	16.9	14.5	13.6		
2					9.9	11.3	15.5	17.2	14.9	13.8		
3					9.7	11.6	15.8	17.3	15.1	13.8		
4					10.0	13.2	16.1	17.8	15.1	13.4		
5					10.7	14.6	16.6	17.5	15.4	12.8		
6					10.6	14.7	17.7	17.2	15.8	12.2		
7					10.4	14.2	17.5	16.7	16.4	12.2		
8					10.6	13.3	16.2	16.4	16.9	12.6		
9					10.7	13.4	16.0	16.1	16.9	12.7		
10					10.5	13.7	16.4	15.6	17.2	12.8		
11					11.0	13.7	16.6	16.0	17.4	13.0		
12					10.2	13.3	16.6	16.3	16.8	12.9		
13					10.6	13.6	16.0	16.1	16.2	12.4		
14					11.7	13.6	15.6	16.1	15.7	11.9		
15					11.8	13.4	15.6	16.1	15.7	11.8		
16					11.0	12.8	16.2	16.3	15.1	11.6		
17					10.7	13.0	16.1	16.2	13.9	11.0		
18					10.9	13.4	15.7	15.8	14.4	10.7		
19					12.0	13.6	15.7	15.9	14.9	10.7		
20					12.4	14.1	15.5	16.6	14.3	10.8		
21					12.6	14.8	15.9	17.4	14.8	11.2		
22					11.9	15.4	15.3	17.3	15.2	12.0		
23					11.2	14.8	15.7	18.1	15.7	12.3		
24					11.0	14.5	16.7	18.2	16.2	11.0		
25					11.6	14.3	17.1	19.1	16.1	9.4		
26					10.5	14.4	16.8	18.5	15.0	8.2		
27					10.2	14.8	16.5	18.3	15.1	7.8		
28					10.7	15.2	16.7	17.7	13.7	7.5		
29		—			10.3	15.2	17.2	16.9	13.4	8.1		
30		—			10.5	14.7	17.5	16.4	13.3	8.7		
31		—		—	11.4	—	17.1	15.3	—	8.8	—	
MEAN					10.8	13.8	16.3	16.9	15.4	11.3		
MAX					12.6	15.4	17.7	19.1	17.4	13.8		
MIN					8.8	11.3	14.7	15.3	13.3	7.5		



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	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					9.4	12.4	15.5	17.8	15.3	13.9		
2					10.3	12.0	16.4	18.1	15.7	14.1		
3					10.5	12.5	16.7	18.2	16.0	14.2		
4					10.7	13.7	16.8	18.7	15.9	13.8		
5					11.2	15.1	17.5	18.5	16.3	13.3		
6					11.3	15.6	18.4	18.3	16.6	12.5		
7					11.2	14.9	18.2	17.9	17.0	12.5		
8					11.3	14.1	17.0	17.5	17.7	13.0		
9					11.3	14.4	16.7	17.1	18.0	13.1		
10					11.3	14.3	17.2	16.7	18.3	13.3		
11					11.6	14.5	17.3	16.9	18.4	13.4		
12					11.0	14.2	17.2	17.1	18.0	13.1		
13					11.4	14.5	16.5	17.1	17.4	12.9		
14					12.4	14.4	16.2	16.9	16.8	12.2		
15					12.6	14.1	16.3	17.0	16.3	12.2		
16					11.9	13.7	17.1	17.0	15.8	12.1		
17					11.4	13.9	16.8	17.0	14.6	11.4		
18					11.7	14.1	16.2	16.9	14.8	11.0		
19					12.3	14.1	16.3	16.9	15.5	11.0		
20					13.0	14.8	16.1	17.5	14.9	11.2		
21					13.1	15.6	16.4	18.2	15.1	11.5		
22					12.6	16.2	16.0	18.5	15.6	12.1		
23					12.0	15.5	16.6	19.1	16.1	12.6		
24					11.6	15.3	17.5	19.5	16.6	11.5		
25					12.3	15.2	17.8	20.0	16.5	9.8		
26					11.4	15.4	17.4	19.8	15.5	8.6		
27					11.2	15.6	17.1	19.7	15.5	8.3		
28					11.2	16.0	17.3	19.0	14.2	8.0		
29					11.2	16.0	18.0	18.2	13.7	8.7		
30		—			11.2	15.6	18.6	17.4	13.5	9.3		
31		—		—	11.7	—	18.3	16.2	—	9.1	—	
MEAN					11.5	14.6	17.0	17.9	16.1	11.7		
MAX					13.1	16.2	18.6	20.0	18.4	14.2		
MIN					9.4	12.0	15.5	16.2	13.5	8.0		



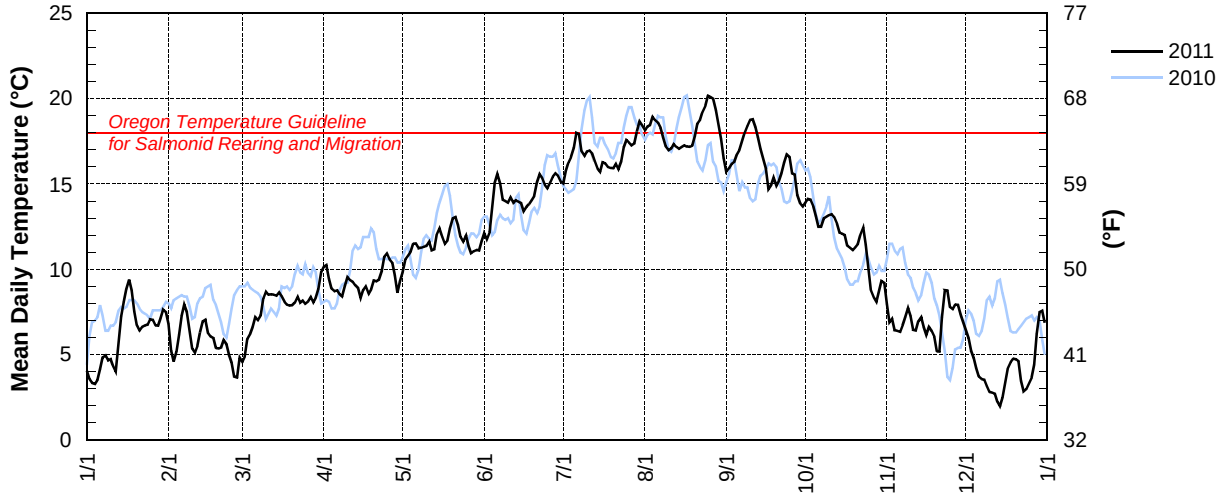
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

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

LATITUDE: 453113.40 LONGITUDE: 1230035.31

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	4.1	6.8	4.6	10.2	9.8	12.1	15.0	18.2	15.7	13.9	8.0	6.5
2	3.6	5.3	4.9	10.3	10.6	11.8	15.8	18.4	15.9	14.1	6.9	6.0
3	3.3	4.6	5.9	9.5	10.8	12.2	16.3	18.5	16.2	14.1	7.1	5.3
4	3.3	5.2	6.2	8.9	11.0	13.5	16.6	18.9	16.3	13.7	6.5	4.8
5	3.5	6.2	6.6	8.7	11.5	15.1	17.1	18.7	16.7	13.1	6.4	4.2
6	4.1	7.3	7.2	8.8	11.5	15.6	18.0	18.6	17.0	12.5	6.4	3.7
7	4.8	7.9	7.0	8.5	11.2	15.0	18.0	18.3	17.5	12.5	6.7	3.6
8	5.0	7.5	7.3	8.4	11.3	14.1	16.9	17.8	18.0	13.0	7.2	3.5
9	4.7	6.4	8.3	9.0	11.3	14.0	16.7	17.2	18.4	13.1	7.7	3.2
10	4.7	5.4	8.7	9.6	11.4	13.9	16.9	17.0	18.8	13.2	7.3	2.8
11	4.3	5.1	8.5	9.4	11.6	14.2	17.0	17.1	18.8	13.2	6.5	2.8
12	4.0	5.5	8.5	9.3	11.1	13.9	16.8	17.3	18.4	13.1	6.4	2.7
13	5.6	6.3	8.5	9.1	11.2	14.0	16.4	17.2	17.8	12.7	6.9	2.3
14	7.2	6.9	8.5	8.9	12.1	14.0	15.9	17.1	17.1	12.2	7.2	2.0
15	8.1	7.1	8.7	8.3	12.4	13.9	15.7	17.2	16.5	12.1	6.6	2.5
16	8.8	6.3	8.4	8.8	11.9	13.4	16.3	17.3	15.9	12.0	6.2	3.4
17	9.4	6.1	8.1	9.0	11.5	13.7	16.2	17.3	14.7	11.4	6.6	4.2
18	8.8	6.0	7.9	8.6	11.7	13.8	16.0	17.2	14.9	11.3	6.4	4.6
19	7.6	5.4	7.9	8.8	12.4	14.0	15.9	17.2	15.4	11.1	6.1	4.8
20	6.7	5.4	7.9	9.3	13.0	14.3	15.9	17.8	14.9	11.3	5.2	4.7
21	6.4	5.4	8.0	9.3	13.1	15.1	16.2	18.5	15.2	11.5	5.2	4.6
22	6.6	5.9	8.4	9.4	12.6	15.6	15.9	18.8	15.7	12.1	7.2	3.5
23	6.7	5.6	8.1	9.9	11.9	15.3	16.3	19.2	16.3	12.5	8.8	2.9
24	6.8	5.0	8.2	10.7	11.6	15.0	17.2	19.6	16.7	11.5	8.8	3.0
25	7.1	4.6	8.0	11.0	12.0	14.8	17.6	20.2	16.6	10.1	7.8	3.3
26	7.0	3.7	8.1	10.6	11.4	15.1	17.4	20.1	15.7	8.8	7.7	3.7
27	6.7	3.7	8.4	10.4	11.0	15.4	17.3	20.0	15.6	8.4	7.9	4.4
28	6.7	4.8	8.1	9.7	11.1	15.6	17.4	19.3	14.4	8.1	7.9	6.2
29	7.1	—	8.3	8.6	11.2	15.5	18.1	18.5	13.9	8.7	7.4	7.5
30	7.6	—	8.8	9.3	11.1	15.2	18.7	17.7	13.7	9.3	6.9	7.6
31	7.5	—	9.9	—	11.6	—	18.5	16.6	—	9.2	—	6.9
MEAN	6.1	5.8	7.8	9.3	11.5	14.3	16.8	18.1	16.3	11.7	7.0	4.2
MAX	9.4	7.9	9.9	11.0	13.1	15.6	18.7	20.2	18.8	14.1	8.8	7.6
MIN	3.3	3.7	4.6	8.3	9.8	11.8	15.0	16.6	13.7	8.1	5.2	2.0

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

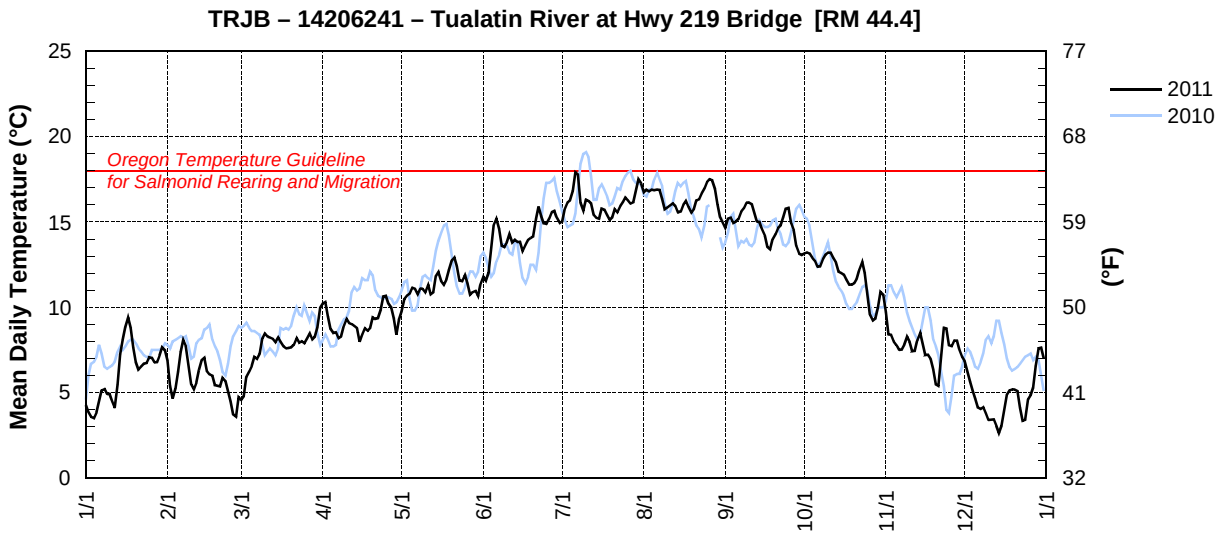


*USGS #453113123003501 is equivalent to OWRD #14206200.

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	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	4.3	6.9	4.6	10.3	9.8	11.8	15.0	16.8	14.7	13.2	9.7	6.8
2	3.8	5.4	4.8	10.3	10.5	11.6	15.8	16.9	15.2	13.2	8.4	6.2
3	3.6	4.7	5.9	9.5	10.7	12.0	16.1	16.8	15.3	13.2	8.4	5.6
4	3.5	5.3	6.2	8.7	10.8	13.4	16.3	16.9	14.9	12.9	8.0	5.1
5	3.8	6.2	6.6	8.5	11.2	14.9	16.8	16.9	15.0	12.7	7.8	4.7
6	4.5	7.4	7.1	8.5	11.1	15.2	17.9	16.9	15.2	12.4	7.5	4.2
7	5.1	8.1	7.0	8.2	10.8	14.6	17.8	16.9	15.6	12.4	7.5	4.1
8	5.2	7.7	7.3	8.3	11.1	13.6	16.1	16.4	15.8	12.8	7.8	4.1
9	4.9	6.5	8.2	8.9	11.1	13.6	15.7	15.8	16.1	13.1	8.3	3.8
10	4.9	5.5	8.5	9.3	10.9	13.8	16.3	15.9	16.2	13.2	8.0	3.4
11	4.5	5.2	8.3	9.1	11.3	14.3	16.2	16.0	16.1	13.2	7.4	3.4
12	4.1	5.6	8.2	9.0	10.8	13.8	16.1	16.1	15.5	12.9	7.5	3.4
13	5.5	6.3	8.2	8.9	10.9	14.0	15.4	15.9	15.0	12.6	8.1	3.1
14	7.2	6.9	8.0	8.8	11.8	13.8	15.2	15.6	15.0	12.1	8.5	2.6
15	8.1	7.1	8.2	8.0	12.1	13.9	15.2	15.6	14.6	12.0	7.9	3.1
16	8.8	6.3	8.0	8.4	11.5	13.3	15.8	16.0	14.2	11.9	7.2	4.1
17	9.4	6.1	7.7	8.8	11.3	13.7	15.7	16.2	13.5	11.6	7.2	4.9
18	8.8	6.0	7.6	8.6	11.6	14.0	15.4	15.9	13.4	11.3	7.0	5.1
19	7.7	5.4	7.6	8.8	12.2	14.1	15.1	15.5	14.0	11.3	6.4	5.2
20	6.8	5.4	7.7	9.4	12.8	14.2	15.3	15.8	14.3	11.4	5.5	5.2
21	6.4	5.4	7.8	9.3	12.9	15.2	15.8	16.3	14.7	11.7	5.4	5.1
22	6.5	5.9	8.2	9.4	12.4	15.9	15.6	16.3	14.8	12.3	7.0	4.1
23	6.7	5.7	7.9	9.9	11.6	15.4	16.0	16.7	15.3	12.7	8.8	3.4
24	6.7	5.1	8.0	10.6	11.5	14.9	16.2	17.0	15.8	12.0	8.8	3.4
25	7.1	4.5	7.9	10.7	11.9	14.9	16.4	17.4	15.8	10.7	7.8	4.6
26	7.0	3.7	8.2	10.2	11.4	15.2	16.3	17.5	14.9	9.6	7.7	4.9
27	6.8	3.6	8.5	10.0	10.8	15.6	16.1	17.5	14.5	9.2	8.0	5.3
28	6.8	4.7	8.1	9.3	10.9	15.7	16.2	17.0	13.6	9.3	8.1	6.6
29	7.2	—	8.3	8.4	11.0	15.2	16.8	16.0	13.1	10.0	7.5	7.6
30	7.7	—	8.8	9.3	10.7	14.9	17.5	15.3	13.1	10.9	7.1	7.6
31	7.5	—	10.0	—	11.4	—	17.3	15.0	—	10.7	—	7.0
MEAN	6.2	5.8	7.7	9.2	11.3	14.2	16.1	16.3	14.8	11.9	7.7	4.8
MAX	9.4	8.1	10.0	10.7	12.9	15.9	17.9	17.5	16.2	13.2	9.7	7.6
MIN	3.5	3.6	4.6	8.0	9.8	11.6	15.0	15.0	13.1	9.2	5.4	2.6

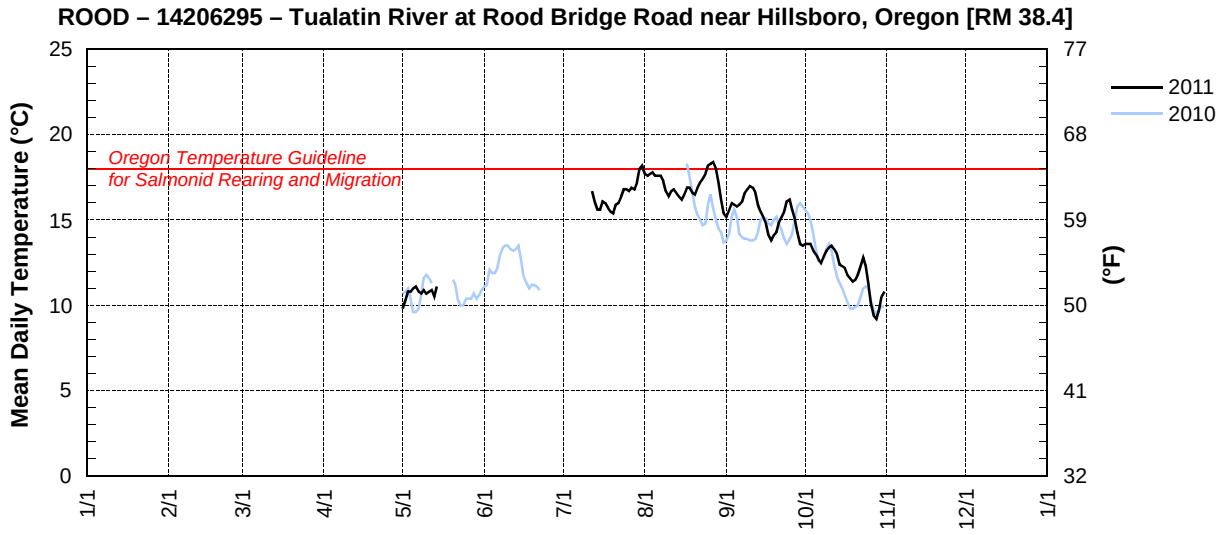


ROOD – 14206295 – TUALATIN RIVER AT ROOD BRIDGE ROAD NEAR HILLSBORO, OREGON [RM 38.4]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY*	JUN*	JUL*	AUG	SEP	OCT	NOV	DEC
1					9.8			17.7	15.2	13.6		
2					10.3			17.6	15.6	13.6		
3					10.8			17.7	16.0	13.6		
4					10.8			17.8	15.9	13.2		
5					11.0			17.6	15.8	13.0		
6					11.1			17.6	15.9	12.7		
7					10.8			17.6	16.1	12.5		
8					10.7			17.3	16.6	12.9		
9					10.9			16.7	16.8	13.2		
10					10.7			16.4	17.0	13.4		
11					10.8			16.7	16.9	13.5		
12					10.9		16.7**	16.8	16.6	13.3		
13					10.5		16.1	16.6	15.9	13.0		
14					11.1**		15.6	16.4	15.5	12.4		
15							15.6	16.2	15.2	12.3		
16							16.1	16.5	14.8	12.2		
17							16.0	16.9	14.1	11.8		
18							15.7	16.9	13.8	11.6		
19							15.5	16.6	14.1	11.4		
20							15.4	16.5	14.3	11.5		
21							15.9	16.9	14.9	11.8		
22							16.0	17.2	15.2	12.3		
23							16.4	17.4	15.5	12.8		
24							16.8	17.7	16.1	12.3		
25							16.8	18.2	16.2	11.3		
26							16.7	18.3	15.6	10.1		
27							16.9	18.4	15.1	9.4		
28							16.8	18.0	14.3	9.2		
29		—					17.2	17.2	13.6	9.7		
30		—					18.0	16.2	13.5	10.5		
31		—		—		—	18.2	15.4	—	10.8	—	
MEAN								17.1	15.4	12.1		
MAX								18.4	17.0	13.6		
MIN								15.4	13.5	9.2		

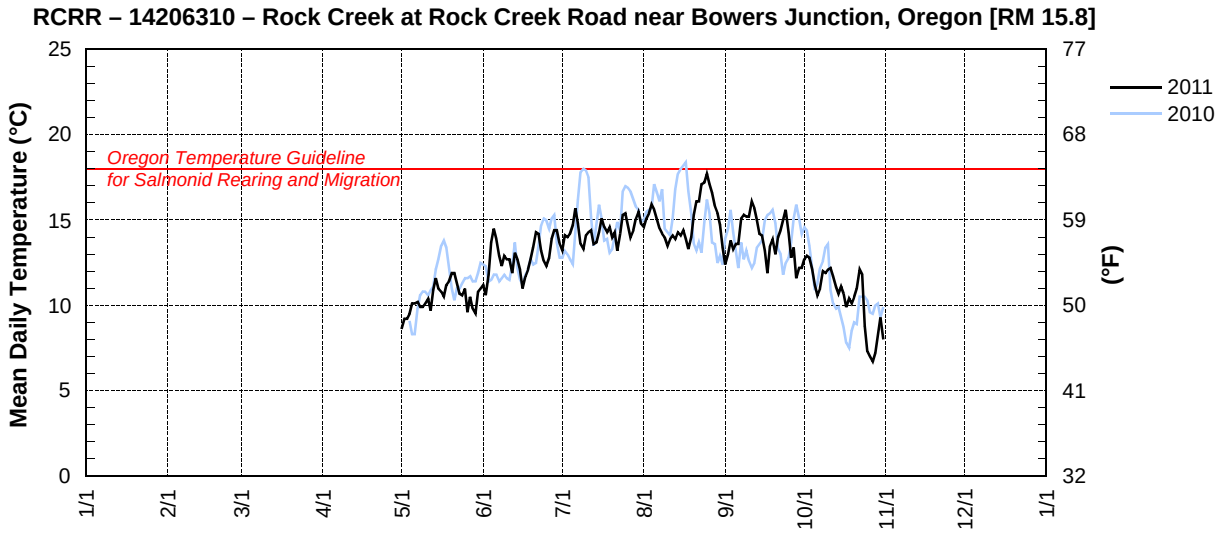
* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month); **Mean daily value based on incomplete record



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	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					8.6	11.2	13.2	14.6	12.4	12.7		
2					9.2	10.6	14.1	15.1	13.0	12.9		
3					9.2	11.8	14.0	15.4	13.8	12.8		
4					9.5	13.7	14.2	15.9	13.3	12.1		
5					10.1	14.5	14.7	15.6	13.6	11.2		
6					10.1	13.9	15.7	15.0	13.6	10.6		
7					10.2	12.9	14.8	14.5	15.1	11.0		
8					9.9	12.3	13.6	14.2	15.3	12.0		
9					9.9	12.9	13.3	14.0	15.2	11.9		
10					10.1	12.7	14.1	13.5	15.2	12.1		
11					10.4	12.7	14.3	13.9	16.1	12.2		
12					9.7	11.9	14.4	14.1	15.7	11.7		
13					10.9	13.1	13.6	13.9	15.0	11.1		
14					11.6	12.7	13.7	14.3	14.2	10.7		
15					11.0	12.1	14.3	14.1	14.1	11.1		
16					10.8	11.0	15.1	14.4	13.2	10.7		
17					10.5	11.7	14.6	13.9	11.9	9.9		
18					11.2	12.1	14.3	13.3	13.5	10.4		
19					11.4	12.7	14.6	14.0	13.9	10.1		
20					11.9	13.4	14.0	15.3	13.0	10.5		
21					11.9	14.3	14.3	16.1	14.0	11.0		
22					11.3	14.2	13.2	16.1	14.4	12.1		
23					10.7	13.2	14.2	17.1	15.0	11.8		
24					10.6	12.6	15.3	17.2	15.6	8.8		
25					11.0	12.3	15.4	17.7	14.3	7.3		
26					9.6	12.8	14.7	17.1	12.8	7.0		
27					10.5	13.9	14.0	16.6	13.4	6.7		
28					9.8	14.4	14.4	15.8	11.6	7.2		
29		—			9.5	14.4	15.1	15.4	12.2	8.2		
30		—			10.8	13.6	15.5	14.7	12.2	9.3		
31		—		—	11.0	—	14.8	13.4	—	8.0		
MEAN					10.4	12.9	14.4	15.0	13.9	10.5		
MAX					11.9	14.5	15.7	17.7	16.1	12.9		
MIN					8.6	10.6	13.2	13.3	11.6	6.7		

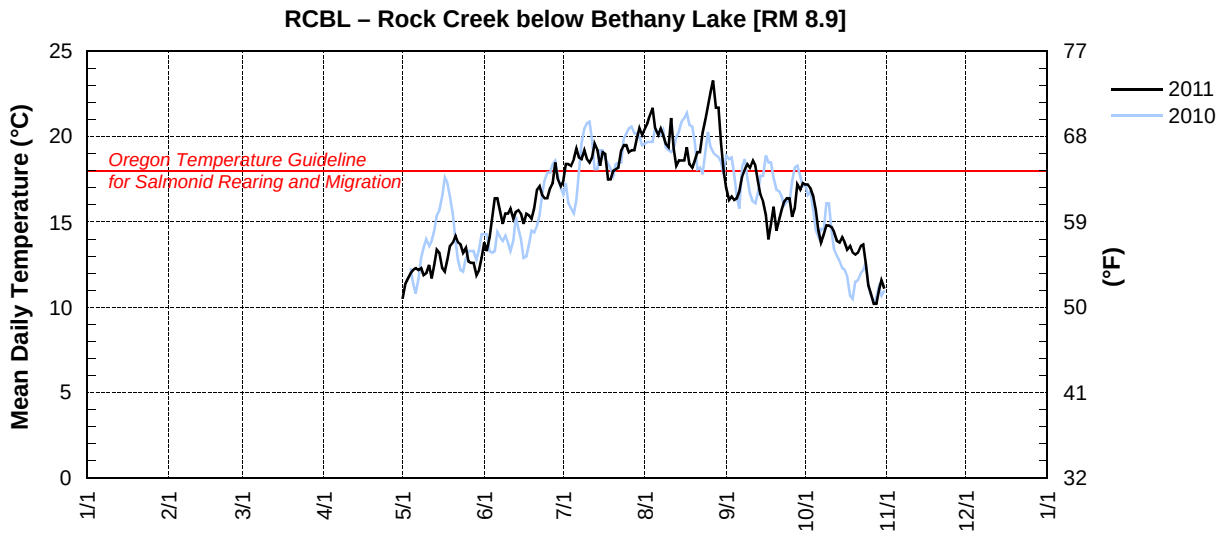


Site moved approximately one-half mile downstream in 2010. Former site id is 14206305.

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

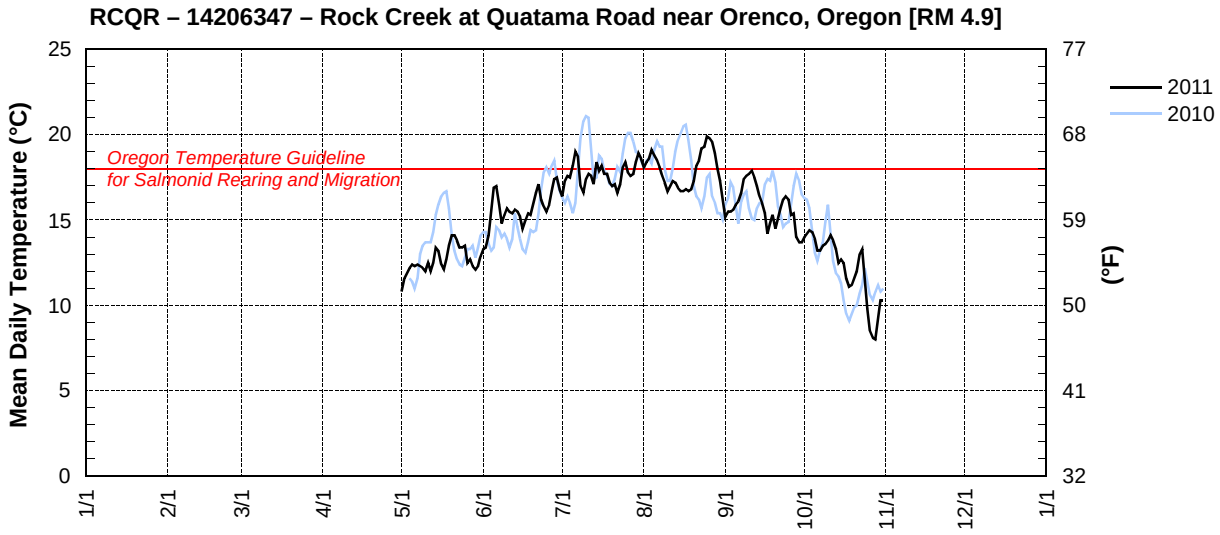
Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					10.5	13.8	17.4	20.5	17.0	17.2		
2					11.4	13.3	18.4	20.8	16.3	17.2		
3					11.7	14.1	18.4	21.3	16.5	17.0		
4					12.0	15.3	18.3	21.7	16.3	16.5		
5					12.2	16.4	18.7	20.5	16.4	15.7		
6					12.3	16.4	19.3	20.1	16.8	14.5		
7					12.2	15.6	18.8	20.5	17.7	13.8		
8					12.3	14.9	18.7	20.1	18.1	14.3		
9					11.9	15.5	19.2	19.6	18.4	14.8		
10					12.0	15.5	18.7	19.4	18.2	14.8		
11					12.5	15.8	18.5	21.1	18.6	14.7		
12					11.7	15.2	18.8	19.3	18.3	14.4		
13					12.5	15.6	19.6	18.3	17.4	13.9		
14					13.4	15.7	19.2	18.6	16.6	13.8		
15					13.2	15.5	18.3	18.6	16.2	14.1		
16					12.3	14.9	19.1	18.6	15.4	13.8		
17					12.1	15.5	19.0	19.4	14.0	13.4		
18					12.8	15.4	17.5	18.4	14.9	13.6		
19					13.6	15.2	17.5	18.2	15.9	13.2		
20					13.8	15.8	18.0	18.6	14.5	13.1		
21					14.2	16.9	18.1	19.1	15.1	13.2		
22					13.8	17.1	18.2	19.1	15.7	13.6		
23					13.7	16.6	19.2	20.2	16.2	13.7		
24					13.2	16.4	19.5	21.0	16.4	12.6		
25					13.5	16.4	19.5	21.8	16.4	11.3		
26					12.7	17.0	19.1	22.6	15.3	10.8		
27					12.6	17.3	19.2	23.3	15.8	10.2		
28					12.6	18.5	19.2	21.7	17.2	10.2		
29		—			11.9	17.5	19.9	21.7	16.9	11.0		
30		—			12.2	17.1	20.5	19.6	17.3	11.6		
31		—		—	12.9	—	20.1	18.0	—	11.1		
MEAN					12.6	15.9	18.8	20.1	16.5	13.6		
MAX					14.2	18.5	20.5	23.3	18.6	17.2		
MIN					10.5	13.3	17.4	18.0	14.0	10.2		



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

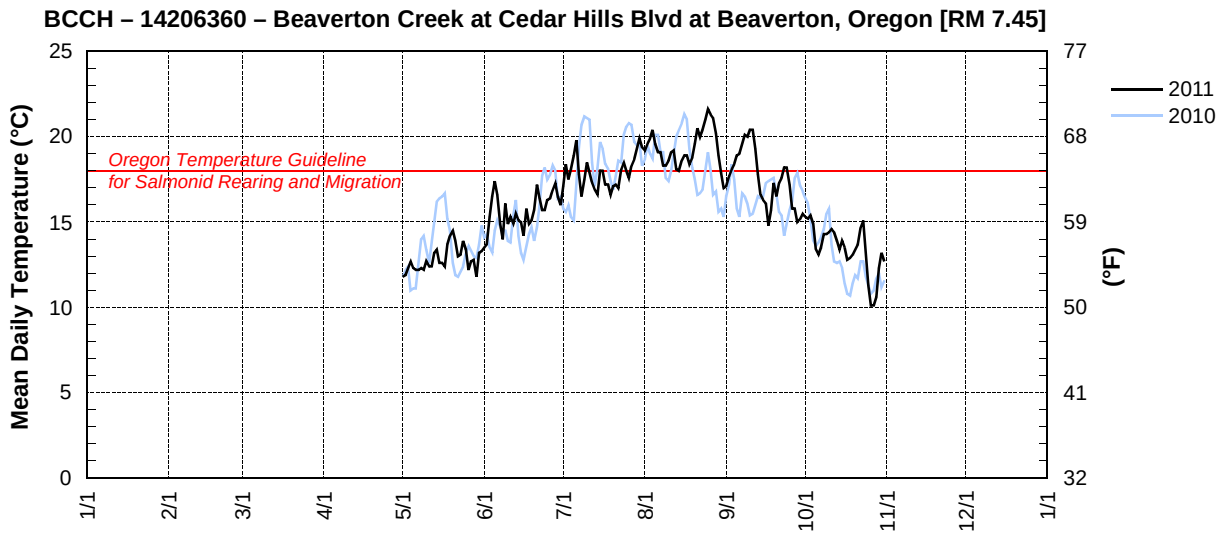
Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					10.8	13.3	16.4	18.1	15.2	14.0		
2					11.6	13.4	17.3	18.4	15.5	14.2		
3					11.9	14.1	17.6	18.6	15.5	14.4		
4					12.2	15.6	17.5	19.1	15.6	14.3		
5					12.4	16.9	18.2	18.8	15.9	13.9		
6					12.3	17.0	19.0	18.5	16.1	13.2		
7					12.4	15.9	18.7	18.1	16.6	13.2		
8					12.3	14.8	17.0	17.6	17.4	13.5		
9					12.2	15.3	16.6	17.2	17.6	13.6		
10					12.0	15.7	17.4	16.7	17.7	13.8		
11					12.5	15.5	17.7	17.0	17.9	14.1		
12					12.0	15.4	17.6	17.3	17.5	13.8		
13					12.5	15.6	17.1	17.2	17.0	13.3		
14					13.4	15.5	18.4	16.9	16.4	12.5		
15					13.2	15.2	17.9	16.7	16.0	12.7		
16					12.4	14.5	18.2	16.7	15.4	12.5		
17					12.1	15.0	17.7	16.8	14.2	11.6		
18					12.7	15.4	17.7	16.7	14.8	11.1		
19					13.5	15.3	17.2	16.8	15.3	11.2		
20					14.1	15.9	17.0	17.3	14.5	11.6		
21					14.1	16.6	17.1	18.2	15.1	12.0		
22					13.8	17.1	16.6	18.5	15.7	13.0		
23					13.4	16.2	17.1	19.2	16.2	13.3		
24					13.4	15.8	18.1	19.3	16.4	11.5		
25					13.5	15.5	18.4	19.9	16.2	9.8		
26					12.5	15.9	17.8	19.8	15.3	8.5		
27					12.7	16.7	17.6	19.6	15.4	8.1		
28					12.3	17.4	17.7	18.9	14.0	8.0		
29		—			12.1	17.5	18.4	18.0	13.7	9.2		
30		—			12.3	16.8	18.9	17.3	13.7	10.3		
31		—		—	12.9	—	18.6	16.2	—	10.3	—	
MEAN					12.6	15.7	17.7	17.9	15.8	12.1		
MAX					14.1	17.5	19.0	19.9	17.9	14.4		
MIN					10.8	13.3	16.4	16.2	13.7	8.0		



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	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					11.8	13.5	17.1	19.2	17.1	15.3		
2					11.9	13.7	18.4	19.6	17.7	15.2		
3					12.3	15.3	17.5	19.9	18.1	15.4		
4					12.7	16.5	18.1	20.4	18.4	14.9		
5					12.3	17.4	18.9	19.6	18.9	13.4		
6					12.2	16.6	19.8	19.1	19.0	13.1		
7					12.2	14.9	17.8	19.1	19.6	13.5		
8					12.3	14.0	16.5	18.3	20.1	14.3		
9					12.2	16.1	17.5	18.3	20.0	14.3		
10					12.7	14.9	18.5	18.6	20.4	14.4		
11					12.4	15.3	17.9	19.1	20.4	14.6		
12					12.4	14.9	17.3	19.2	19.3	14.4		
13					13.2	15.5	16.9	18.1	17.8	13.9		
14					13.4	15.1	16.6	18.0	16.6	13.4		
15					12.6	15.0	18.0	18.6	16.3	13.9		
16					12.6	14.2	18.0	18.9	16.1	13.5		
17					12.4	15.8	17.2	18.9	14.8	12.8		
18					13.7	14.9	17.2	18.4	15.7	12.9		
19					14.2	15.1	16.6	18.8	17.3	13.1		
20					14.5	15.7	17.1	19.6	16.5	13.4		
21					13.9	17.2	17.2	20.5	17.3	13.7		
22					13.0	16.4	17.0	20.0	17.6	14.7		
23					13.1	15.7	18.1	20.4	18.2	15.1		
24					13.9	15.7	18.5	21.0	18.2	13.1		
25					13.4	16.3	18.0	21.6	17.2	11.3		
26					12.2	16.4	17.6	21.3	15.8	10.1		
27					12.7	16.9	18.3	21.1	15.8	10.1		
28					12.8	17.3	18.7	20.2	15.0	10.6		
29		—			11.8	16.5	19.3	18.9	15.2	12.3		
30		—			13.2	16.0	19.9	17.9	15.5	13.2		
31		—		—	13.3	—	19.4	17.0	—	12.7	—	
MEAN					12.8	15.6	17.9	19.3	17.5	13.4		
MAX					14.5	17.4	19.9	21.6	20.4	15.4		
MIN					11.8	13.5	16.5	17.0	14.8	10.1		

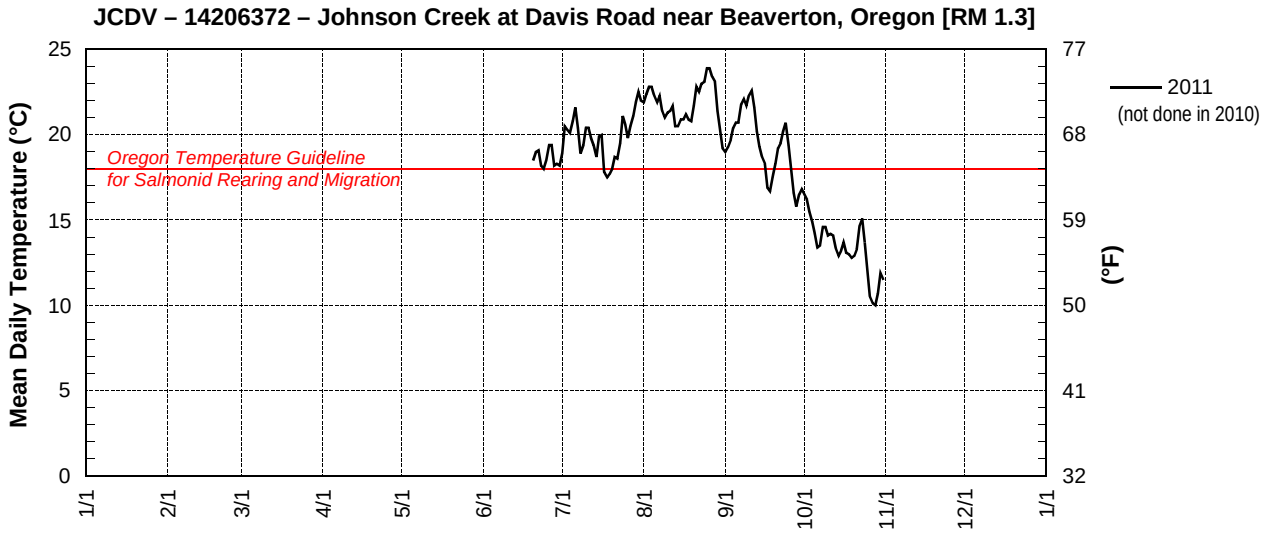


JCDV – 14206372 – JOHNSON CREEK AT DAVIS ROAD NEAR BEAVERTON, OREGON [RM 1.3]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1							18.9	21.9	19.0	16.5		
2							20.5	22.4	19.3	16.2		
3							20.3	22.8	19.7	15.5		
4							20.1	22.8	20.4	14.9		
5							20.8	22.3	20.7	14.2		
6							21.6	21.9	20.7	13.4		
7							20.4	22.3	21.8	13.5		
8							18.9	21.4	22.1	14.6		
9							19.4	21.0	21.7	14.6		
10							20.4	21.3	22.3	14.1		
11							20.4	21.4	22.6	14.2		
12							19.8	21.7	21.6	14.1		
13							19.4	20.5	20.2	13.3		
14							18.7	20.5	19.3	12.9		
15							19.9	20.9	18.7	13.2		
16							20.0	20.9	18.3	13.7		
17							17.8	21.2	16.9	13.1		
18							17.5	20.9	16.7	13.0		
19							17.7	20.8	17.5	12.8		
20						18.5**	18.0	21.7	18.3	12.9		
21						19.0	18.7	22.8	19.2	13.3		
22						19.1	18.6	22.5	19.5	14.7		
23						18.2	19.5	23.0	20.2	15.1		
24						18.0	21.1	23.1	20.7	13.7		
25						18.5	20.6	23.9	19.4	12.0		
26						19.4	19.8	23.9	17.9	10.5		
27						19.4	20.5	23.4	16.6	10.1		
28						18.2	21.1	23.1	15.8	10.0		
29		—				18.3	21.9	21.4	16.5	10.7		
30		—				18.2	22.5	20.3	16.8	11.9		
31		—		—		—	22.0	19.2	—	11.5	—	
MEAN							19.9	21.8	19.3	13.4		
MAX							23.9	23.9	22.6	16.5		
MIN							19.2	19.2	15.8	10.0		

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

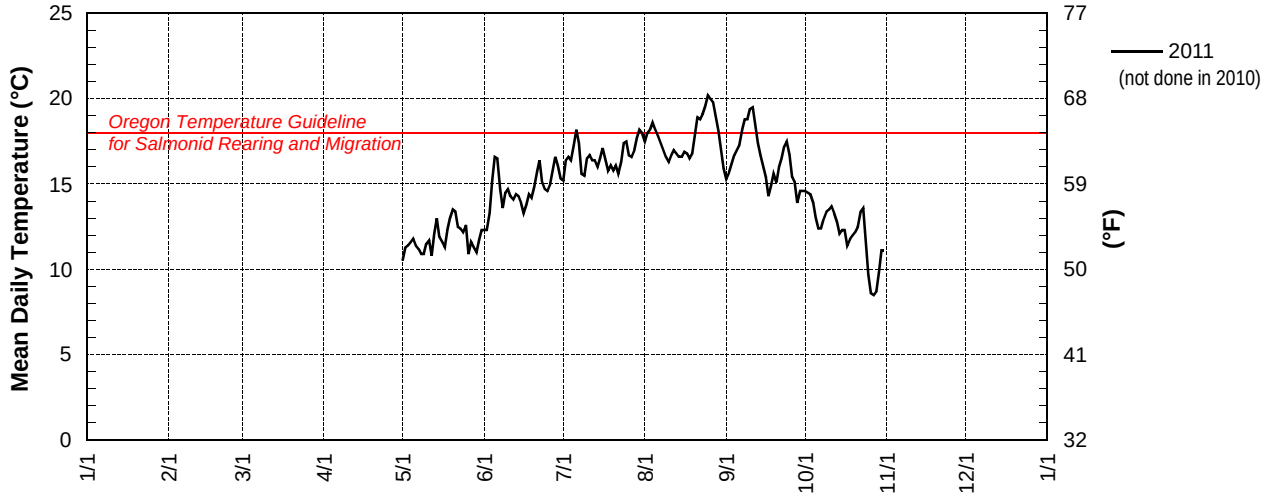


CMCW – 14206385 – CEDAR MILL CREEK ABOVE JOHNSON CREEK NEAR BEAVERTON, OREGON [RM 2.1]

Latitude: 45 30 40 Longitude: 122 49 09 Source Agency: WEST Consultants for Clean Water Services

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					10.5	12.3	15.2	17.5	15.3	14.6		
2					11.3	12.3	16.4	18.0	15.7	14.5		
3					11.4	13.3	16.6	18.2	16.2	14.4		
4					11.6	15.2	16.4	18.6	16.7	13.9		
5					11.8	16.6	17.3	18.2	17.0	13.0		
6					11.4	16.5	18.2	17.8	17.3	12.4		
7					11.2	14.7	17.4	17.4	18.2	12.4		
8					10.9	13.6	15.6	17.0	18.8	13.0		
9					10.9	14.5	15.5	16.6	18.8	13.4		
10					11.5	14.7	16.5	16.3	19.4	13.5		
11					11.7	14.3	16.7	16.7	19.5	13.7		
12					10.8	14.1	16.4	17.0	18.4	13.3		
13					12.1	14.4	16.4	16.8	17.4	12.8		
14					13.0	14.3	16.0	16.6	16.7	12.1		
15					11.9	13.9	16.5	16.6	16.1	12.3		
16					11.6	13.3	17.1	16.9	15.4	12.3		
17					11.3	13.8	16.5	16.8	14.3	11.4		
18					12.3	14.4	15.8	16.5	14.9	11.8		
19					13.0	14.2	16.1	16.8	15.6	12.0		
20					13.5	14.8	15.8	17.8	15.1	12.2		
21					13.4	15.7	16.1	18.9	16.0	12.5		
22					12.5	16.4	15.6	18.8	16.5	13.4		
23					12.4	15.1	16.3	19.1	17.2	13.6		
24					12.2	14.7	17.4	19.6	17.5	11.5		
25					12.6	14.6	17.5	20.2	16.7	9.7		
26					10.9	15.0	16.7	20.0	15.4	8.6		
27					11.6	15.8	16.6	19.8	15.1	8.5		
28					11.3	16.6	17.0	18.9	13.9	8.7		
29		—			11.0	16.1	17.7	18.1	14.6	9.8		
30		—			11.7	15.3	18.2	17.0	14.6	11.1		
31		—		—	12.3	—	18.0	15.9	—	11.1	—	
MEAN					11.8	14.7	16.6	17.8	16.5	12.2		
MAX					13.5	16.6	18.2	20.2	19.5	14.6		
MIN					10.5	12.3	15.2	15.9	13.9	8.5		

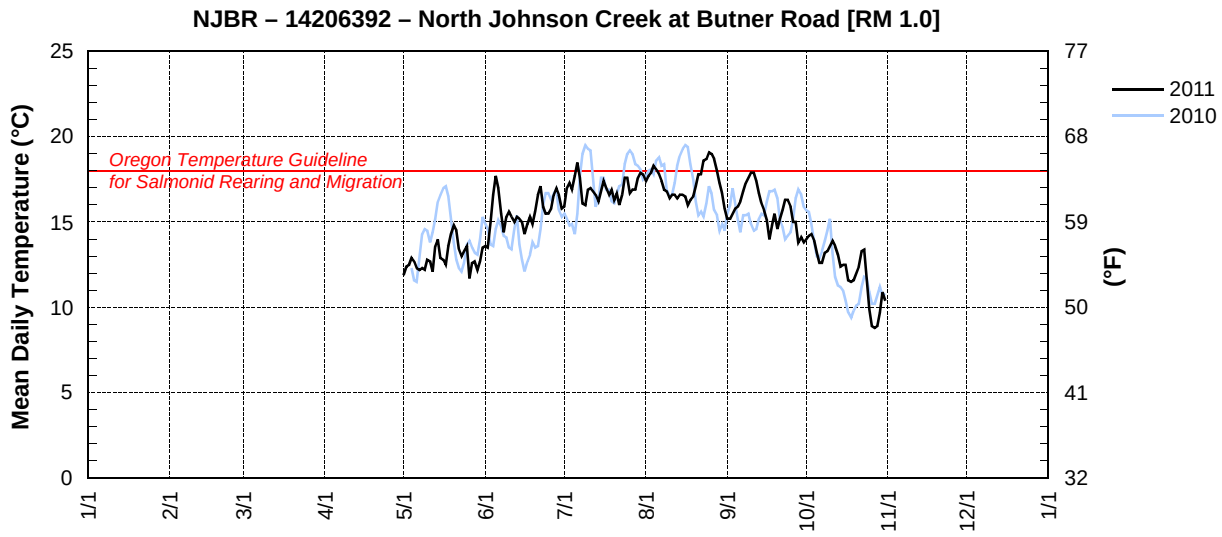
CMCW – 14206385 – Cedar Mill Creek above Johnson Creek near Beaverton, Oregon [RM 2.1]



NJBR – 14206392 – NORTH JOHNSON CREEK AT BUTNER ROAD [RM 1.0]

Latitude: 45 30 49 Longitude: 122 48 22 Source Agency: WEST Consultants for Clean Water Services

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					11.9	13.6	15.9	17.4	15.2	14.0		
2					12.4	13.5	17.0	17.7	15.2	14.2		
3					12.5	15.0	17.3	17.9	15.5	14.3		
4					12.9	16.6	16.9	18.3	15.8	13.9		
5					12.7	17.7	17.7	18.1	15.9	13.2		
6					12.3	17.0	18.5	17.8	16.2	12.6		
7					12.2	15.5	17.6	17.4	16.8	12.6		
8					12.3	14.4	16.1	16.9	17.3	13.2		
9					12.2	15.3	16.0	16.8	17.6	13.3		
10					12.8	15.6	16.9	16.4	17.9	13.6		
11					12.7	15.3	17.0	16.6	17.9	13.9		
12					12.1	15.0	16.8	16.6	17.4	13.6		
13					13.6	15.3	16.6	16.4	16.7	13.1		
14					14.0	15.2	16.2	16.6	16.1	12.4		
15					12.9	15.0	16.8	16.6	15.7	12.5		
16					12.8	14.3	17.4	16.5	15.1	12.5		
17					12.5	14.9	17.0	16.0	14.0	11.6		
18					13.6	15.3	16.6	16.3	14.8	11.5		
19					14.3	14.9	16.9	16.5	15.5	11.6		
20					14.8	15.6	16.3	17.1	14.6	12.0		
21					14.5	16.6	16.7	17.8	15.2	12.4		
22					13.4	17.1	16.0	17.8	15.7	13.3		
23					13.0	15.9	16.6	18.6	16.3	13.4		
24					13.3	15.5	17.6	18.7	16.3	11.6		
25					13.6	15.5	17.6	19.1	15.9	9.9		
26					11.7	15.8	16.7	19.0	15.0	8.9		
27					12.6	16.6	16.9	18.7	15.0	8.8		
28					12.7	17.0	16.9	18.0	13.8	8.9		
29		—			12.2	16.6	17.6	17.3	14.1	9.7		
30		—			12.7	15.8	17.9	16.7	13.8	10.9		
31		—		—	13.5	—	17.8	15.8	—	10.4	—	
MEAN					12.9	15.6	17.0	17.3	15.7	12.2		
MAX					14.8	17.7	18.5	19.1	17.9	14.3		
MIN					11.7	13.5	15.9	15.8	13.8	8.8		



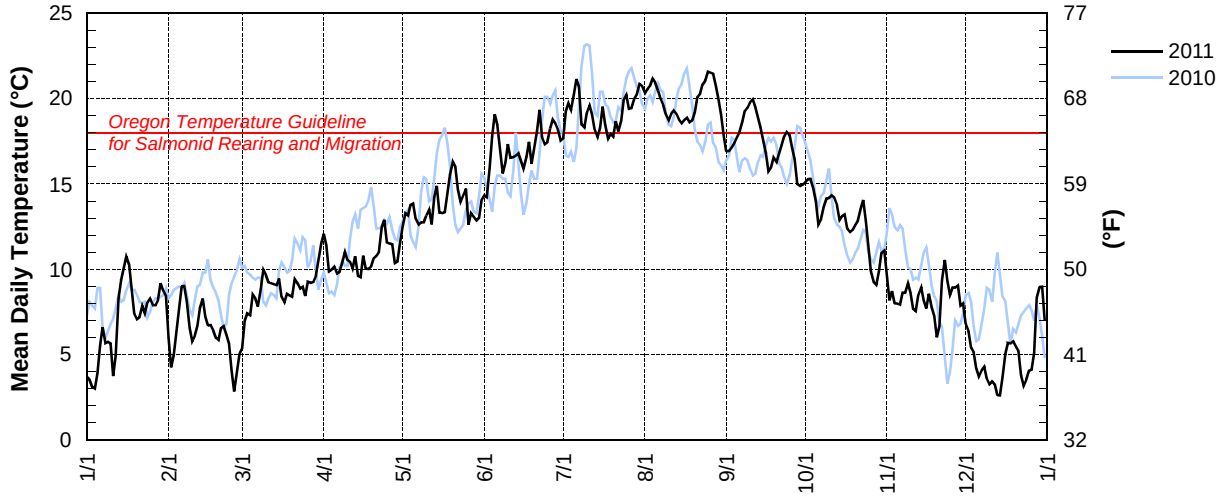
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

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

LATITUDE: 453004 LONGITUDE: 1225103

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	3.7	6.1	5.4	12.1	12.4	14.3	17.7	20.3	16.9	15.1	9.6	6.8
2	3.6	4.3	7.0	11.4	13.3	14.2	19.2	20.6	16.9	15.3	8.2	6.4
3	3.1	4.9	7.4	9.9	13.1	15.9	19.8	20.8	17.1	15.3	8.7	5.4
4	3.0	6.4	7.3	10.0	13.8	17.8	19.3	21.2	17.4	14.8	8.0	5.2
5	3.9	7.6	8.5	10.1	13.9	19.1	20.2	21.0	17.7	14.0	8.0	4.2
6	5.5	9.0	8.3	9.8	13.0	18.5	21.1	20.5	18.0	12.7	7.9	3.8
7	6.6	9.0	7.8	9.8	12.6	17.0	20.8	20.0	18.6	12.9	8.6	4.1
8	5.7	8.2	8.8	10.3	12.8	15.7	18.5	19.7	19.3	13.7	8.6	4.3
9	5.7	6.6	9.9	11.0	12.7	16.2	18.3	19.1	19.5	14.1	9.2	3.6
10	5.7	5.8	9.7	10.6	13.1	17.4	19.2	18.7	19.8	14.2	8.6	3.3
11	3.8	6.1	9.2	10.4	13.6	16.6	19.6	19.1	20.0	14.3	7.7	3.4
12	4.9	6.6	9.2	10.0	12.6	16.6	19.1	19.3	19.5	14.2	7.5	3.3
13	8.3	7.7	9.1	10.8	14.2	16.7	18.2	19.2	18.9	13.8	8.5	2.6
14	9.4	8.3	9.1	9.7	14.9	16.8	17.8	18.8	18.3	12.9	9.0	2.6
15	10.0	7.3	9.5	9.5	13.4	16.4	18.2	18.6	17.7	13.1	8.2	3.6
16	10.7	6.7	8.4	10.8	13.3	15.9	19.6	18.8	16.8	13.2	7.7	5.0
17	10.3	6.7	8.1	10.0	13.4	16.5	18.5	18.9	15.8	12.4	8.6	5.7
18	8.8	6.4	8.6	10.0	14.4	17.5	17.7	18.6	16.0	12.2	7.8	5.7
19	7.4	6.0	8.5	10.2	15.5	16.2	18.0	18.7	16.5	12.3	7.3	5.8
20	7.1	5.9	8.4	10.7	16.3	17.1	17.8	19.2	16.3	12.6	6.1	5.5
21	7.2	6.5	9.4	10.8	16.0	18.1	18.7	20.1	16.8	12.8	6.6	5.2
22	7.9	6.7	9.2	11.0	14.7	19.4	18.1	20.3	17.3	13.5	9.3	3.8
23	7.4	6.2	8.9	12.4	14.0	17.7	18.7	20.8	17.8	14.1	10.6	3.2
24	8.1	5.7	9.0	12.9	14.3	17.3	19.9	21.1	18.1	12.9	9.4	3.5
25	8.3	4.1	8.4	11.6	14.8	17.4	20.2	21.6	17.9	11.3	8.5	4.1
26	7.9	2.9	9.3	11.5	12.6	18.2	19.4	21.5	17.1	9.9	8.9	4.1
27	7.9	4.0	9.2	11.5	13.3	18.8	19.4	21.5	16.4	9.3	8.9	5.1
28	8.2	5.1	9.3	10.4	13.1	18.5	20.0	20.7	15.0	9.1	9.1	8.3
29	9.2	—	9.6	10.4	12.9	18.2	20.3	20.0	14.9	9.9	7.9	9.0
30	8.8	—	10.5	11.5	13.0	17.6	20.9	19.1	15.0	11.0	8.0	9.0
31	8.4	—	11.5	—	14.1	—	20.8	17.9	—	11.1	—	7.0
MEAN	7.0	6.3	8.8	10.7	13.7	17.1	19.2	19.9	17.4	12.8	8.4	4.9
MAX	10.7	9.0	11.5	12.9	16.3	19.4	21.1	21.6	20.0	15.3	10.6	9.0
MIN	3.0	2.9	5.4	9.5	12.4	14.2	17.7	17.9	14.9	9.1	6.1	2.6

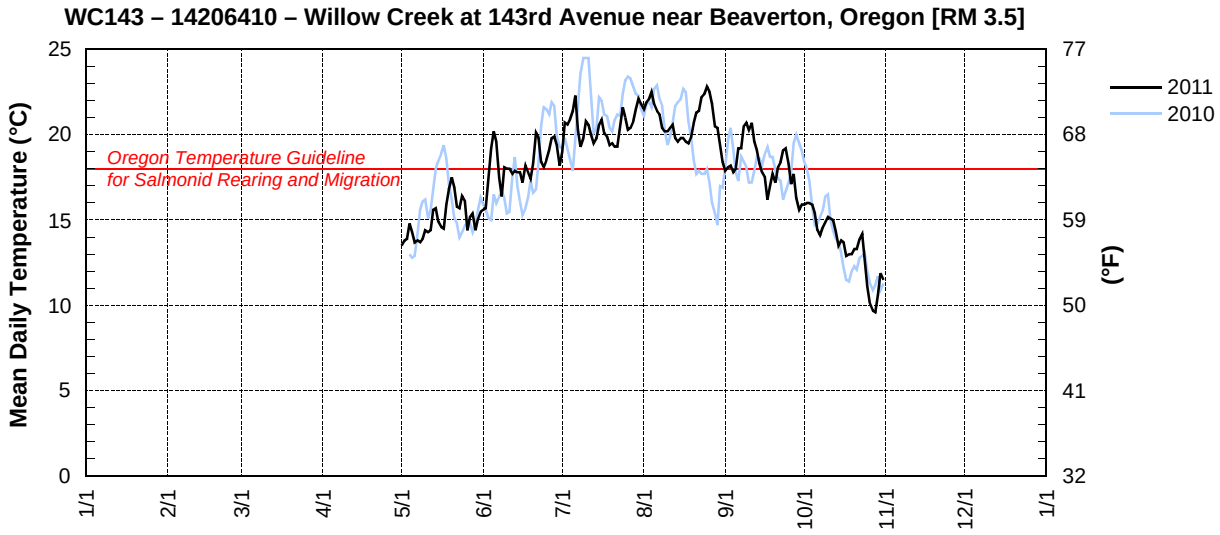
B170 – Beaverton Creek at 170th Ave, Beaverton, Oregon [RM 4.9]



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

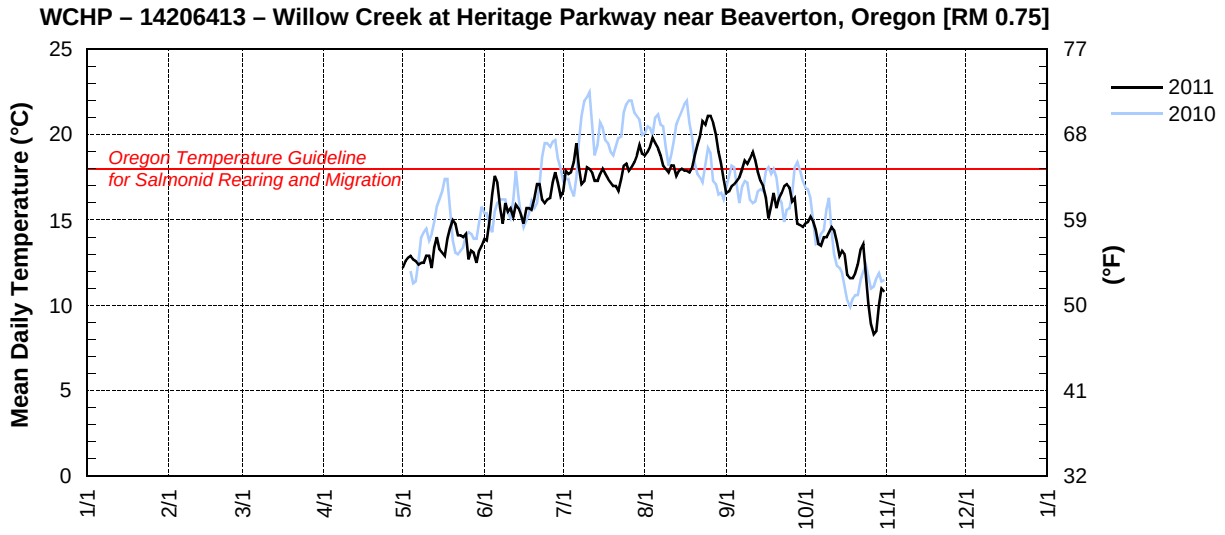
Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					13.5	15.6	19.0	21.5	17.9	15.9		
2					13.8	15.7	20.7	21.9	18.1	16.0		
3					13.9	17.5	20.6	22.1	18.2	16.0		
4					14.8	19.2	20.9	22.5	17.8	15.9		
5					14.3	20.2	21.4	21.8	18.0	15.4		
6					13.7	19.6	22.3	21.4	19.2	14.4		
7					13.8	17.5	20.3	21.2	19.2	14.1		
8					13.7	16.4	19.3	20.4	20.5	14.6		
9					13.9	18.1	19.8	20.2	20.7	14.9		
10					14.4	18.0	20.8	20.2	20.3	15.2		
11					14.3	18.0	20.6	20.4	20.7	15.1		
12					14.4	17.7	20.0	20.6	19.6	15.0		
13					15.6	17.9	19.5	19.8	19.1	14.3		
14					15.7	17.8	19.8	19.6	18.3	13.5		
15					14.9	17.8	20.6	19.8	17.8	13.8		
16					14.6	17.2	20.9	19.8	17.5	13.7		
17					14.5	18.2	20.1	19.6	16.2	12.9		
18					15.9	17.8	19.9	19.5	17.0	13.0		
19					16.8	17.4	19.4	19.9	17.7	13.0		
20					17.5	18.3	19.5	20.7	17.2	13.3		
21					16.9	20.1	19.3	21.3	18.1	13.3		
22					15.8	19.8	19.3	21.4	18.4	13.9		
23					15.7	18.4	20.6	22.2	19.1	14.2		
24					16.4	18.1	21.6	22.4	19.2	12.6		
25					16.1	18.5	21.0	22.8	18.3	11.1		
26					14.4	19.1	20.3	22.5	17.1	10.1		
27					15.2	19.8	20.4	21.8	17.7	9.7		
28					15.4	19.9	20.8	20.5	16.3	9.6		
29		—			14.4	19.4	21.5	20.4	15.6	10.6		
30		—			15.1	18.2	22.1	19.4	15.9	11.9		
31		—		—	15.5	—	21.8	18.4	—	11.5	—	
MEAN					15.0	18.2	20.5	20.8	18.2	13.5		
MAX					17.5	20.2	22.3	22.8	20.7	16.0		
MIN					13.5	15.6	19.0	18.4	15.6	9.6		



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	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					12.2	13.9	16.7	18.8	16.6	14.8		
2					12.6	13.8	17.9	19.0	16.7	14.9		
3					12.8	15.0	17.7	19.3	17.0	15.2		
4					12.9	16.5	17.8	19.8	17.1	14.9		
5					12.7	17.6	18.4	19.5	17.3	14.4		
6					12.6	17.2	19.5	19.2	17.5	13.6		
7					12.4	15.7	18.1	18.8	18.0	13.5		
8					12.5	14.8	17.1	18.2	18.5	14.0		
9					12.5	16.0	17.3	18.0	18.3	14.0		
10					12.9	15.5	18.1	17.8	18.6	14.3		
11					12.9	15.7	18.0	18.2	19.0	14.6		
12					12.2	15.2	17.8	18.2	18.5	14.4		
13					13.4	15.9	17.3	17.6	17.8	13.7		
14					14.0	15.7	17.3	17.9	17.3	12.9		
15					13.3	15.3	17.7	18.0	17.0	13.2		
16					13.1	14.8	18.0	17.9	16.3	13.0		
17					12.9	15.7	17.7	17.9	15.1	11.8		
18					13.9	15.7	17.4	17.8	15.8	11.6		
19					14.5	15.6	17.2	18.1	16.6	11.6		
20					15.0	16.2	17.0	18.8	15.7	11.9		
21					14.8	17.1	17.0	19.4	16.3	12.4		
22					14.1	17.1	16.7	19.9	16.6	13.3		
23					14.1	16.2	17.4	20.8	17.0	13.6		
24					14.0	16.0	18.2	20.6	17.1	11.9		
25					14.2	16.2	18.3	21.1	16.9	10.1		
26					12.7	16.3	17.9	21.1	16.1	8.9		
27					13.2	17.2	18.1	20.7	16.3	8.3		
28					13.1	17.8	18.4	20.0	14.8	8.5		
29		—			12.5	17.2	18.8	19.0	14.7	10.0		
30		—			13.2	16.4	19.4	18.3	14.6	11.0		
31		—		—	13.5	—	18.9	17.4	—	10.8	—	
MEAN					13.2	16.0	17.8	18.9	16.8	12.6		
MAX					15.0	17.8	19.5	21.1	19.0	15.2		
MIN					12.2	13.8	16.7	17.4	14.6	8.3		

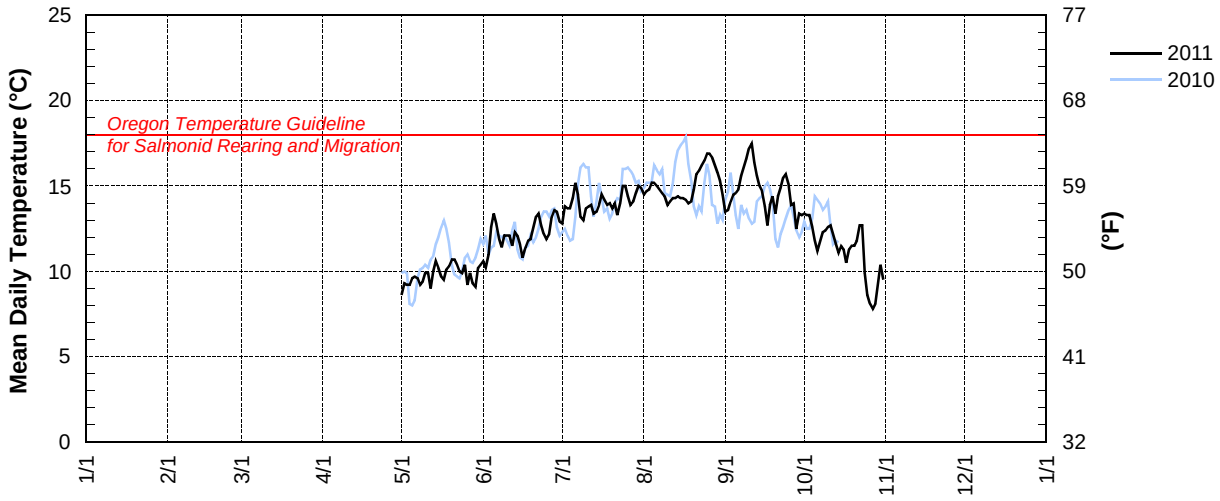


BCSR – 14206419 – BRONSON CREEK AT SALTZMAN ROAD NEAR ORENCO, OREGON [RM 5.1]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					8.6	10.6	12.8	14.5	13.5	13.4		
2					9.3	10.2	13.8	14.7	13.6	13.3		
3					9.2	11.0	13.7	14.8	14.1	13.3		
4					9.2	12.6	13.7	15.2	14.5	12.6		
5					9.6	13.4	14.3	15.2	14.6	11.8		
6					9.7	12.8	15.2	15.0	14.8	11.2		
7					9.6	11.9	14.5	14.8	15.6	11.7		
8					9.2	11.4	13.2	14.6	16.1	12.3		
9					9.4	12.1	13.0	14.4	16.6	12.4		
10					9.9	12.1	13.7	13.9	17.2	12.6		
11					9.9	12.1	13.8	14.1	17.5	12.7		
12					9.0	11.5	13.9	14.3	16.4	12.2		
13					10.0	12.3	13.4	14.3	15.6	11.6		
14					10.6	12.1	13.5	14.4	15.0	11.1		
15					10.2	11.6	13.9	14.3	14.7	11.5		
16					9.7	10.8	14.5	14.3	13.8	11.3		
17					9.5	11.4	14.2	14.2	12.7	10.5		
18					10.1	11.8	13.9	14.0	13.9	11.3		
19					10.3	11.9	14.0	14.1	14.4	11.5		
20					10.7	12.5	13.7	14.8	13.4	11.5		
21					10.7	13.2	14.0	15.7	14.4	11.8		
22					10.4	13.4	13.3	15.9	14.9	12.7		
23					10.0	12.7	14.0	16.2	15.5	12.7		
24					9.9	12.2	15.0	16.5	15.7	9.9		
25					10.4	11.9	15.0	16.9	15.1	8.6		
26					9.2	12.2	14.4	16.9	13.9	8.1		
27					9.9	13.2	13.9	16.7	14.0	7.8		
28					9.3	13.6	14.1	16.2	12.5	8.1		
29		—			9.1	13.5	14.6	15.8	13.4	9.2		
30		—			10.2	12.9	15.0	15.3	13.3	10.4		
31		—		—	10.4	—	14.9	14.5	—	9.5	—	
MEAN					9.8	12.2	14.0	15.0	14.7	11.2		
MAX					10.7	13.6	15.2	16.9	17.5	13.4		
MIN					8.6	10.2	12.8	13.9	12.5	7.8		

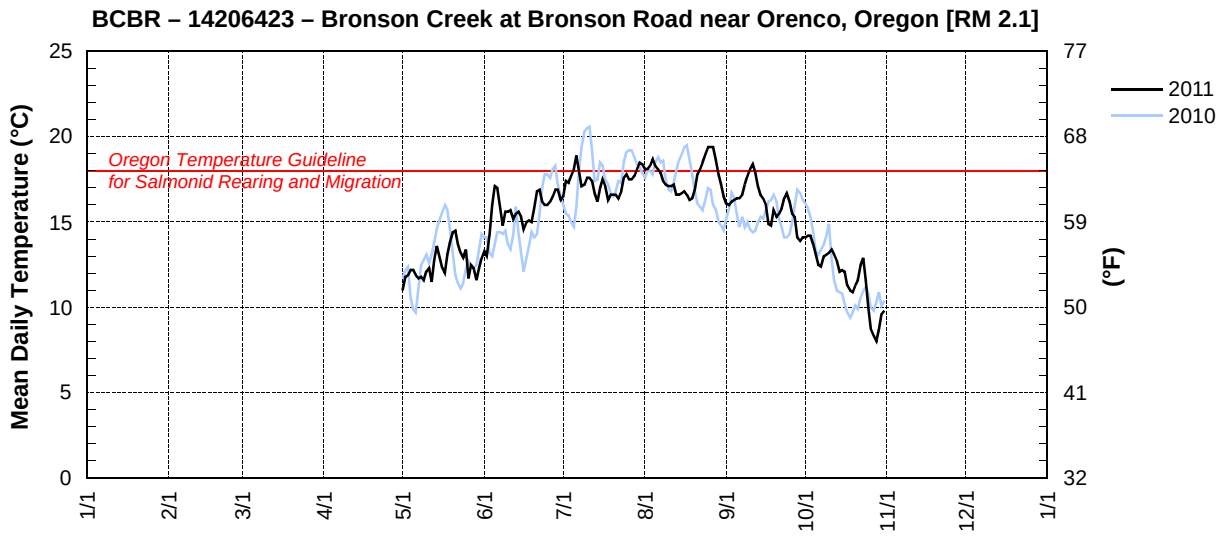
BCSR – 14206419 – Bronson Creek at Saltzman Road near Orenco, Oregon [RM 5.1]



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	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					11.0	13.3	16.5	18.1	16.1	14.1		
2					11.8	13.0	17.4	18.1	16.0	14.2		
3					11.9	14.3	17.3	18.3	16.2	14.2		
4					12.2	16.0	17.7	18.7	16.3	13.7		
5					12.2	17.1	18.1	18.3	16.4	13.1		
6					11.9	17.0	18.9	18.1	16.4	12.5		
7					11.7	15.8	18.0	17.9	16.6	12.4		
8					11.8	14.8	17.1	17.4	17.2	13.0		
9					11.6	15.6	17.2	17.2	17.7	13.1		
10					12.1	15.6	17.6	17.1	18.1	13.2		
11					12.3	15.7	17.6	17.1	18.4	13.4		
12					11.5	15.2	17.4	17.2	17.9	13.1		
13					12.8	15.5	16.7	16.6	17.1	12.7		
14					13.6	15.6	16.2	16.6	16.6	12.1		
15					13.0	15.3	17.0	16.7	16.4	12.2		
16					12.3	14.6	17.5	16.8	16.0	12.1		
17					12.0	15.0	17.1	16.6	14.9	11.3		
18					13.1	15.1	16.3	16.3	14.8	11.0		
19					13.8	15.0	16.6	16.4	15.7	10.9		
20					14.4	15.8	16.6	16.9	15.3	11.3		
21					14.5	16.8	16.6	17.8	15.5	11.6		
22					13.7	16.9	16.4	18.1	15.8	12.5		
23					13.2	16.2	16.8	18.5	16.4	12.9		
24					12.9	16.0	17.6	19.0	16.7	11.6		
25					13.4	16.0	17.8	19.4	16.2	10.0		
26					11.7	16.2	17.5	19.4	15.5	8.7		
27					12.5	16.5	17.5	19.4	15.3	8.3		
28					12.3	16.9	17.7	18.6	14.1	8.0		
29		—			11.6	16.9	18.1	17.8	13.9	8.7		
30		—			12.3	16.3	18.5	17.2	14.1	9.6		
31		—		—	12.9	—	18.4	16.5	—	9.8	—	
MEAN					12.5	15.7	17.3	17.7	16.1	11.8		
MAX					14.5	17.1	18.9	19.4	18.4	14.2		
MIN					11.0	13.0	16.2	16.3	13.9	8.0		

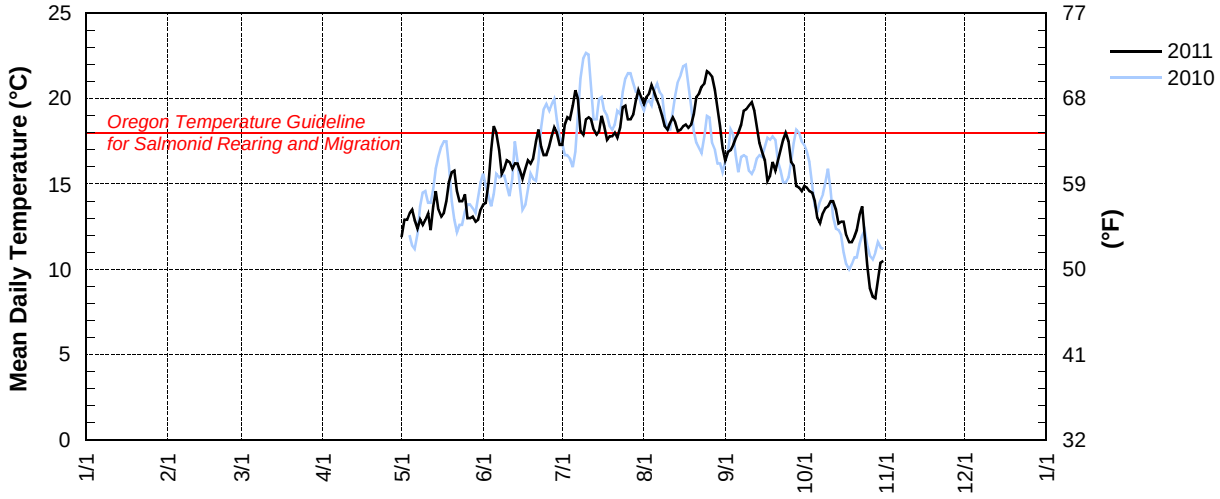


BVTS – 14206435 – BEAVERTON CREEK AT NE GUSTON COURT NEAR ORENCO, OREGON [RM 1.2]]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					11.9	13.8	17.3	19.7	16.4	14.9		
2					12.9	13.9	18.5	20.1	16.9	14.8		
3					12.9	15.1	18.9	20.3	17.0	14.6		
4					13.3	17.0	18.8	20.8	17.3	14.5		
5					13.5	18.4	19.6	20.4	17.7	14.0		
6					12.9	18.0	20.5	19.9	18.0	13.0		
7					12.4	17.0	20.0	19.5	18.5	12.7		
8					12.9	15.6	18.1	19.0	19.3	13.3		
9					12.6	15.9	17.9	18.4	19.4	13.6		
10					12.9	16.4	18.8	18.2	19.6	13.7		
11					13.3	16.3	18.9	18.6	19.8	14.0		
12					12.3	15.9	18.8	18.9	19.3	14.0		
13					13.7	16.2	18.2	18.6	18.4	13.5		
14					14.6	16.2	17.9	18.1	17.4	12.7		
15					13.5	15.8	18.1	18.2	16.9	12.8		
16					13.1	15.3	19.0	18.4	16.4	12.8		
17					13.3	15.9	18.4	18.5	15.2	12.0		
18					14.0	16.4	17.6	18.3	15.5	11.6		
19					15.1	16.2	17.8	18.5	16.3	11.6		
20					15.7	16.5	17.8	19.1	15.8	11.9		
21					15.8	17.5	18.0	20.1	16.4	12.3		
22					14.6	18.2	17.7	20.3	17.0	13.2		
23					14.0	17.2	18.3	20.7	17.6	13.7		
24					14.0	16.7	19.5	20.9	18.0	12.1		
25					14.4	16.7	19.6	21.6	17.5	10.2		
26					13.0	17.2	18.8	21.5	16.3	8.9		
27					13.0	17.8	18.8	21.3	16.1	8.4		
28					13.1	18.3	19.1	20.5	14.9	8.3		
29		—			12.8	18.0	19.9	19.5	14.8	9.3		
30		—			12.9	17.3	20.5	18.4	14.6	10.4		
31		—		—	13.5	—	20.1	17.1	—	10.5	—	
MEAN					13.5	16.6	18.7	19.5	17.1	12.4		
MAX					15.8	18.4	20.5	21.6	19.8	14.9		
MIN					11.9	13.8	17.3	17.1	14.6	8.3		

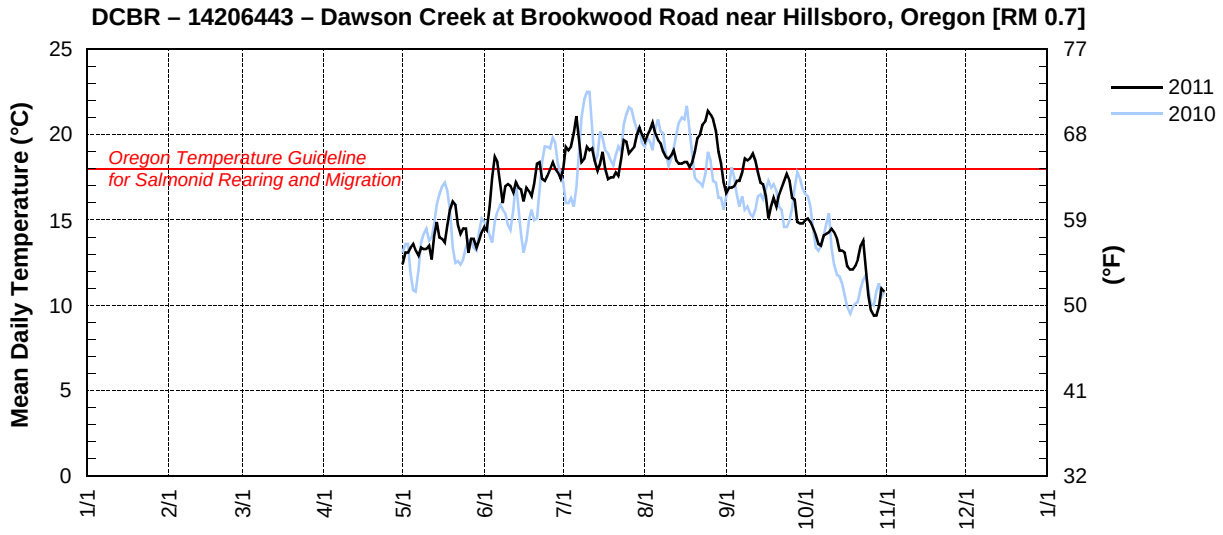
BVTS – 14206435 – Beaverton Creek at NE Guston Court near Orenco, Oregon [RM 1.2]



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	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					12.4	14.6	18.0	19.6	16.6	15.0		
2					13.1	14.4	19.3	20.0	16.9	15.1		
3					13.1	15.8	19.1	20.3	16.9	14.9		
4					13.4	17.5	19.3	20.7	17.0	14.5		
5					13.6	18.7	20.1	20.1	17.3	14.1		
6					13.2	18.4	21.1	19.7	17.3	13.6		
7					12.9	17.1	19.8	19.5	17.8	13.5		
8					13.4	16.0	18.4	19.0	18.6	14.1		
9					13.3	17.0	18.6	18.7	18.5	14.2		
10					13.3	17.1	19.3	18.6	18.6	14.3		
11					13.5	17.0	19.1	18.8	18.9	14.5		
12					12.7	16.6	19.2	19.1	18.5	14.3		
13					14.1	17.2	18.5	18.5	17.8	13.9		
14					14.9	16.9	17.9	18.3	17.2	13.2		
15					14.0	16.8	18.3	18.3	17.1	13.2		
16					13.9	16.1	19.0	18.4	16.4	13.1		
17					13.7	16.9	18.0	18.4	15.1	12.3		
18					14.7	16.7	17.4	18.1	15.8	12.1		
19					15.6	16.4	17.5	18.4	16.3	12.1		
20					16.1	17.1	17.5	19.0	15.8	12.3		
21					15.9	18.3	17.8	19.8	16.5	12.7		
22					14.7	18.4	17.6	20.0	16.9	13.5		
23					14.2	17.4	18.6	20.6	17.3	13.8		
24					14.5	17.3	19.7	20.8	17.7	12.2		
25					14.5	17.6	19.6	21.4	17.3	10.6		
26					13.1	18.0	18.9	21.2	16.3	9.7		
27					13.9	18.4	19.1	20.9	16.2	9.4		
28					13.9	18.0	19.3	20.2	14.9	9.4		
29		—			13.4	17.8	20.0	19.0	14.8	9.9		
30		—			13.8	17.4	20.4	18.3	14.8	11.0		
31		—		—	14.3	—	20.0	17.2	—	10.8	—	
MEAN					13.9	17.1	18.9	19.4	16.9	12.8		
MAX					16.1	18.7	21.1	21.4	18.9	15.1		
MIN					12.4	14.4	17.4	17.2	14.8	9.4		



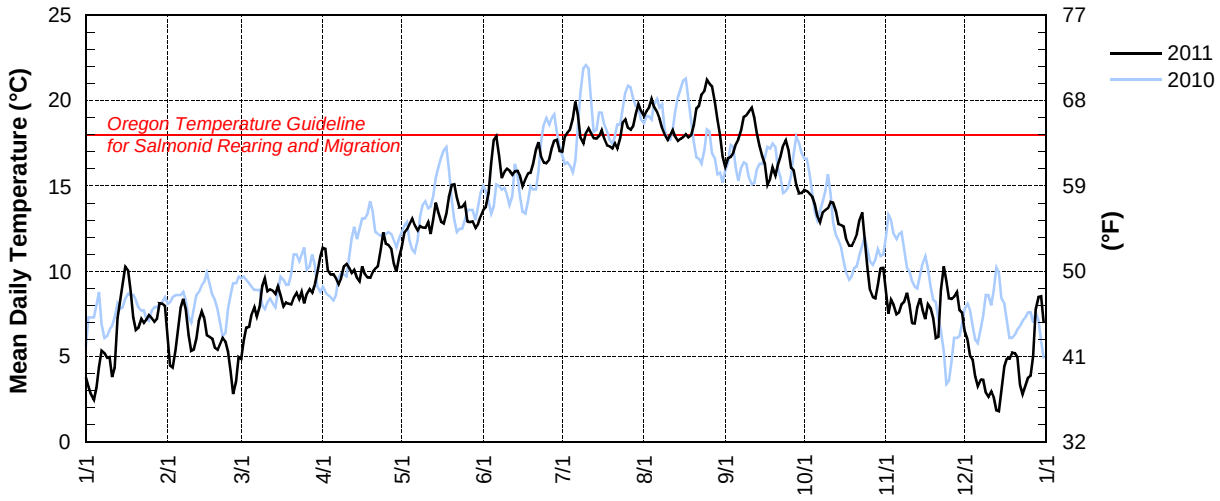
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

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

LATITUDE: 453029.5 LONGITUDE: 1225600.6

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	3.8	6.3	4.8	11.4	11.3	13.6	17.0	19.1	16.1	14.8	8.9	6.5
2	3.3	4.5	5.9	11.3	12.3	13.8	17.9	19.4	16.6	14.7	7.5	6.0
3	2.8	4.3	6.7	10.1	12.5	14.6	18.1	19.6	16.7	14.6	8.3	5.1
4	2.5	5.4	6.8	9.8	12.8	16.3	18.3	20.1	16.9	14.4	8.1	4.9
5	3.2	6.6	7.5	9.8	13.1	17.7	18.9	19.6	17.4	13.9	7.5	3.9
6	4.4	7.8	7.9	9.6	12.7	17.9	20.0	19.3	17.7	13.2	7.6	3.3
7	5.3	8.4	7.4	9.3	12.4	16.8	19.2	19.0	18.3	12.9	8.1	3.6
8	5.2	7.8	7.9	9.6	12.7	15.5	17.8	18.4	19.1	13.4	8.2	3.7
9	4.9	6.3	9.1	10.3	12.6	15.8	17.5	18.0	19.1	13.6	8.7	2.9
10	5.0	5.4	9.6	10.4	12.5	16.0	18.1	17.7	19.4	13.7	8.0	2.6
11	3.8	5.4	8.8	10.2	12.9	15.9	18.4	18.0	19.6	14.1	7.0	3.0
12	4.3	6.0	9.0	9.9	12.2	15.7	18.1	18.3	19.0	14.0	6.9	2.6
13	7.2	7.1	8.9	10.1	13.0	15.9	17.8	17.9	18.1	13.5	7.9	1.9
14	8.2	7.7	8.7	9.6	14.0	15.9	17.8	17.7	17.4	12.8	8.4	1.8
15	9.3	7.3	9.1	9.4	13.5	15.6	17.9	17.8	16.8	12.7	7.7	3.0
16	10.3	6.3	8.6	10.3	12.9	15.0	18.3	17.9	16.3	12.7	7.2	4.4
17	10.1	6.2	8.0	9.9	12.8	15.4	17.8	18.0	15.1	11.9	8.1	4.9
18	8.9	6.1	8.2	9.6	13.4	15.8	17.4	17.9	15.4	11.5	7.8	4.9
19	7.3	5.5	8.1	9.6	14.3	15.8	17.3	18.0	16.1	11.5	7.3	5.2
20	6.6	5.4	8.1	10.0	15.0	16.3	17.2	18.6	15.6	11.8	6.1	5.2
21	6.7	5.7	8.4	10.2	15.1	17.1	17.5	19.5	16.3	12.2	6.2	5.0
22	7.2	6.1	8.7	10.3	14.3	17.6	17.2	19.7	16.7	13.1	8.9	3.4
23	7.0	5.9	8.4	11.3	13.8	16.7	17.8	20.3	17.4	13.5	10.3	2.8
24	7.2	5.3	8.8	12.3	13.8	16.4	18.7	20.6	17.7	11.9	9.5	3.2
25	7.5	4.2	8.1	11.6	14.0	16.3	18.9	21.2	17.1	10.3	8.4	3.8
26	7.3	2.8	8.7	11.6	12.9	16.5	18.4	21.0	16.0	8.9	8.4	3.9
27	7.1	3.5	9.0	11.3	12.9	17.2	18.3	20.9	15.9	8.5	8.5	5.0
28	7.2	5.0	8.8	10.5	12.9	17.7	18.5	19.9	15.1	8.4	8.8	7.7
29	8.1	—	9.2	10.0	12.6	17.8	19.2	18.9	14.6	9.2	7.7	8.5
30	8.1	—	9.9	10.8	12.8	17.1	19.8	18.0	14.6	10.2	7.6	8.5
31	8.0	—	10.8	—	13.2	—	19.4	16.7	—	10.2	—	7.0
MEAN	6.4	5.9	8.3	10.3	13.1	16.2	18.2	18.9	16.9	12.3	8.0	4.5
MAX	10.3	8.4	10.8	12.3	15.1	17.9	20.0	21.2	19.6	14.8	10.3	8.5
MIN	2.5	2.8	4.8	9.3	11.3	13.6	17.0	16.7	14.6	8.4	6.1	1.8

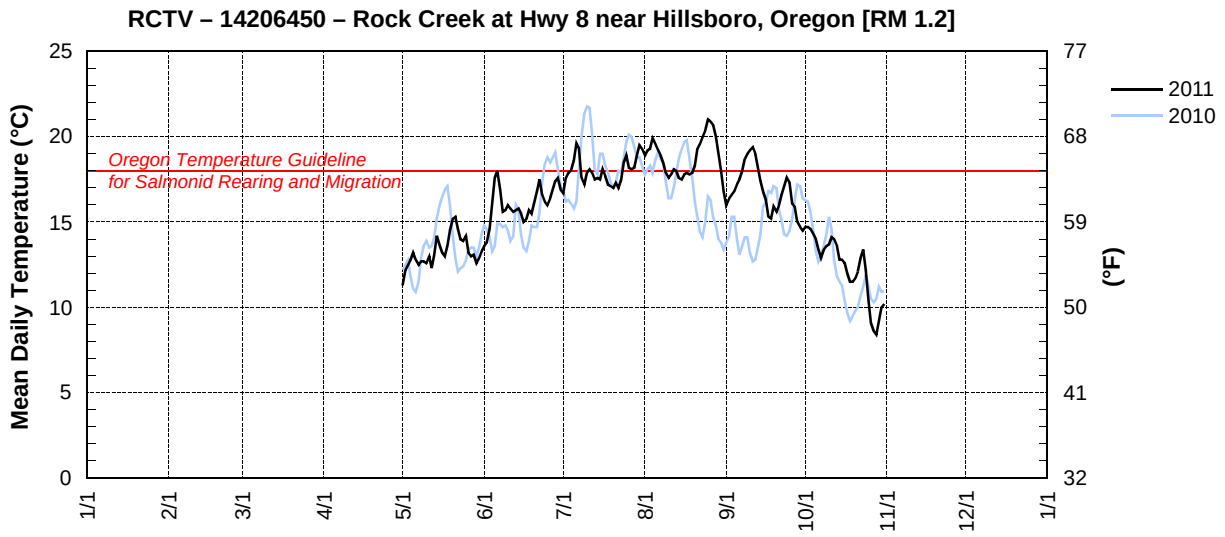
RCBR – Rock Creek at Brookwood Avenue, Hillsboro, Oregon [RM 2.4]



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

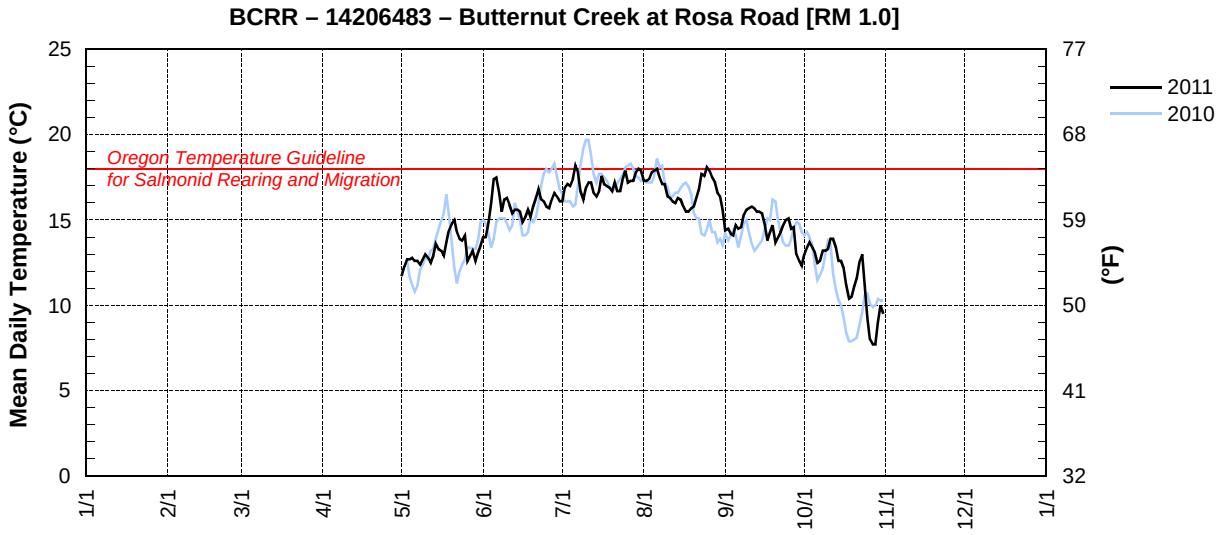
Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					11.3	13.6	16.7	18.9	16.0	14.7		
2					12.2	13.8	17.6	19.2	16.4	14.7		
3					12.5	14.6	17.9	19.3	16.6	14.6		
4					12.8	16.2	18.0	19.9	16.8	14.3		
5					13.2	17.6	18.6	19.6	17.2	14.0		
6					12.8	18.0	19.6	19.2	17.5	13.4		
7					12.5	16.9	19.3	18.9	18.0	12.9		
8					12.7	15.6	17.6	18.5	18.7	13.4		
9					12.7	15.7	17.2	17.9	19.0	13.6		
10					12.6	16.0	17.9	17.6	19.2	13.7		
11					13.0	15.8	18.1	17.8	19.4	14.1		
12					12.3	15.6	17.9	18.1	19.0	14.0		
13					13.1	15.7	17.5	18.0	18.2	13.6		
14					14.2	15.8	17.6	17.6	17.4	12.8		
15					13.7	15.5	17.5	17.5	16.8	12.8		
16					13.2	15.0	18.1	17.8	16.3	12.6		
17					13.0	15.2	17.7	17.9	15.3	12.0		
18					13.6	15.7	17.2	17.8	15.2	11.5		
19					14.5	15.5	17.1	17.9	15.9	11.5		
20					15.2	16.1	17.0	18.3	15.6	11.7		
21					15.3	16.8	17.3	19.3	16.0	12.1		
22					14.6	17.5	17.0	19.6	16.6	12.9		
23					14.0	16.6	17.5	20.0	17.1	13.4		
24					13.9	16.2	18.5	20.4	17.6	12.2		
25					14.2	16.0	18.9	21.0	17.3	10.5		
26					13.2	16.4	18.2	20.9	16.1	9.1		
27					13.0	16.9	18.1	20.7	15.9	8.6		
28					13.1	17.4	18.2	20.0	15.0	8.4		
29		—			12.6	17.6	18.9	19.0	14.7	9.2		
30		—			12.9	16.9	19.5	18.0	14.5	10.0		
31		—		—	13.3	—	19.3	16.8	—	10.2	—	
MEAN					13.3	16.1	18.0	18.8	16.8	12.3		
MAX					15.3	18.0	19.6	21.0	19.4	14.7		
MIN					11.3	13.6	16.7	16.8	14.5	8.4		



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	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					11.7	14.0	16.1	17.3	14.4	13.0		
2					12.3	14.0	16.9	17.3	14.5	13.4		
3					12.7	14.9	17.1	17.4	14.2	13.7		
4					12.7	16.0	17.0	17.8	14.1	13.4		
5					12.8	17.4	17.4	17.9	14.7	13.1		
6					12.6	17.5	18.2	18.0	14.5	12.5		
7					12.6	16.6	17.8	17.5	14.6	12.6		
8					12.4	15.5	16.7	17.1	15.3	13.2		
9					12.7	16.2	16.2	17.1	15.6	13.2		
10					13.0	16.3	16.9	16.4	15.7	13.3		
11					12.8	15.9	17.2	16.3	15.8	13.9		
12					12.5	15.4	17.2	16.1	15.7	13.9		
13					12.9	15.6	16.6	16.0	15.5	13.4		
14					13.6	15.6	16.4	16.3	15.5	12.6		
15					13.3	15.5	16.7	16.2	15.4	12.6		
16					13.2	14.9	17.6	15.8	14.7	12.2		
17					12.9	15.2	17.1	15.5	13.8	11.2		
18					13.7	15.6	17.0	15.5	14.3	10.4		
19					14.4	15.2	16.9	15.7	14.7	10.5		
20					14.8	15.8	16.7	15.8	13.7	11.1		
21					15.0	16.3	17.2	16.3	14.0	11.6		
22					14.3	16.8	16.7	16.8	14.3	12.6		
23					13.9	16.2	16.7	17.7	14.7	13.0		
24					13.8	16.1	17.4	17.6	15.0	11.3		
25					14.1	15.8	17.9	18.1	15.1	9.3		
26					12.6	15.7	17.2	17.9	14.5	8.0		
27					12.9	16.2	17.3	17.5	14.6	7.7		
28					13.2	16.6	17.3	17.2	13.0	7.7		
29		—			12.6	16.4	17.8	16.6	12.6	9.0		
30		—			13.1	16.1	18.0	16.4	12.3	10.0		
31		—		—	13.5	—	17.9	15.6	—	9.5	—	
MEAN					13.2	15.8	17.1	16.8	14.6	11.7		
MAX					15.0	17.5	18.2	18.1	15.8	13.9		
MIN					11.7	14.0	16.1	15.5	12.3	7.7		

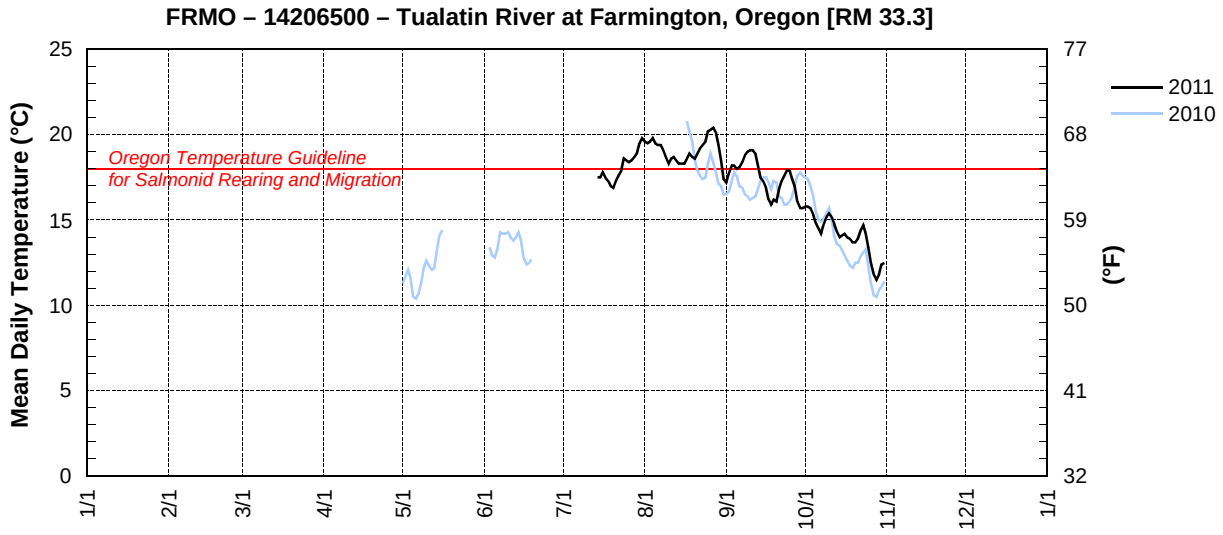


FRMO – 14206500 – TUALATIN RIVER AT FARMINGTON, OREGON [RM 33.3]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL*	AUG	SEP	OCT	NOV	DEC
1								19.6	17.2	15.8		
2								19.5	17.8	15.8		
3								19.6	18.2	15.7		
4								19.8	18.2	15.3		
5								19.5	18.0	14.8		
6								19.4	18.1	14.5		
7								19.4	18.4	14.2		
8								19.1	18.8	14.8		
9								18.7	19.0	15.2		
10								18.3	19.1	15.4		
11								18.6	19.1	15.2		
12								18.7	18.9	14.8		
13								18.5	18.2	14.3		
14							17.5**	18.3	17.5	14.0		
15							17.5	18.3	17.3	14.1		
16							17.8	18.3	16.9	14.2		
17							17.5	18.6	16.2	14.0		
18							17.3	18.9	15.9	13.9		
19							17.0	18.7	16.2	13.7		
20							16.9	18.6	16.1	13.7		
21							17.3	18.9	16.8	13.9		
22							17.6	19.2	17.3	14.4		
23							17.9	19.4	17.6	14.7		
24							18.6	19.6	17.9	14.2		
25							18.5	20.2	17.9	13.4		
26							18.4	20.3	17.4	12.5		
27							18.5	20.4	17.0	11.8		
28							18.7	20.1	16.1	11.5		
29		—					18.9	19.4	15.7	11.8		
30		—					19.5	18.5	15.7	12.4		
31		—		—		—	19.8	17.4	—	12.5	—	
MEAN							18.1	19.1	17.5	14.1		
MAX							19.8	20.4	19.1	15.8		
MIN							16.9	17.4	15.7	11.5		

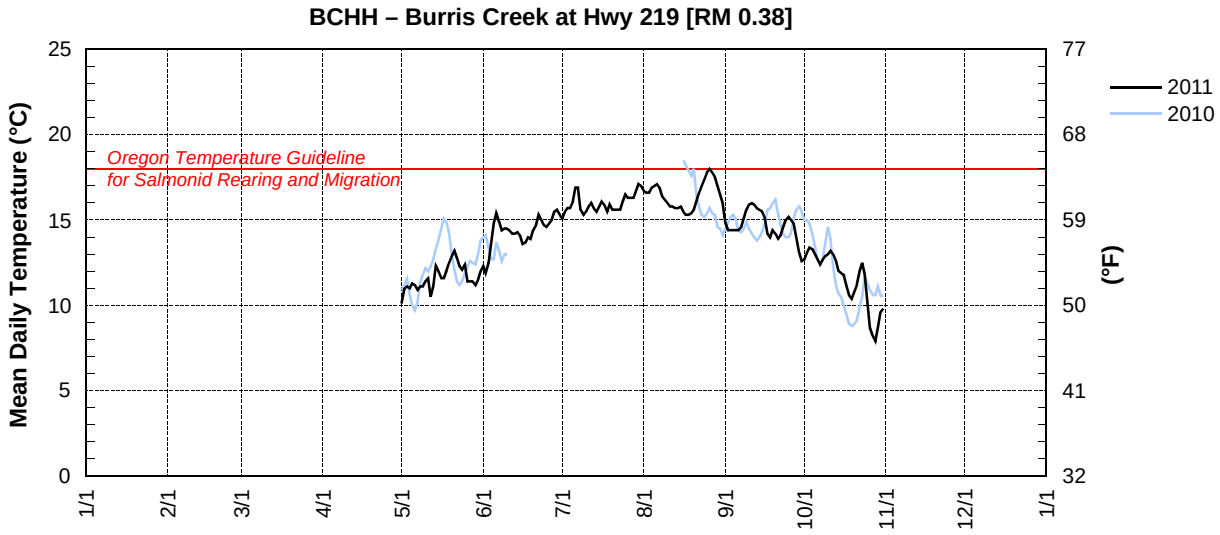
* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month); **Mean daily value based on incomplete record



BCHH – BURRIS CREEK AT HWY 219 [RM 0.38]

Latitude: 45 25 34 Longitude: 122 57 40 Source Agency: WEST Consultants for Clean Water Services

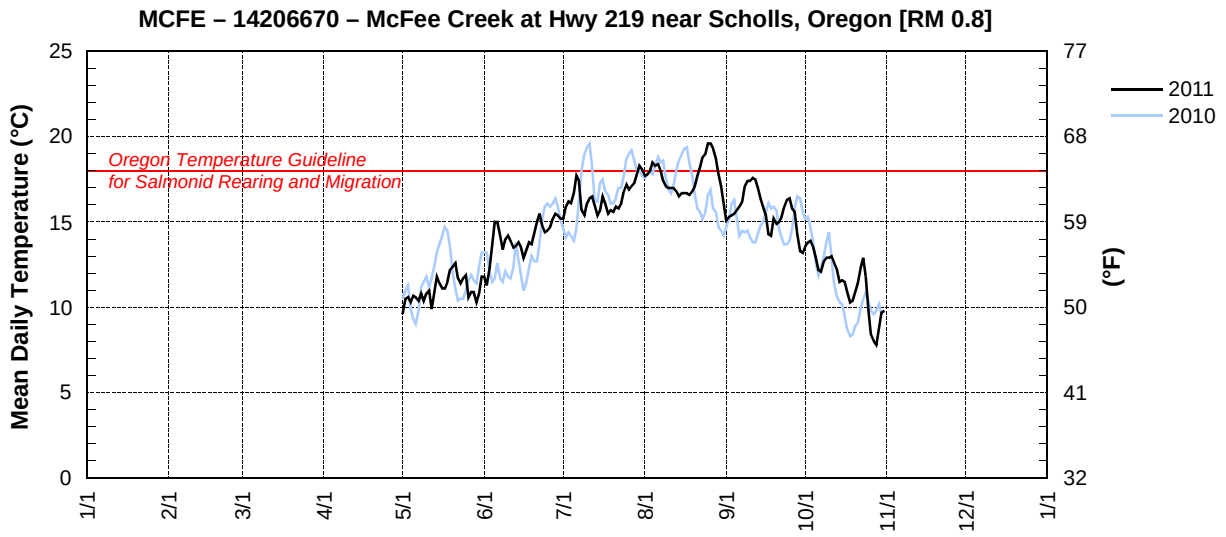
Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					10.1	12.3	15.1	16.7	14.9	12.7		
2					11.0	11.9	15.5	16.6	14.4	13.1		
3					11.1	12.5	15.7	16.6	14.4	13.4		
4					11.0	13.6	15.7	16.9	14.4	13.3		
5					11.3	14.8	16.1	17.0	14.4	13.0		
6					11.2	15.4	16.9	17.1	14.4	12.7		
7					10.9	14.9	16.9	16.9	14.6	12.4		
8					11.1	14.4	15.6	16.4	15.1	12.7		
9					11.1	14.5	15.3	16.2	15.6	12.9		
10					11.4	14.5	15.5	16.0	15.9	13.0		
11					11.6	14.4	15.8	15.8	16.0	13.2		
12					10.5	14.2	16.0	15.8	15.9	13.0		
13					11.1	14.2	15.7	15.7	15.7	12.6		
14					12.3	14.3	15.5	15.7	15.6	12.0		
15					12.0	14.1	15.8	15.8	15.5	11.9		
16					11.6	13.6	16.1	15.5	15.1	11.8		
17					11.6	13.7	15.9	15.3	14.2	11.2		
18					12.0	14.0	15.5	15.3	14.0	10.6		
19					12.5	13.9	15.9	15.4	14.4	10.4		
20					12.9	14.4	15.6	15.6	14.2	10.8		
21					13.2	14.7	15.6	16.1	13.9	11.2		
22					12.8	15.3	15.6	16.6	14.1	12.0		
23					12.3	15.0	15.6	17.0	14.6	12.5		
24					12.1	14.7	16.1	17.4	15.0	11.8		
25					12.4	14.6	16.5	17.8	15.2	10.2		
26					11.4	14.8	16.3	18.0	15.0	8.7		
27					11.4	15.0	16.3	17.8	14.8	8.2		
28					11.4	15.5	16.3	17.5	14.0	7.9		
29		—			11.2	15.6	16.7	17.0	13.1	8.7		
30		—			11.5	15.3	17.1	16.5	12.6	9.6		
31		—		—	12.0	—	17.0	16.0	—	9.8	—	
MEAN					11.6	14.3	16.0	16.5	14.7	11.5		
MAX					13.2	15.6	17.1	18.0	16.0	13.4		
MIN					10.1	11.9	15.1	15.3	12.6	7.9		



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

Latitude: 45 24 19 Longitude: 122 56 19 Source Agency: WEST Consultants for Clean Water Services

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					9.6	11.8	15.2	17.7	15.1	13.6		
2					10.5	11.3	15.9	17.8	15.3	13.8		
3					10.6	12.3	16.2	18.0	15.4	13.9		
4					10.3	13.7	16.1	18.5	15.5	13.5		
5					10.7	15.0	16.7	18.3	15.7	12.9		
6					10.6	15.0	17.7	18.4	15.9	12.2		
7					10.4	14.2	17.4	18.0	16.2	12.1		
8					10.8	13.4	15.7	17.4	17.1	12.7		
9					10.4	14.0	15.4	17.1	17.4	12.9		
10					10.8	14.2	16.1	17.0	17.4	12.9		
11					11.0	13.9	16.4	17.0	17.6	13.0		
12					9.9	13.5	16.5	17.0	17.5	12.6		
13					10.9	13.6	16.0	16.8	17.0	12.2		
14					11.8	13.8	15.4	16.5	16.4	11.5		
15					11.4	13.5	15.7	16.7	15.9	11.6		
16					11.1	12.9	16.5	16.7	15.4	11.5		
17					11.1	13.4	16.1	16.7	14.3	10.9		
18					11.5	13.8	15.5	16.6	14.2	10.3		
19					12.2	13.7	15.7	16.8	15.2	10.4		
20					12.4	14.3	15.6	17.1	14.9	10.9		
21					12.6	15.0	15.9	17.7	15.0	11.4		
22					11.7	15.5	15.8	18.2	15.3	12.3		
23					11.4	14.8	16.1	18.8	15.9	12.9		
24					11.7	14.4	16.8	19.0	16.3	11.8		
25					11.9	14.5	17.2	19.6	16.4	9.9		
26					10.6	14.7	16.9	19.6	15.8	8.4		
27					10.9	15.2	17.1	19.3	15.6	8.0		
28					10.9	15.5	17.3	18.7	14.3	7.8		
29		—			10.3	15.4	17.8	17.8	13.3	8.8		
30		—			10.8	15.2	18.3	17.1	13.2	9.7		
31		—		—	11.8	—	18.1	16.1	—	9.8	—	
MEAN					11.1	14.1	16.4	17.7	15.7	11.5		
MAX					12.6	15.5	18.3	19.6	17.6	13.9		
MIN					9.6	11.3	15.2	16.1	13.2	7.8		



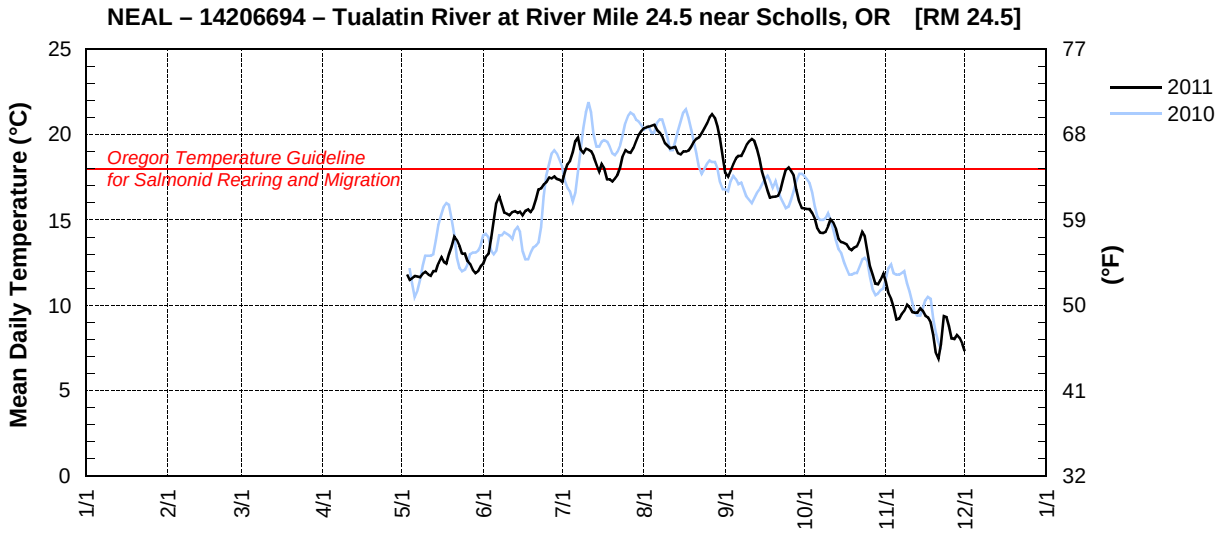
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

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

LATITUDE: 452406 LONGITUDE: 1225338

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY*	JUN	JUL	AUG	SEP	OCT	NOV	DEC*
1						12.4	17.2	20.4	17.8	15.7	11.4	7.3
2						12.8	17.8	20.5	17.5	15.7	10.7	
3						13.0	18.3	20.5	17.9	15.7	10.4	
4					11.5	13.9	18.4	20.5	18.3	15.4	9.9	
5					11.6	14.9	19.0	20.6	18.6	15.1	9.2	
6					11.7	16.0	19.6	20.3	18.8	14.5	9.2	
7					11.7	16.4	19.9	20.1	18.7	14.3	9.5	
8					11.7	15.9	19.2	19.9	19.1	14.2	9.7	
9					11.8	15.4	18.9	19.5	19.4	14.3	10.1	
10					12.0	15.4	19.2	19.4	19.6	14.6	9.9	
11					11.8	15.3	19.1	19.2	19.8	15.0	9.6	
12					11.7	15.5	19.0	19.2	19.6	14.9	9.6	
13					12.0	15.5	18.8	19.3	19.2	14.5	9.6	
14					12.0	15.4	18.3	18.9	18.6	13.9	9.8	
15					12.5	15.5	17.8	18.9	17.9	13.7	9.7	
16					12.8	15.3	18.3	19.0	17.3	13.7	9.4	
17					12.5	15.5	18.0	19.0	16.8	13.6	9.3	
18					12.4	15.6	17.4	19.1	16.3	13.3	9.0	
19					13.0	15.5	17.4	19.3	16.4	13.3	8.3	
20					13.5	15.7	17.3	19.6	16.4	13.4	7.2	
21					14.0	16.2	17.4	19.8	16.4	13.5	6.9	
22					13.8	16.8	17.6	19.9	16.8	13.8	7.7	
23					13.5	16.9	18.1	20.1	17.4	14.3	9.4	
24					13.0	17.1	18.8	20.4	17.9	14.1	9.3	
25					13.0	17.2	19.1	20.7	18.1	13.2	8.8	
26					12.6	17.5	19.0	21.0	17.9	12.3	8.1	
27					12.4	17.4	18.9	21.2	17.6	11.8	8.0	
28					12.1	17.6	19.2	21.0	16.8	11.3	8.3	
29		—			11.9	17.4	19.6	20.5	16.1	11.2	8.1	
30		—			12.0	17.3	20.0	19.8	15.7	11.5	7.8	
31		—			12.3	—	20.2	18.7	—	11.9	—	
MEAN					12.4	15.7	18.6	19.9	17.8	13.8	9.1	
MAX					14.0	17.6	20.2	21.2	19.8	15.7	11.4	
MIN					11.5	12.4	17.2	18.7	15.7	11.2	6.9	

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

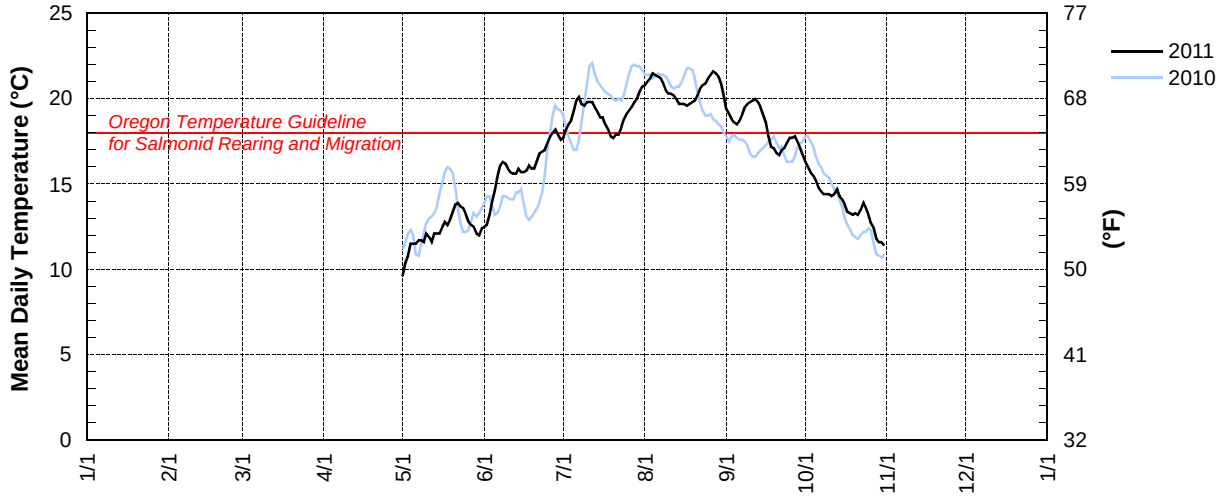


ELSN – 14206600 – TUALATIN RIVER AT ROY ROGERS ROAD (ELSNER) NEAR SHERWOOD, OREGON [RM 16.2]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					9.6	12.5	17.7	20.8	19.4	16.3		
2					10.4	12.6	18.2	21.0	19.1	16.0		
3					10.8	13.2	18.5	21.2	18.8	15.7		
4					11.5	14.0	18.7	21.5	18.6	15.5		
5					11.5	14.6	19.3	21.4	18.5	15.2		
6					11.5	15.4	19.9	21.3	18.7	14.8		
7					11.7	16.1	20.1	21.2	19.1	14.6		
8					11.7	16.3	19.7	20.9	19.5	14.4		
9					11.6	16.2	19.6	20.5	19.7	14.4		
10					12.1	15.9	19.8	20.3	19.8	14.4		
11					11.9	15.7	19.8	20.3	19.9	14.3		
12					11.6	15.6	19.8	20.2	20.0	14.4		
13					12.1	15.6	19.5	20.0	19.8	14.7		
14					12.1	15.9	19.2	19.7	19.5	14.3		
15					12.1	15.7	18.9	19.7	19.1	14.1		
16					12.5	15.7	18.9	19.7	18.6	13.8		
17					12.8	15.8	18.5	19.6	17.8	13.4		
18					12.6	16.1	18.2	19.7	17.2	13.3		
19					12.9	15.9	17.8	19.8	17.1	13.2		
20					13.4	15.9	17.7	19.9	16.8	13.3		
21					13.8	16.4	17.9	20.2	16.7	13.2		
22					13.9	16.8	17.9	20.6	17.0	13.5		
23					13.7	16.9	18.3	20.8	17.1	13.9		
24					13.6	17.0	18.8	20.9	17.4	13.6		
25					13.2	17.4	19.1	21.2	17.7	13.2		
26					12.8	17.8	19.3	21.4	17.7	12.7		
27					12.6	18.0	19.5	21.6	17.8	12.4		
28					12.5	18.2	19.8	21.5	17.5	11.8		
29		—			12.1	17.9	20.0	21.3	17.1	11.6		
30		—			12.0	17.6	20.4	20.9	16.7	11.6		
31		—		—	12.4	—	20.7	20.2	—	11.4	—	
MEAN					12.2	16.0	19.1	20.6	18.3	13.8		
MAX					13.9	18.2	20.7	21.6	20.0	16.3		
MIN					9.6	12.5	17.7	19.6	16.7	11.4		

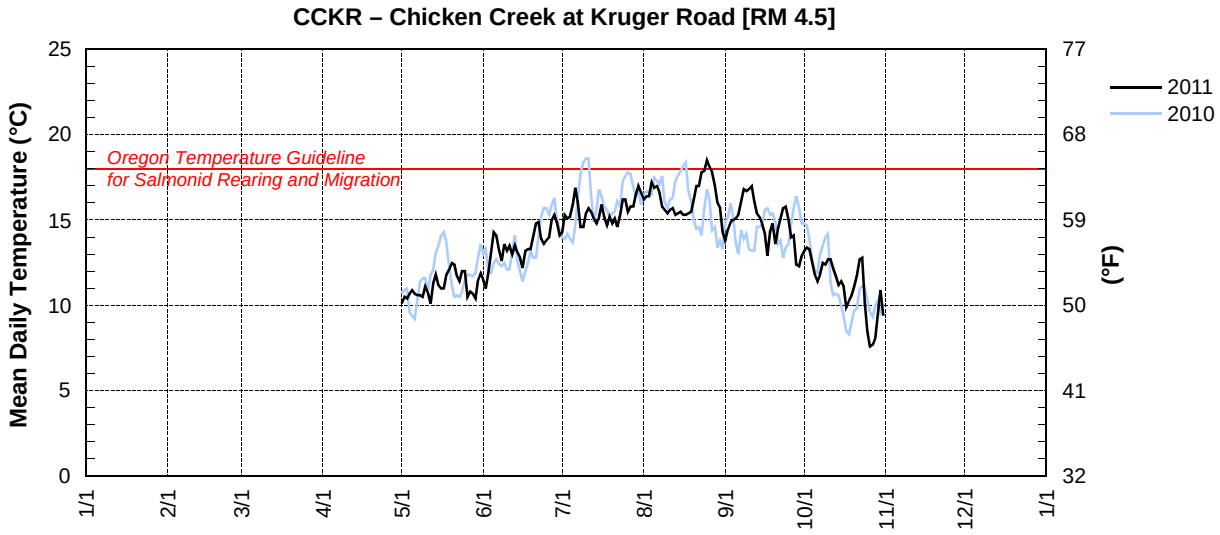
ELSN – 14206600 – Tualatin River at Roy Rogers Road (Elsner) near Sherwood, Oregon [RM 16.2]



CCKR – CHICKEN CREEK AT KRUGER ROAD [RM 4.5]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					10.1	11.5	14.3	16.2	13.8	13.2		
2					10.5	11.0	15.3	16.4	14.5	13.4		
3					10.4	12.0	15.1	16.4	14.9	13.3		
4					10.7	13.2	15.2	17.2	15.0	12.5		
5					10.9	14.3	15.9	16.9	15.1	11.8		
6					10.7	14.1	16.9	17.0	15.3	11.4		
7					10.6	13.2	16.0	16.6	16.1	11.8		
8					10.6	12.6	14.6	15.8	16.8	12.5		
9					10.5	13.6	14.6	15.6	16.7	12.4		
10					11.1	13.2	15.4	15.4	16.8	12.7		
11					10.7	13.5	15.7	15.6	17.0	12.7		
12					10.1	13.0	15.5	15.7	16.1	12.2		
13					11.3	13.5	15.1	15.3	15.4	11.7		
14					11.8	13.1	14.8	15.4	15.2	11.2		
15					11.2	12.8	15.2	15.5	14.8	11.4		
16					11.0	12.2	15.9	15.3	14.2	11.1		
17					11.0	13.2	15.2	15.3	12.9	9.9		
18					11.8	13.3	14.7	15.4	14.3	10.3		
19					12.1	13.3	15.2	15.5	14.8	10.6		
20					12.5	14.0	14.8	16.2	13.6	11.1		
21					12.4	14.8	15.1	17.0	14.5	11.7		
22					11.7	14.9	14.6	17.0	15.1	12.7		
23					11.4	13.9	15.3	17.8	15.7	12.8		
24					12.0	13.6	16.2	17.9	15.8	10.2		
25					12.0	13.8	16.2	18.5	15.0	8.5		
26					10.5	14.0	15.5	18.1	14.0	7.6		
27					10.8	15.0	15.8	17.8	14.1	7.7		
28					10.7	15.3	15.8	17.0	12.4	8.1		
29		—			10.4	14.9	16.5	16.0	12.3	9.6		
30		—			11.5	14.1	17.0	15.7	12.9	10.9		
31		—		—	11.9	—	16.6	14.3	—	9.4	—	
MEAN					11.1	13.5	15.5	16.3	14.8	11.2		
MAX					12.5	15.3	17.0	18.5	17.0	13.4		
MIN					10.1	11.0	14.3	14.3	12.3	7.6		



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

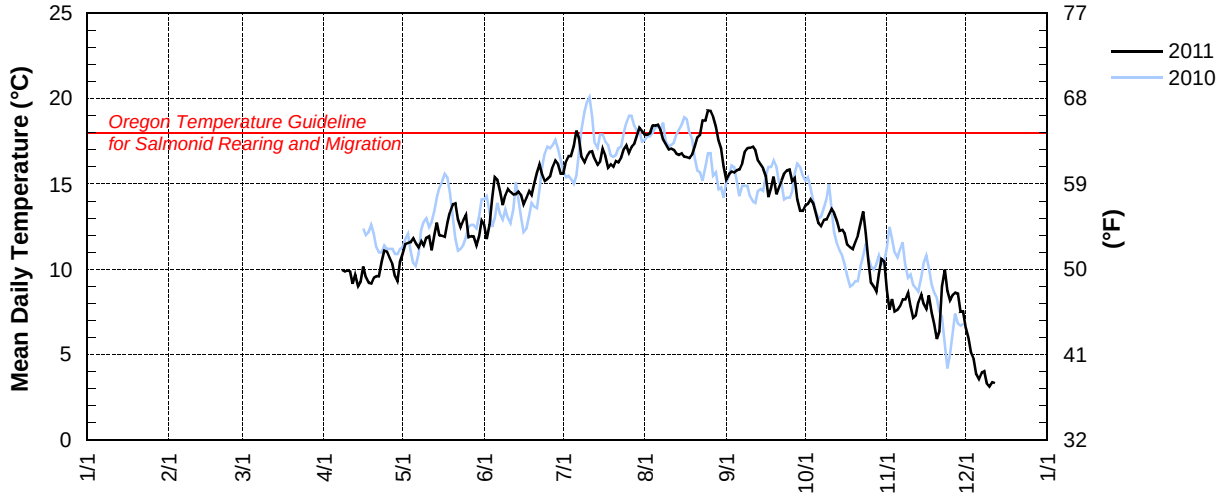
STATION NUMBER 452230122512201* CHICKEN CREEK AT ROY ROGERS ROAD, SHERWOOD OR

LATITUDE: 452230.09 LONGITUDE: 1225121.76

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR*	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC*
1					10.9	12.6	15.5	17.9	15.3	13.8	8.8	6.6
2					11.5	11.8	16.3	17.9	15.6	13.8	7.6	6.0
3					11.6	12.6	16.6	18.0	15.7	14.1	8.3	5.1
4					11.6	14.2	16.6	18.4	15.7	13.9	7.5	4.8
5					11.8	15.4	17.2	18.4	15.8	13.3	7.6	3.9
6					11.6	15.3	18.1	18.5	15.9	12.7	7.9	3.6
7					11.3	14.5	17.8	18.2	16.2	12.5	8.2	4.0
8					11.6	13.8	16.6	17.6	16.9	12.9	8.2	4.1
9				9.9	11.4	14.3	16.3	17.3	17.1	12.9	8.7	3.3
10				10.0	11.8	14.8	16.6	17.0	17.1	13.2	7.9	3.1
11				9.9	12.0	14.5	16.9	17.1	17.2	13.5	7.2	3.4
12				9.2	11.1	14.4	16.9	17.0	17.0	13.3	7.3	
13				9.7	12.0	14.4	16.5	16.8	16.4	12.8	8.1	
14				9.0	12.7	14.6	16.1	16.7	16.2	12.3	8.5	
15				9.3	12.0	14.4	16.3	16.8	15.9	12.3	8.0	
16				10.2	11.9	13.8	17.1	16.6	15.5	12.1	7.7	
17				9.6	11.9	14.2	16.7	16.6	14.3	11.5	8.5	
18				9.2	12.7	14.6	16.0	16.5	14.7	11.3	7.5	
19				9.2	13.4	14.3	16.1	16.8	15.4	11.2	6.8	
20				9.5	13.8	15.0	16.0	17.1	14.4	11.6	5.9	
21				9.6	13.9	15.6	16.4	17.7	14.8	12.0	6.3	
22				9.6	13.0	16.2	16.3	17.9	15.2	12.7	9.0	
23				10.4	12.5	15.6	16.6	18.7	15.6	13.4	10.0	
24				11.1	12.9	15.2	17.0	18.7	15.8	12.1	8.8	
25				11.0	13.2	15.3	17.3	19.3	15.9	10.6	8.2	
26				10.7	11.9	15.5	16.9	19.3	15.2	9.2	8.5	
27				10.3	12.0	16.0	17.2	19.0	15.4	9.0	8.6	
28				9.6	11.9	16.4	17.4	18.4	14.1	8.7	8.6	
29		—		9.3	11.4	16.2	17.8	17.6	13.4	9.8	7.5	
30		—		10.4	11.9	15.6	18.3	17.1	13.4	10.6	7.5	
31		—		—	12.8	—	18.1	16.0	—	10.5	—	
MEAN					12.1	14.7	16.8	17.6	15.6	12.1	8.0	
MAX					13.9	16.4	18.3	19.3	17.2	14.1	10.0	
MIN					10.9	11.8	15.5	16.0	13.4	8.7	5.9	

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

CCSR – 452230122512201* – Chicken Creek at Roy Rogers Road near Sherwood, Oregon [RM 2.3]

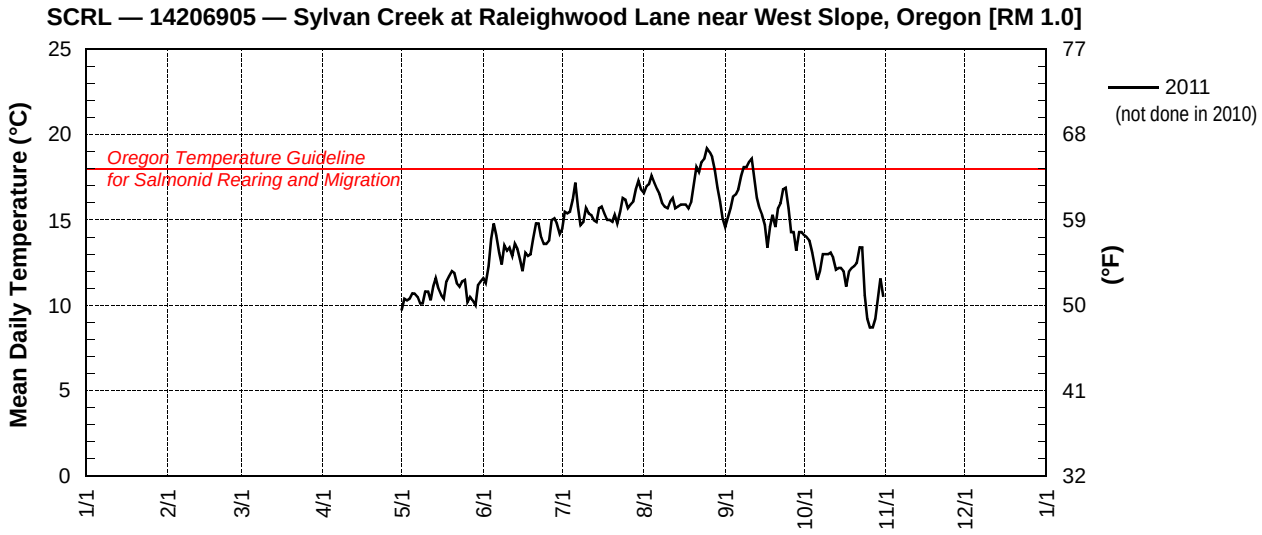


*USGS #452230122512201 is equivalent to OWRD #14206750.

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

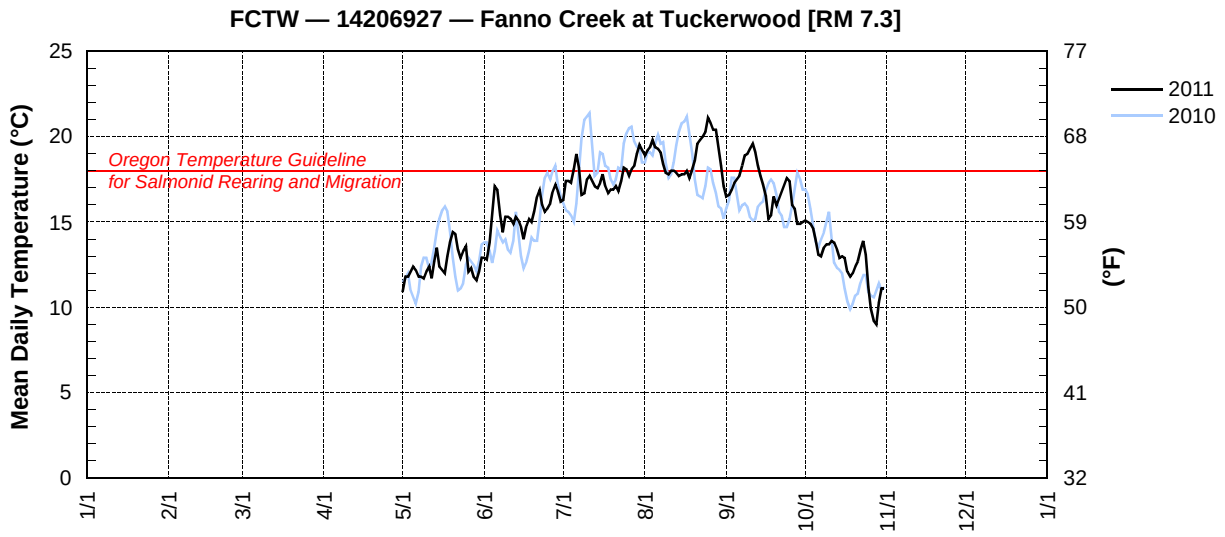
Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					9.7	11.6	14.5	16.6	14.6	14.1		
2					10.4	11.3	15.5	17.0	15.2	14.0		
3					10.3	12.3	15.4	17.1	15.7	13.8		
4					10.4	13.9	15.5	17.6	16.4	13.1		
5					10.7	14.8	16.2	17.2	16.5	12.3		
6					10.7	14.1	17.2	16.8	16.8	11.5		
7					10.5	13.1	15.8	16.5	17.6	12.0		
8					10.1	12.4	14.7	16.0	18.1	13.0		
9					10.1	13.5	14.9	15.8	18.1	13.0		
10					10.8	13.2	15.7	15.7	18.4	13.0		
11					10.8	13.4	15.4	16.1	18.6	13.1		
12					10.3	12.9	15.3	16.3	17.4	12.8		
13					11.1	13.6	15.0	15.7	16.3	12.1		
14					11.6	13.3	14.9	15.8	15.7	12.2		
15					11.0	12.7	15.7	15.9	15.3	12.2		
16					10.6	12.0	15.8	15.9	14.7	12.0		
17					10.4	13.1	15.4	15.9	13.4	11.1		
18					11.4	12.9	15.0	15.7	14.6	12.0		
19					11.7	13.0	15.0	16.1	15.3	12.2		
20					12.0	13.9	14.9	17.1	14.6	12.3		
21					11.9	14.8	15.3	18.1	15.7	12.5		
22					11.3	14.8	14.8	17.8	16.0	13.4		
23					11.1	14.0	15.5	18.4	16.8	13.4		
24					11.4	13.6	16.3	18.6	16.9	10.6		
25					11.5	13.6	16.2	19.2	15.7	9.2		
26					10.2	13.8	15.7	19.0	14.3	8.7		
27					10.5	15.0	15.9	18.7	14.3	8.7		
28					10.3	15.1	16.1	17.9	13.2	9.2		
29		—			10.0	14.8	16.8	16.9	14.3	10.4		
30		—			11.2	14.2	17.3	16.1	14.3	11.6		
31		—		—	11.4	—	16.8	15.1	—	10.5	—	
MEAN					10.8	13.5	15.6	16.9	15.8	11.9		
MAX					12.0	15.1	17.3	19.2	18.6	14.1		
MIN					9.7	11.3	14.5	15.1	13.2	8.7		



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

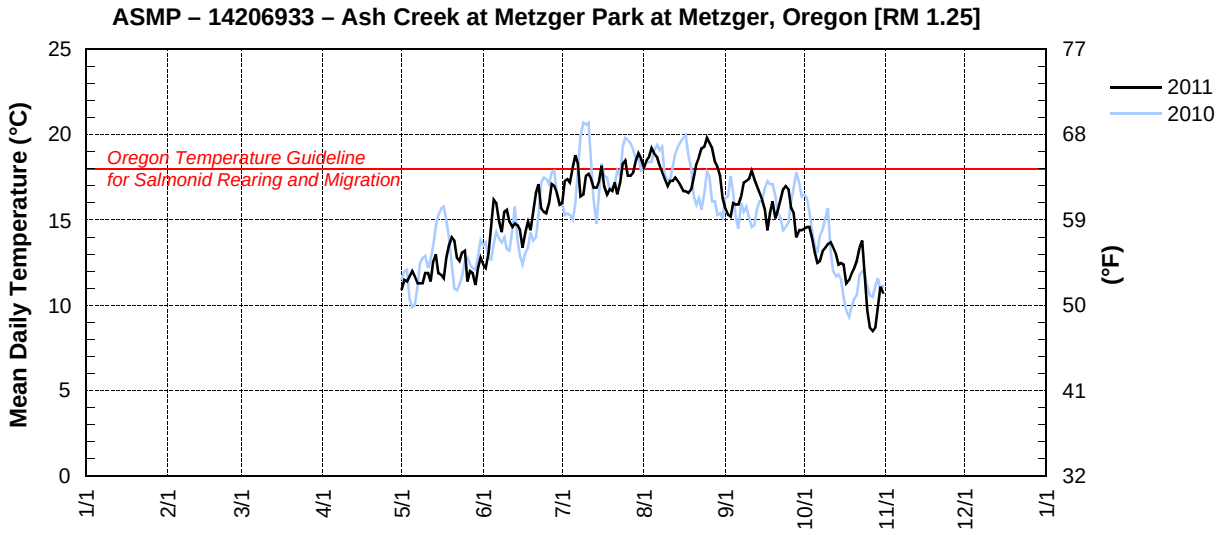
Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					10.9	12.9	16.3	18.9	16.5	15.1		
2					11.8	12.8	17.4	19.2	16.6	15.0		
3					11.8	13.8	17.4	19.4	16.9	14.9		
4					12.1	15.6	17.3	19.8	17.3	14.6		
5					12.4	17.1	18.1	19.4	17.5	13.9		
6					12.2	16.9	19.0	19.3	17.7	13.1		
7					11.8	15.4	18.2	19.1	18.3	13.0		
8					11.8	14.4	16.6	18.4	18.9	13.5		
9					11.7	15.3	16.7	17.9	19.0	13.7		
10					12.1	15.3	17.5	17.8	19.3	13.7		
11					12.4	15.2	17.7	18.0	19.6	13.9		
12					11.7	14.9	17.4	18.0	19.1	13.8		
13					12.7	15.3	17.1	17.9	18.3	13.4		
14					13.5	15.1	17.0	17.7	17.7	12.9		
15					12.4	14.7	17.3	17.8	17.2	13.0		
16					12.2	14.0	17.8	17.8	16.5	12.9		
17					12.0	14.8	17.1	18.0	15.2	12.1		
18					13.0	15.2	16.7	17.6	15.4	11.8		
19					13.8	15.0	16.9	18.1	16.5	12.0		
20					14.4	15.6	16.9	18.6	16.0	12.4		
21					14.3	16.5	17.1	19.6	16.4	12.7		
22					13.4	16.9	16.8	19.8	16.8	13.4		
23					12.9	16.0	17.4	20.0	17.2	13.9		
24					13.3	15.6	18.2	20.3	17.6	13.1		
25					13.6	15.8	18.1	21.1	17.4	11.2		
26					12.1	16.1	17.7	20.8	16.0	9.9		
27					12.3	16.8	18.1	20.4	15.8	9.2		
28					11.8	17.2	18.3	20.4	14.9	9.0		
29		—			11.6	16.8	19.0	19.3	14.9	10.3		
30		—			12.1	16.2	19.5	18.3	15.0	11.1		
31		—		—	12.9	—	19.2	17.1	—	11.1	—	
MEAN					12.5	15.4	17.6	18.9	17.1	12.7		
MAX					14.4	17.2	19.5	21.1	19.6	15.1		
MIN					10.9	12.8	16.3	17.1	14.9	9.0		



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

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					10.9	12.4	16.0	18.1	15.7	14.5		
2					11.5	12.2	17.3	18.5	15.3	14.6		
3					11.4	13.1	17.4	18.7	15.2	14.6		
4					11.7	14.7	17.2	19.2	16.0	13.9		
5					12.0	16.2	18.1	18.9	15.9	13.1		
6					11.7	16.0	18.8	18.7	15.9	12.5		
7					11.3	14.9	18.3	18.2	16.4	12.6		
8					11.3	14.3	16.4	17.8	17.2	13.2		
9					11.3	15.5	16.5	17.4	17.3	13.4		
10					11.9	15.6	17.6	17.0	17.4	13.6		
11					11.9	14.9	17.7	17.3	17.9	13.7		
12					11.4	14.6	17.4	17.3	17.4	13.4		
13					12.6	14.8	16.9	17.5	17.0	13.0		
14					13.0	14.7	16.9	17.3	16.6	12.4		
15					11.9	14.4	17.3	17.0	16.2	12.5		
16					11.8	13.4	18.2	16.7	15.6	12.4		
17					11.6	14.3	17.0	16.7	14.4	11.3		
18					12.8	14.9	16.5	16.6	15.4	11.5		
19					13.5	14.4	16.8	16.8	16.1	11.9		
20					14.0	15.4	16.7	17.5	15.1	12.2		
21					13.8	16.6	17.2	18.3	15.6	12.6		
22					12.8	17.1	16.5	18.7	16.2	13.4		
23					12.6	15.7	17.2	19.2	16.8	13.8		
24					13.1	15.5	18.3	19.3	17.0	11.9		
25					13.2	15.4	18.5	19.8	16.8	9.7		
26					11.4	16.0	17.6	19.5	15.7	8.7		
27					12.0	17.1	17.6	19.2	15.4	8.5		
28					11.9	17.0	17.8	18.4	14.0	8.7		
29		—			11.2	16.6	18.5	18.1	14.4	9.9		
30		—			12.2	15.9	18.9	17.6	14.4	11.1		
31		—		—	12.8	—	18.6	16.3	—	10.7	—	
MEAN					12.1	15.1	17.5	18.0	16.0	12.2		
MAX					14.0	17.1	18.9	19.8	17.9	14.6		
MIN					10.9	12.2	16.0	16.3	14.0	8.5		



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

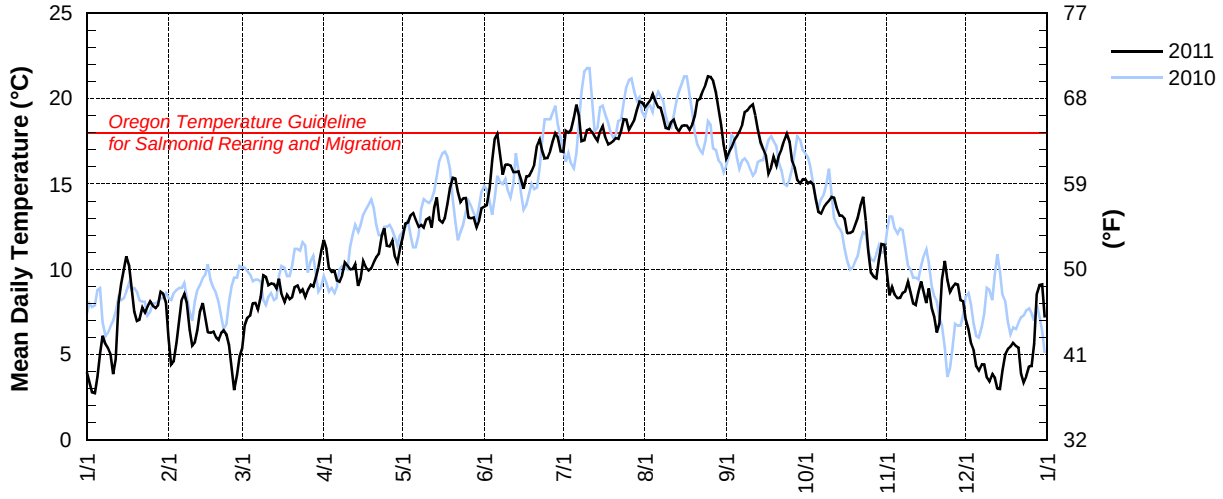
STATION NUMBER 14206950 FANNO CREEK AT DURHAM, OR

LATITUDE: 452413 LONGITUDE: 1224513

Water Temperature, degrees Celsius, Calendar Year January to December 2011 Daily Mean Values

Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	4.0	6.0	5.3	11.7	11.8	13.7	16.9	19.5	16.5	15.3	9.8	7.1
2	3.4	4.5	6.7	11.2	12.7	13.8	18.1	19.7	16.9	15.0	8.5	6.5
3	2.8	4.6	7.2	10.1	12.8	14.7	18.0	19.9	17.2	15.1	9.0	5.7
4	2.7	5.7	7.3	9.8	13.2	16.3	18.1	20.3	17.6	15.0	8.5	5.3
5	3.7	7.0	8.0	9.9	13.3	17.7	18.9	19.9	17.8	14.1	8.3	4.3
6	5.0	8.2	8.0	9.4	12.9	18.0	19.6	19.5	18.1	13.4	8.3	4.1
7	6.1	8.6	7.6	9.3	12.5	16.7	19.1	19.5	18.5	13.3	8.6	4.4
8	5.6	8.1	8.4	9.7	12.6	15.6	17.5	19.0	19.2	13.6	8.7	4.4
9	5.4	6.5	9.6	10.4	12.5	16.1	17.6	18.3	19.3	13.9	9.3	3.7
10	5.0	5.6	9.6	10.2	12.9	16.2	18.2	18.2	19.5	14.0	8.7	3.4
11	3.9	5.7	9.1	10.0	13.1	16.1	18.2	18.6	19.7	14.2	8.0	3.9
12	4.7	6.4	9.2	10.0	12.5	15.7	18.1	18.8	19.0	14.2	7.9	3.6
13	8.0	7.5	9.1	10.3	13.6	15.7	17.8	18.3	18.2	13.6	8.6	3.0
14	9.1	8.0	8.9	9.1	14.2	15.7	17.5	18.1	17.5	13.2	9.3	3.0
15	10.0	7.2	9.5	9.5	12.9	15.3	18.1	18.4	17.1	13.1	8.7	4.1
16	10.8	6.3	8.6	10.5	12.7	14.7	18.4	18.4	16.7	13.0	8.0	5.0
17	10.2	6.3	8.1	10.1	13.0	15.4	17.8	18.4	15.7	12.1	8.9	5.4
18	8.9	6.4	8.5	10.0	13.8	15.5	17.3	18.2	16.0	12.1	7.8	5.5
19	7.6	6.0	8.3	10.1	14.7	15.8	17.4	18.5	16.6	12.2	7.2	5.7
20	7.0	5.9	8.4	10.4	15.4	16.1	17.5	19.0	16.1	12.6	6.3	5.5
21	7.1	6.3	9.0	10.7	15.4	17.2	17.7	19.9	16.7	13.0	6.8	5.4
22	7.7	6.4	9.1	10.9	14.5	17.7	17.6	20.0	17.1	13.8	9.4	3.9
23	7.5	6.2	8.7	11.9	14.0	17.0	18.1	20.4	17.6	14.3	10.5	3.4
24	7.8	5.6	8.8	12.4	14.1	16.5	18.8	20.8	18.0	12.9	9.4	3.7
25	8.1	4.2	8.4	11.4	14.2	16.5	18.8	21.3	17.5	11.1	8.7	4.3
26	7.9	2.9	8.8	11.3	13.0	16.9	18.2	21.3	16.4	9.8	9.0	4.3
27	7.7	3.8	9.1	11.7	13.0	17.5	18.4	21.1	16.0	9.6	9.2	5.6
28	7.9	4.9	9.0	10.8	13.1	18.0	18.8	20.4	15.3	9.4	9.1	8.5
29	8.7	—	9.5	10.4	12.5	17.7	19.3	19.4	15.1	10.6	8.2	9.1
30	8.6	—	10.1	11.2	12.8	16.9	19.8	18.5	15.3	11.4	8.1	9.2
31	8.1	—	11.1	—	13.6	—	19.8	17.3	—	11.5	—	7.2
MEAN	6.8	6.1	8.6	10.5	13.3	16.2	18.2	19.3	17.3	12.9	8.6	5.1
MAX	10.8	8.6	11.1	12.4	15.4	18.0	19.8	21.3	19.7	15.3	10.5	9.2
MIN	2.7	2.9	5.3	9.1	11.8	13.7	16.9	17.3	15.1	9.4	6.3	3.0

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

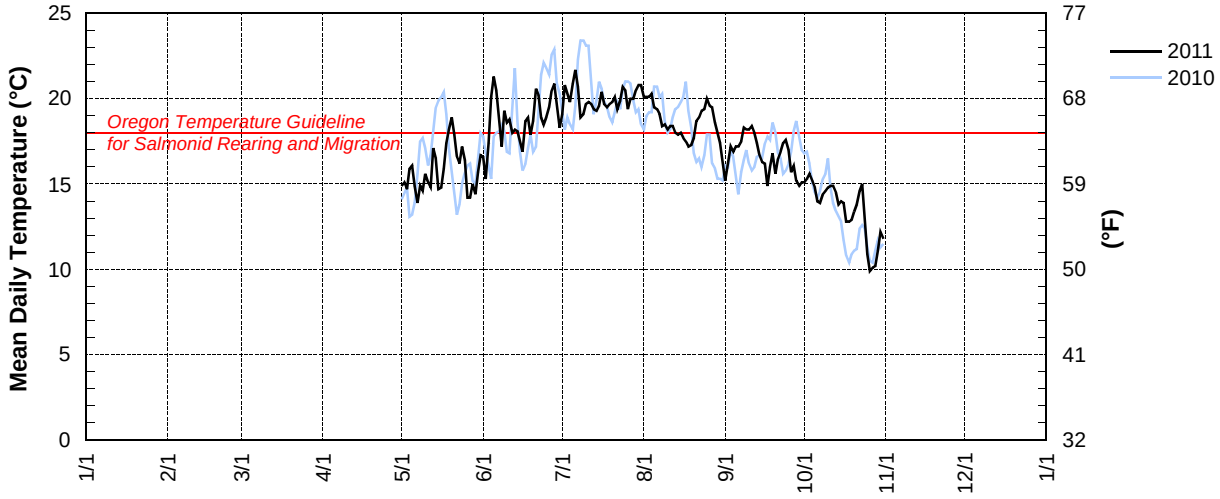


HCTP – 14206958 – HEDGES CREEK AT TUALATIN COMMUNITY PARK AT TUALATIN, OREGON [RM 0.3]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					14.9	16.6	19.1	20.1	15.2	15.1		
2					15.1	15.3	20.8	20.1	16.2	15.3		
3					14.7	17.4	20.3	20.1	17.2	15.6		
4					15.9	20.1	19.8	20.3	16.9	15.2		
5					16.1	21.3	20.9	19.5	17.2	14.8		
6					14.9	20.5	21.7	19.4	17.2	14.0		
7					13.9	18.6	20.7	19.1	17.5	13.9		
8					14.9	17.2	18.9	18.4	18.3	14.4		
9					14.6	19.3	19.1	18.5	18.2	14.6		
10					15.6	18.6	19.7	18.2	18.2	14.8		
11					15.1	18.8	19.8	18.4	18.4	14.9		
12					14.8	18.0	19.7	18.4	18.0	14.9		
13					17.1	18.2	19.4	18.0	17.4	14.5		
14					16.5	18.1	19.3	17.9	16.7	13.8		
15					14.7	17.5	19.6	18.0	16.3	14.0		
16					14.8	16.9	20.4	17.7	16.2	13.9		
17					15.9	18.7	19.7	17.5	14.9	12.8		
18					17.4	18.9	19.5	17.2	16.0	12.8		
19					18.2	17.9	19.7	17.3	16.8	12.9		
20					18.9	18.7	19.8	17.7	15.6	13.4		
21					17.9	20.6	20.1	18.7	16.5	13.8		
22					16.6	20.2	19.4	18.9	16.9	14.6		
23					16.2	18.9	19.9	19.3	17.4	15.0		
24					17.2	18.5	20.7	19.4	17.6	12.9		
25					16.4	18.9	20.5	20.0	17.0	10.9		
26					14.2	19.5	19.4	19.6	15.7	9.9		
27					14.2	20.5	20.0	19.5	16.1	10.1		
28					15.0	20.9	20.0	18.6	15.2	10.2		
29		—			14.4	19.7	20.5	18.0	14.9	11.1		
30		—			15.7	18.3	20.8	17.4	15.1	12.2		
31		—		—	16.7	—	20.8	16.3	—	11.8	—	
MEAN					15.8	18.8	20.0	18.6	16.7	13.5		
MAX					18.9	21.3	21.7	20.3	18.4	15.6		
MIN					13.9	15.3	18.9	16.3	14.9	9.9		

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

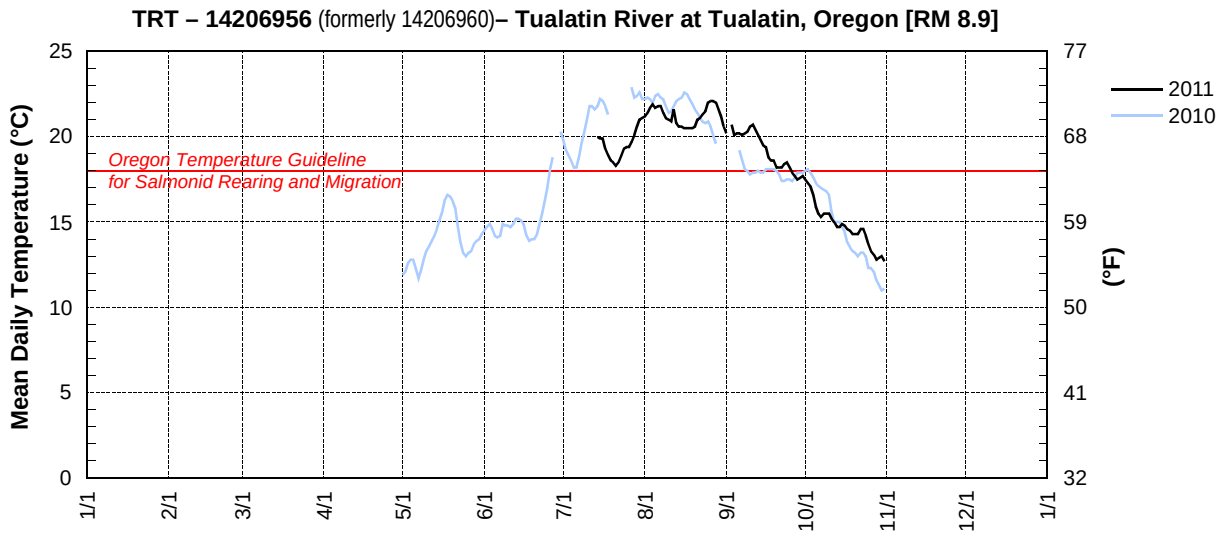


TRT – 14206956 (formerly 14206960) – TUALATIN RIVER AT TUALATIN, OREGON [RM 8.9]

Latitude: 45 23 14 Longitude: 122 45 46 Source Agency: WEST Consultants for Clean Water Services

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL*	AUG	SEP*	OCT	NOV	DEC
1								21.2	20.2**	17.5		
2								21.4		17.3**		
3								21.7	20.7**	17.1		
4								21.9	20.1**	16.6		
5								21.7	20.2	15.9		
6								21.8	20.2**	15.5		
7								21.8	20.1	15.3		
8								21.4	20.2	15.5		
9								21.1	20.3	15.5		
10								21.0	20.6	15.5		
11								20.9**	20.7**	15.2		
12								21.6**	20.4	15.0		
13								20.8	20.1**	14.7		
14							20.0**	20.6	19.8	14.7		
15							19.9	20.6	19.5	14.9		
16							19.9	20.5	19.4	14.8		
17							19.3	20.5	18.8	14.6		
18							18.9	20.5	18.6**	14.5		
19							18.6	20.5	18.6	14.3		
20							18.5	20.6	18.2**	14.3		
21							18.3	21.0	18.2	14.3		
22							18.5	21.1	18.2	14.6		
23							18.9	21.3	18.4	14.6		
24							19.3	21.5	18.5	14.2		
25							19.4	22.0	18.2	13.7		
26							19.4	22.1	17.9	13.3		
27							19.7	22.1	17.7**	13.1		
28							20.1	22.0	17.5	12.8		
29		—					20.6	21.6	17.6	12.9		
30		—					21.0	21.2	17.7	13.0		
31		—		—		—	21.1	20.6	—	12.7	—	
MEAN								21.2	19.2	14.8		
MAX								22.1	20.7	17.5		
MIN								20.5	17.5	12.7		

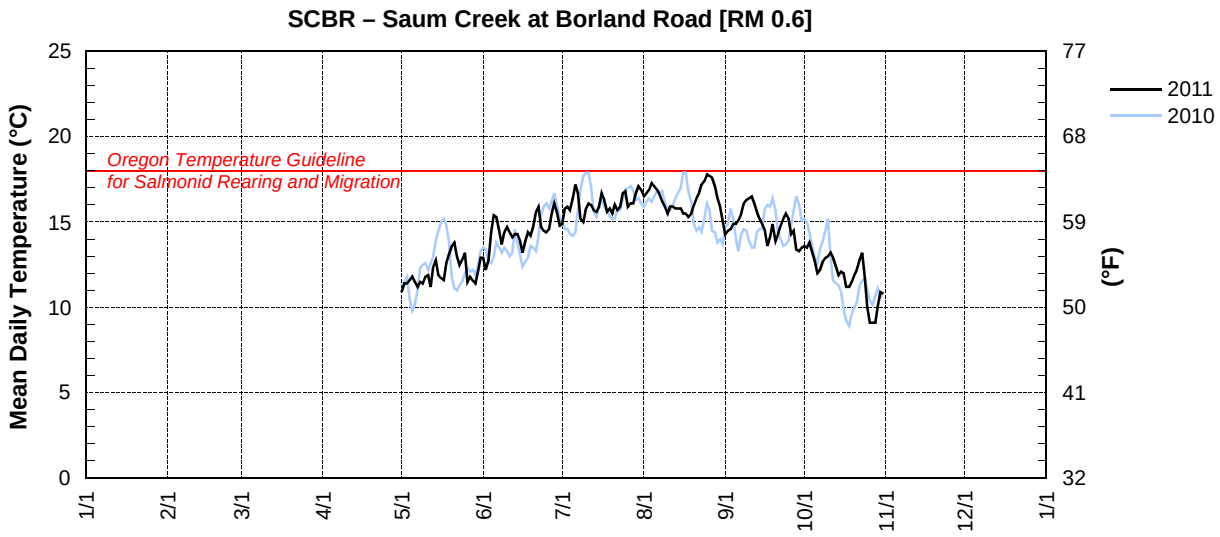
* Incomplete record (monthly statistics computed when at least 80% of the record was complete for the month); **Mean daily value based on incomplete record



SCBR – SAUM CREEK AT BORLAND ROAD [RM 0.6]

Latitude: 45 22 32 Longitude: 122 43 22 Source Agency: WEST Consultants for Clean Water Services

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					10.9	12.9	14.9	16.5	14.3	13.6		
2					11.4	12.2	15.8	16.7	14.5	13.5		
3					11.4	12.8	15.9	16.9	14.6	13.8		
4					11.6	14.4	15.7	17.3	14.9	13.2		
5					11.8	15.4	16.4	17.1	14.9	12.7		
6					11.5	15.3	17.2	16.9	15.1	12.0		
7					11.2	14.5	16.7	16.6	15.5	12.2		
8					11.5	13.7	15.2	16.2	16.1	12.7		
9					11.4	14.4	15.0	15.9	16.3	12.9		
10					11.8	14.7	15.8	15.5	16.4	13.0		
11					11.9	14.4	16.1	15.9	16.5	13.2		
12					11.2	14.1	16.0	15.9	16.1	12.9		
13					12.4	14.3	15.7	15.8	15.6	12.4		
14					12.8	14.3	15.6	15.8	15.2	11.9		
15					11.9	13.9	15.9	15.8	14.9	12.1		
16					11.7	13.2	16.7	15.5	14.5	12.0		
17					11.6	13.9	16.3	15.5	13.6	11.2		
18					12.6	14.4	15.6	15.3	14.1	11.2		
19					13.1	14.2	15.8	15.5	14.9	11.5		
20					13.6	14.7	15.5	16.0	13.9	11.9		
21					13.8	15.6	16.0	16.4	14.3	12.2		
22					13.0	15.9	15.7	16.7	14.8	12.8		
23					12.5	14.7	15.9	17.2	15.2	13.2		
24					12.8	14.5	16.7	17.4	15.5	11.8		
25					13.2	14.4	16.8	17.8	15.2	10.0		
26					11.5	14.6	15.9	17.7	14.3	9.1		
27					11.8	15.5	16.1	17.6	14.5	9.1		
28					11.6	16.1	16.1	17.1	13.4	9.1		
29		—			11.4	15.6	16.7	16.4	13.3	10.1		
30		—			12.1	14.8	17.1	15.9	13.5	10.9		
31		—		—	12.9	—	16.9	15.1	—	10.8	—	
MEAN					12.1	14.4	16.1	16.4	14.9	11.9		
MAX					13.8	16.1	17.2	17.8	16.5	13.8		
MIN					10.9	12.2	14.9	15.1	13.3	9.1		

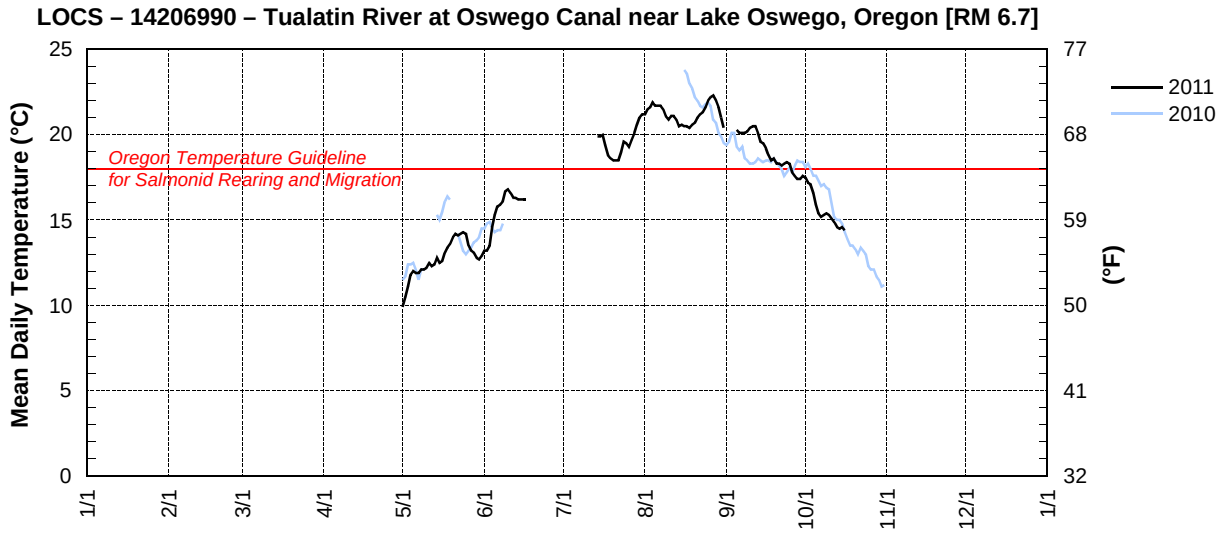


LOCS – 14206990 – TUALATIN RIVER AT OSWEGO CANAL NEAR LAKE OSWEGO, OREGON [RM 6.7]

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN*	JUL*	AUG	SEP*	OCT*	NOV	DEC
1					9.9	13.2		21.2		17.5		
2					10.5	13.2		21.5		17.2		
3					11.1	13.5		21.6		17.1		
4					11.8	14.6		21.9		16.6		
5					12.0	15.3		21.7	20.3**	15.9		
6					11.9	15.8		21.7	20.1	15.4		
7					11.9	15.9		21.7	20.1	15.2		
8					12.1	16.1		21.5	20.1	15.3		
9					12.1	16.7		21.1	20.2	15.4		
10					12.2	16.8		20.9	20.4	15.3		
11					12.5	16.6		21.1	20.5	15.1		
12					12.3	16.3		21.1	20.5	14.9		
13					12.4	16.3		20.9	20.1	14.6		
14					12.8	16.2	19.9**	20.5	19.6	14.5		
15					12.5	16.2	19.9	20.6	19.5	14.6		
16					12.6	16.2	20.0	20.5	19.2	14.4**		
17					13.1	16.2**	19.4	20.5	18.8			
18					13.4		18.8	20.4	18.5			
19					13.6		18.6	20.6	18.6			
20					14.0		18.5	20.7	18.3			
21					14.2		18.5	21.0	18.3			
22					14.1		18.5	21.2	18.2			
23					14.2		19.0	21.3	18.3			
24					14.3		19.6	21.6	18.4			
25					14.2		19.5	22.0	18.3			
26					13.5		19.3	22.2	17.8			
27					13.2		19.7	22.3	17.6			
28					13.1		20.1	22.0	17.4			
29					12.8		20.6	21.6	17.4			
30		—			12.7		21.0	21.0	17.6			
31		—		—	12.9	—	21.2	20.4**	—		—	
MEAN					12.7			21.2	19.0			
MAX					14.3			22.3	20.5			
MIN					9.9			20.4	17.4			

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



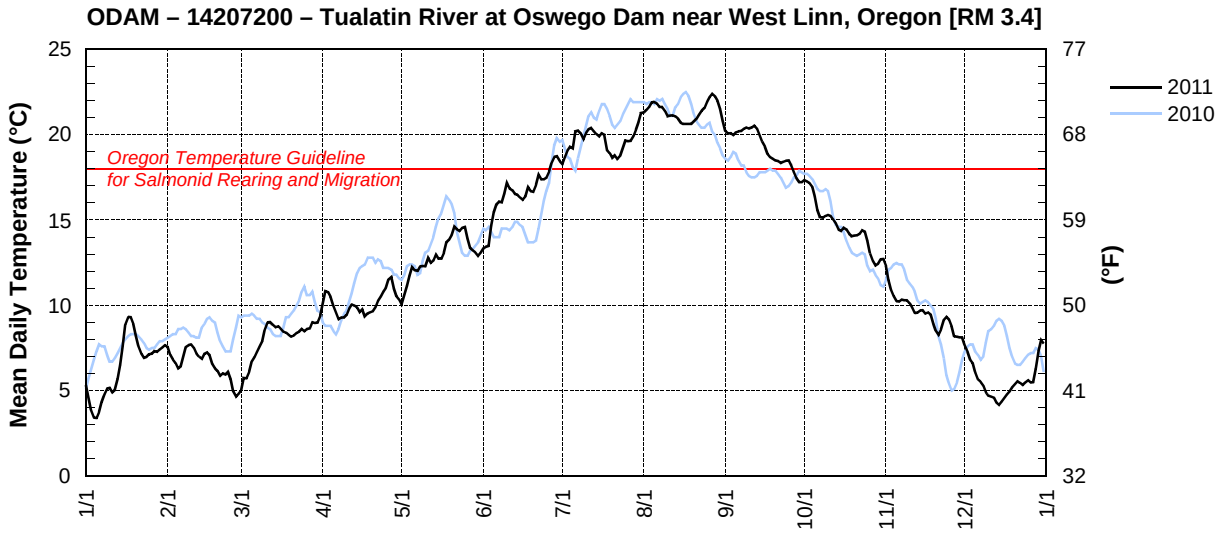
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

STATION NUMBER 14207200 TUALATIN RIVER AT OSWEGO DAM, NEAR WEST LINN, OR.

LATITUDE: 452124 LONGITUDE: 1224102

Water Temperature, degrees Celsius, Calendar Year January to December 2011 Daily Mean Values

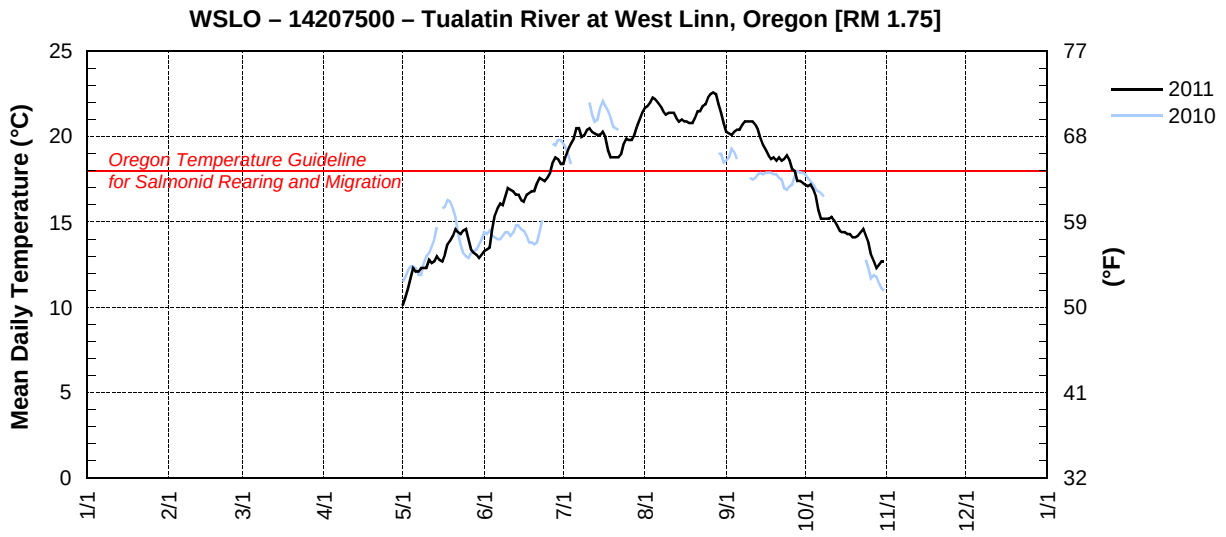
Day	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.3	7.6	5.0	10.1	10.0	13.3	18.3	21.3	20.2	17.4	12.3	7.7
2	4.6	7.1	5.7	10.8	10.6	13.4	18.7	21.5	20.1	17.3	11.5	7.3
3	3.9	6.8	5.7	10.8	11.1	13.5	19.1	21.6	20.1	17.2	10.9	6.8
4	3.4	6.6	6.1	10.5	11.7	14.7	19.3	21.9	20.0	17.0	10.6	6.6
5	3.4	6.3	6.7	10.0	12.3	15.5	19.2	21.9	20.2	16.4	10.3	6.1
6	3.7	6.4	7.0	9.6	12.1	15.9	20.2	21.8	20.2	15.6	10.2	5.7
7	4.3	7.0	7.3	9.2	12.0	16.1	20.2	21.6	20.2	15.2	10.3	5.5
8	4.8	7.6	7.6	9.3	12.3	16.0	20.1	21.6	20.4	15.1	10.3	5.3
9	5.1	7.7	7.9	9.3	12.3	16.5	19.7	21.4	20.4	15.3	10.3	4.9
10	5.2	7.7	8.6	9.4	12.3	17.2	20.1	21.1	20.4	15.3	10.1	4.7
11	4.9	7.5	9.0	9.8	12.8	16.9	20.3	21.1	20.4	15.2	9.9	4.7
12	5.0	7.2	9.0	10.0	12.5	16.8	20.4	21.1	20.5	15.1	9.5	4.6
13	5.7	7.0	8.9	10.0	12.6	16.5	20.2	21.1	20.4	14.8	9.6	4.3
14	6.5	6.9	8.7	9.9	13.0	16.5	20.0	21.0	20.0	14.5	9.7	4.2
15	7.6	7.2	8.8	9.6	12.8	16.3	19.9	20.7	19.6	14.4	9.7	4.4
16	8.9	7.2	8.6	9.8	12.7	16.2	20.1	20.6	19.3	14.6	9.5	4.6
17	9.3	7.1	8.5	9.4	13.1	16.4	20.0	20.6	18.9	14.5	9.6	4.8
18	9.3	6.6	8.4	9.5	13.7	16.9	19.1	20.6	18.7	14.2	9.5	5.0
19	8.9	6.3	8.3	9.6	13.8	16.7	18.9	20.6	18.6	14.1	8.9	5.2
20	8.2	6.2	8.2	9.7	14.1	16.7	18.7	20.8	18.5	14.1	8.5	5.4
21	7.6	5.9	8.2	9.9	14.6	17.1	18.8	20.9	18.5	14.1	8.3	5.6
22	7.2	6.0	8.4	10.3	14.5	17.7	18.6	21.2	18.4	14.2	8.6	5.5
23	6.9	5.9	8.4	10.5	14.4	17.4	18.8	21.4	18.4	14.4	9.2	5.3
24	7.0	6.1	8.6	10.8	14.5	17.4	19.2	21.6	18.5	14.3	9.3	5.5
25	7.1	5.7	8.5	11.0	14.6	17.5	19.7	21.9	18.5	13.8	9.2	5.6
26	7.2	5.0	8.6	11.5	13.9	17.8	19.6	22.2	18.2	13.1	8.8	5.5
27	7.3	4.7	8.7	11.7	13.4	18.4	19.6	22.4	17.8	12.6	8.2	5.5
28	7.3	4.8	9.0	11.0	13.2	18.7	19.9	22.3	17.5	12.3	8.2	6.2
29	7.4	—	9.0	10.6	13.1	18.7	20.3	22.0	17.2	12.4	8.1	7.3
30	7.5	—	9.0	10.4	12.9	18.5	20.7	21.5	17.2	12.7	8.1	8.0
31	7.7	—	9.4	—	13.1	—	21.3	—	—	12.7	—	7.8
MEAN	6.4	6.6	8.1	10.1	12.9	16.6	19.6	21.4	19.2	14.6	9.6	5.7
MAX	9.3	7.7	9.4	11.7	14.6	18.7	21.3	22.4	20.5	17.4	12.3	8.0
MIN	3.4	4.7	5.0	9.2	10.0	13.3	18.3	20.6	17.2	12.3	8.1	4.2



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

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

Day	2011 Mean Daily Water Temperature in Degrees Celsius											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1					10.1	13.3	18.4	21.7	20.3	17.2		
2					10.6	13.4	18.9	21.8	20.2	17.1		
3					11.1	13.5	19.3	22.0	20.1	17.2		
4					11.7	14.6	19.6	22.3	20.3	16.9		
5					12.3	15.4	19.9	22.2	20.4	16.5		
6					12.1	15.8	20.5	22.0	20.4	15.7		
7					12.1	16.1	20.5	21.8	20.7	15.2		
8					12.3	16.0	20.0	21.5	20.9	15.2		
9					12.3	16.5	20.1	21.3	20.9	15.2		
10					12.3	17.0	20.4	21.4	20.9	15.2		
11					12.8	16.9	20.5	21.4	20.9	15.3		
12					12.6	16.8	20.3	21.4	20.7	15.1		
13					12.7	16.6	20.2	21.1	20.4	14.8		
14					13.0	16.6	20.1	20.9	19.9	14.5		
15					12.8	16.3	20.1	21.0	19.5	14.4		
16					12.7	16.2	20.3	20.9	19.2	14.4		
17					13.1	16.6	20.0	20.9	18.9	14.3		
18					13.7	16.7	19.2	20.8	18.7	14.3		
19					13.9	16.8	18.8	20.8	18.8	14.1		
20					14.2	16.8	18.8	21.1	18.6	14.1		
21					14.6	17.3	18.8	21.5	18.8	14.2		
22					14.4	17.6	18.8	21.5	18.6	14.4		
23					14.3	17.5	19.0	21.8	18.7	14.6		
24					14.5	17.4	19.6	21.9	18.9	14.2		
25					14.6	17.6	19.9	22.3	18.6	13.8		
26					14.0	17.9	19.8	22.5	18.1	13.1		
27					13.4	18.5	19.8	22.6	18.0	12.7		
28					13.2	18.8	20.1	22.5	17.4	12.3		
29		—			13.1	18.7	20.6	21.9	17.4	12.5		
30		—			12.9	18.4	21.0	21.4	17.3	12.7		
31		—		—	13.1	—	21.4	20.8	—	12.7	—	
MEAN					12.9	16.6	19.8	21.6	19.4	14.6		
MAX					14.6	18.8	21.4	22.6	20.9	17.2		
MIN					10.1	13.3	18.4	20.8	17.3	12.3		

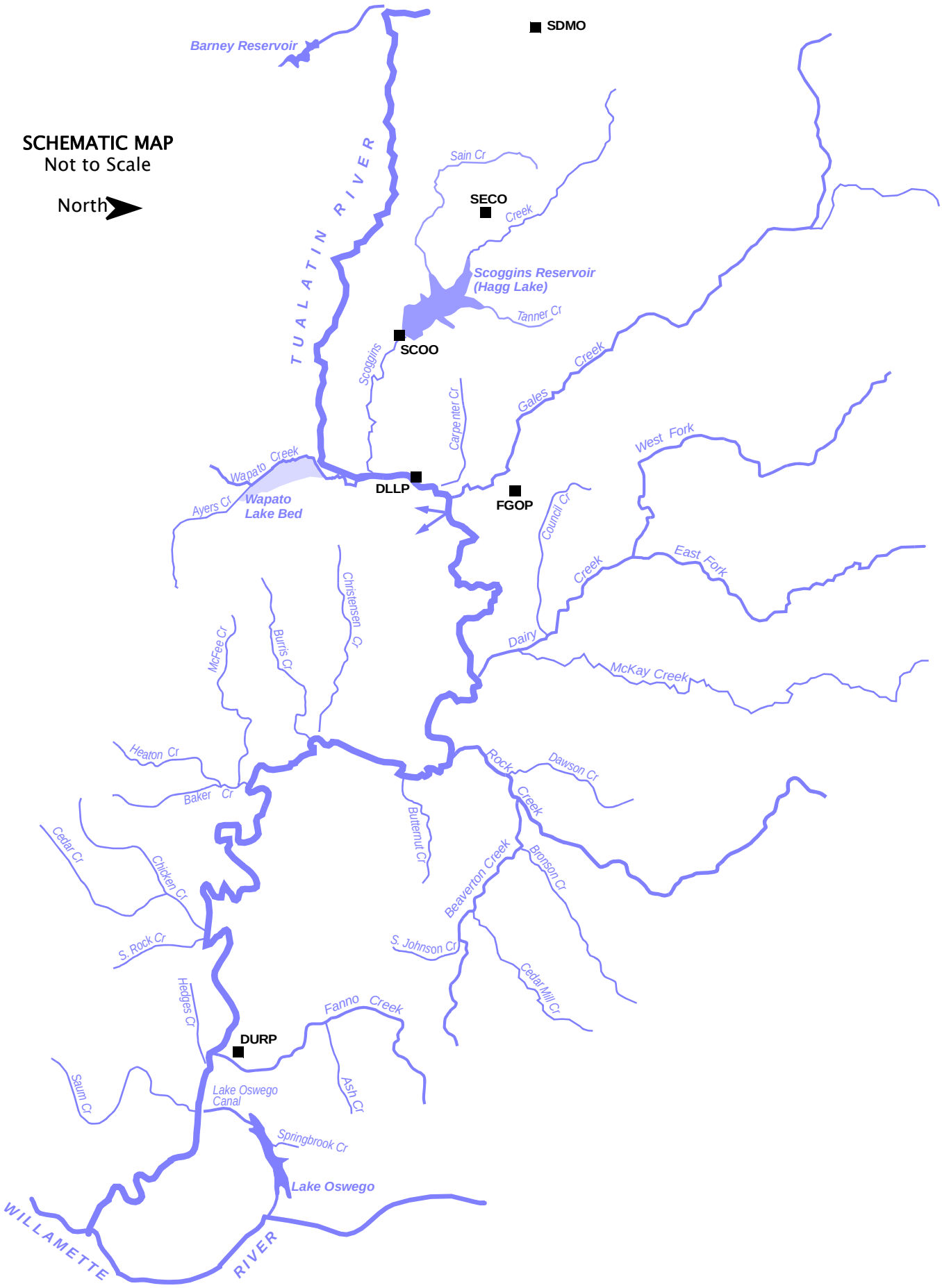


(this page intentionally blank)

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

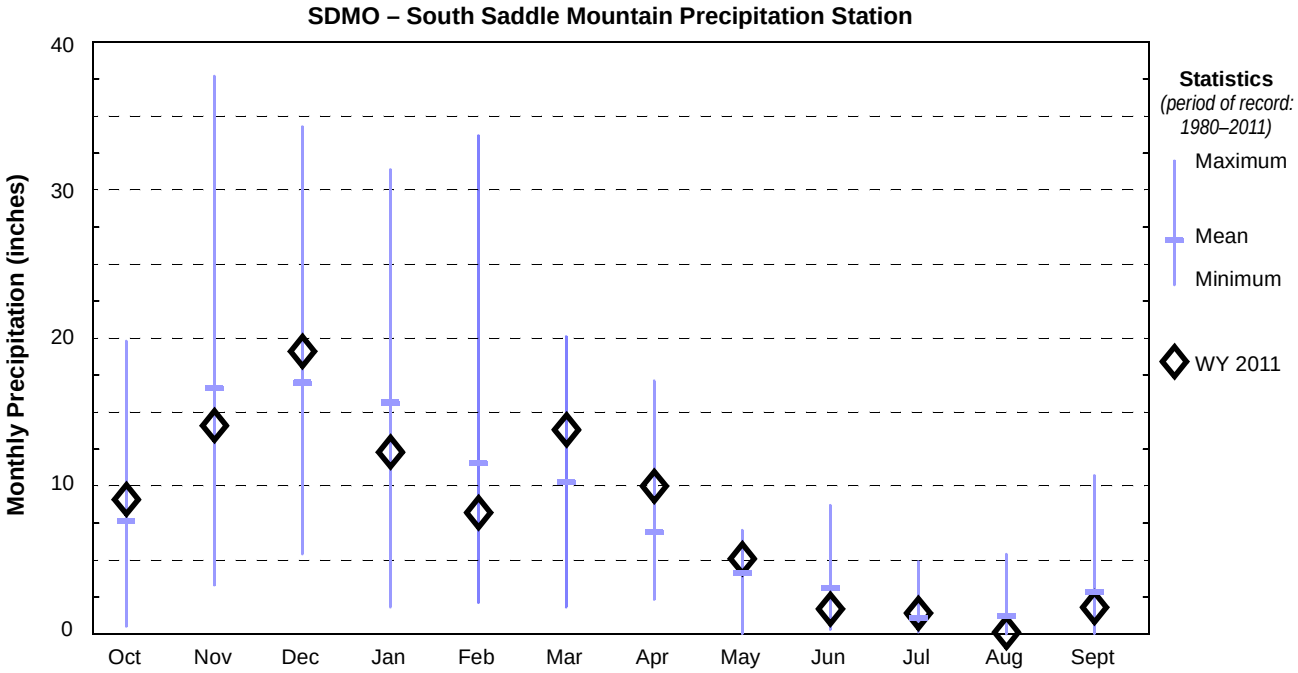
SDMO – SOUTH SADDLE MOUNTAIN PRECIPITATION STATION

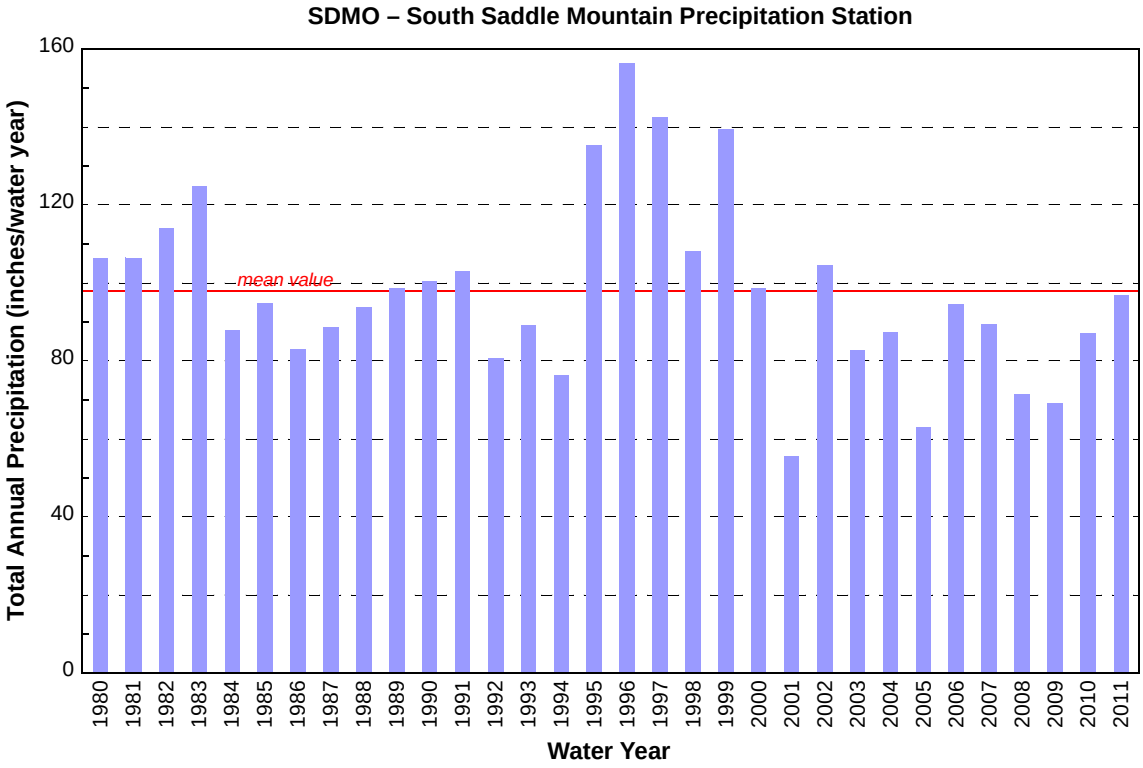
Elevation: 3250 ft
Latitude: 45 31 48 Longitude: 123 22 12

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
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	7.62	16.58	16.98	15.63	11.54	10.26	6.87	4.13	3.10	1.08	1.20	2.81

*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)
40
30
20
10
0
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
Statistics
(period of record: 1980–2011)
Maximum
Mean
Minimum
WY 2011


SDMO – South Saddle Mountain Precipitation Station
Total Annual Precipitation (inches/water year)
160
120
80
40
0
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
Water Year

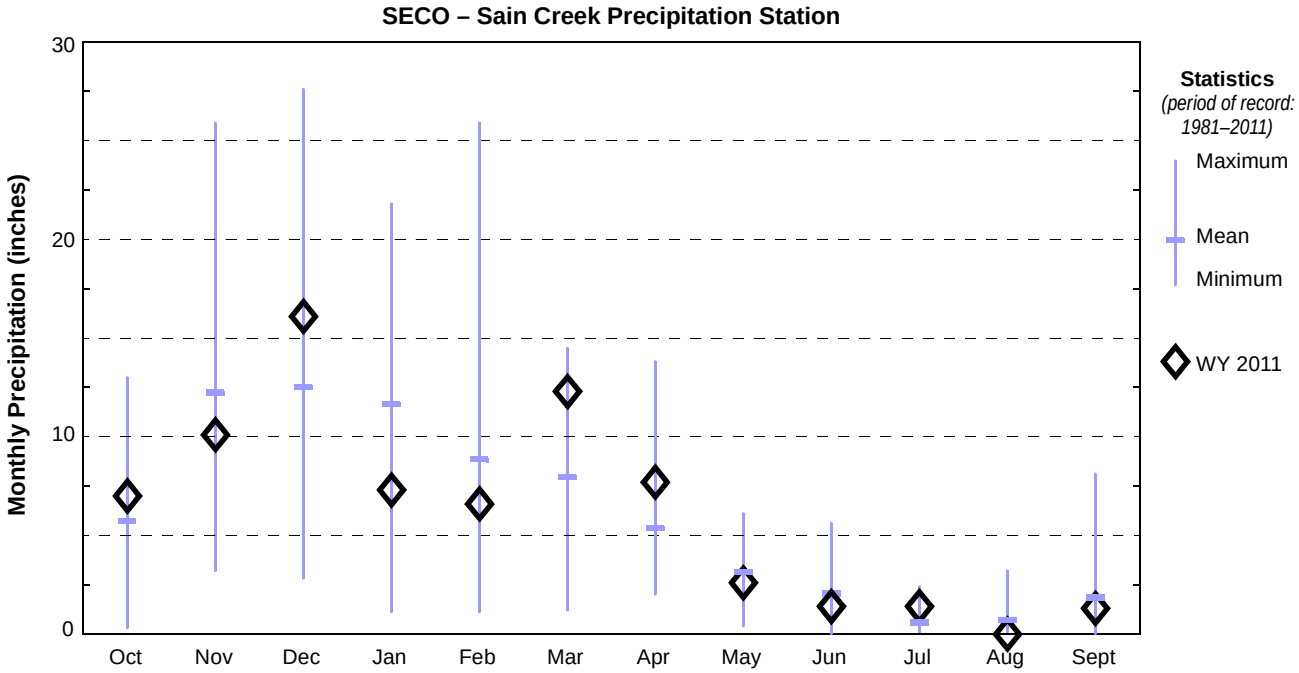
SECO – SAIN CREEK PRECIPITATION STATION

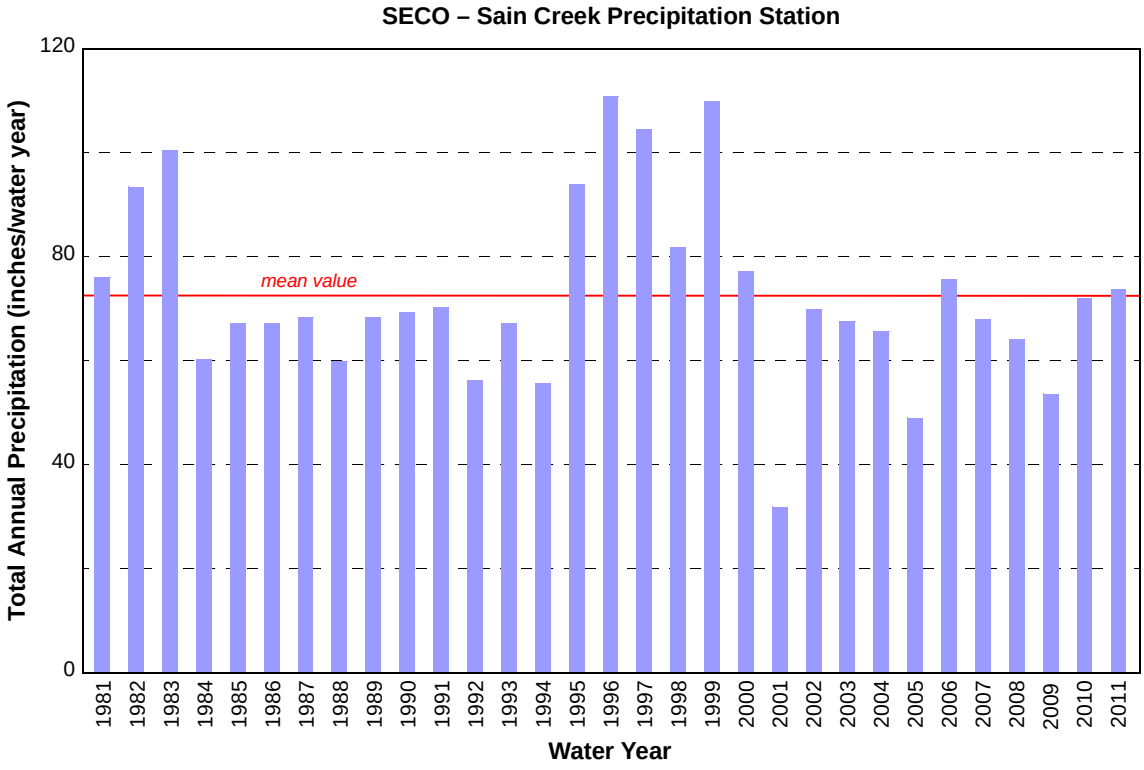
Elevation: 2000 ft
Latitude: 45 31 12 Longitude: 123 16 48

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
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	14.5	13.8	6.1	5.6	2.4	3.2	8.1
MEAN	5.73	12.23	12.51	11.63	8.85	7.94	5.36	3.13	2.05	0.56	0.71	1.84

*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: 1981–2011)
Maximum
Mean
Minimum
WY 2011


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
Water Year

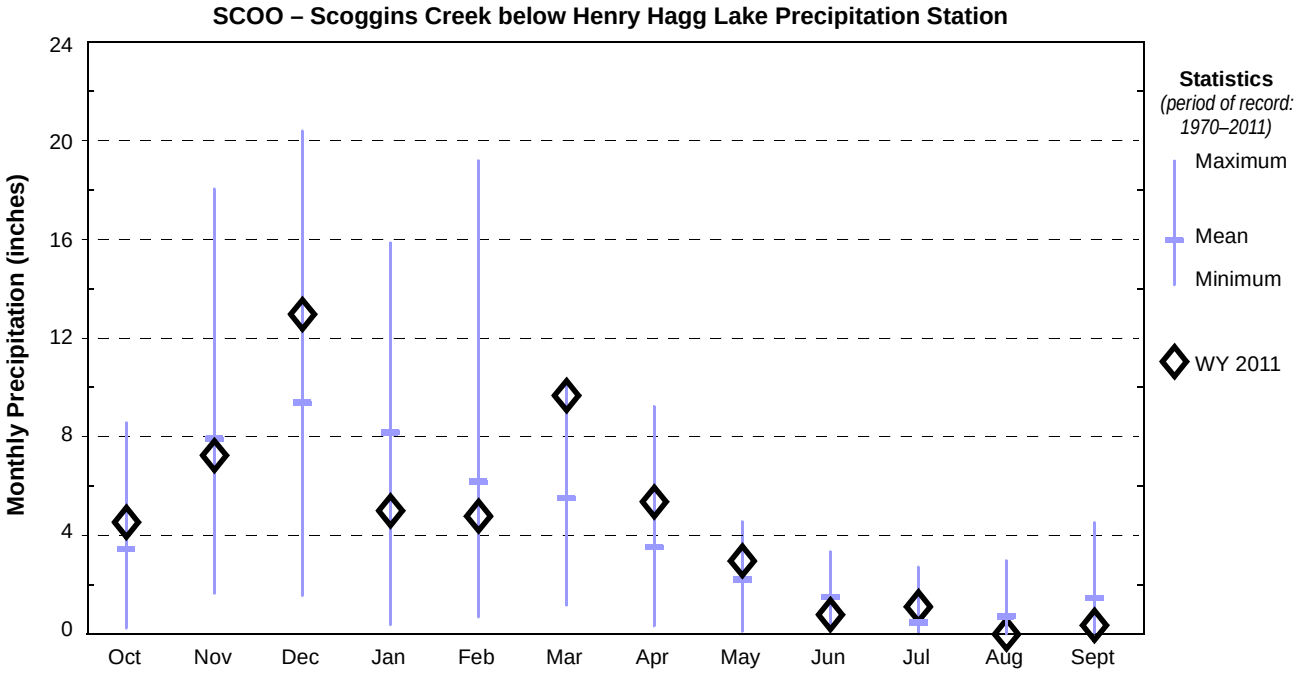
SCOO – SCOGGINS CREEK BELOW HENRY HAGG LAKE PRECIPITATION STATION

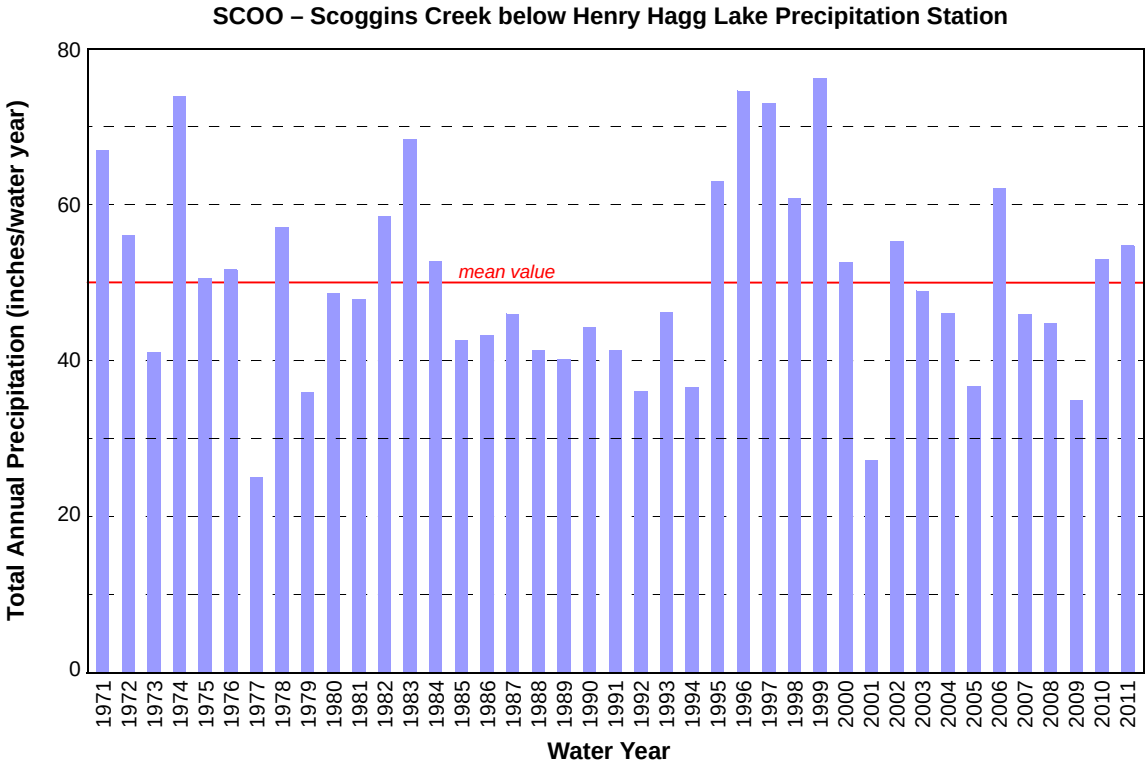
Elevation: 187.5 ft
Latitude: 45 28 10 Longitude: 123 11 56

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
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	10.30	9.23	4.56	3.34	2.73	2.99	4.52
MEAN	3.42	7.91	9.37	8.16	6.17	5.50	3.51	2.20	1.48	0.46	0.70	1.45

*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: 1970–2011)
Maximum
Mean
Minimum
WY 2011


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
Water Year

DLLP – DILLEY PRECIPITATION STATION (ID# 352325)

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

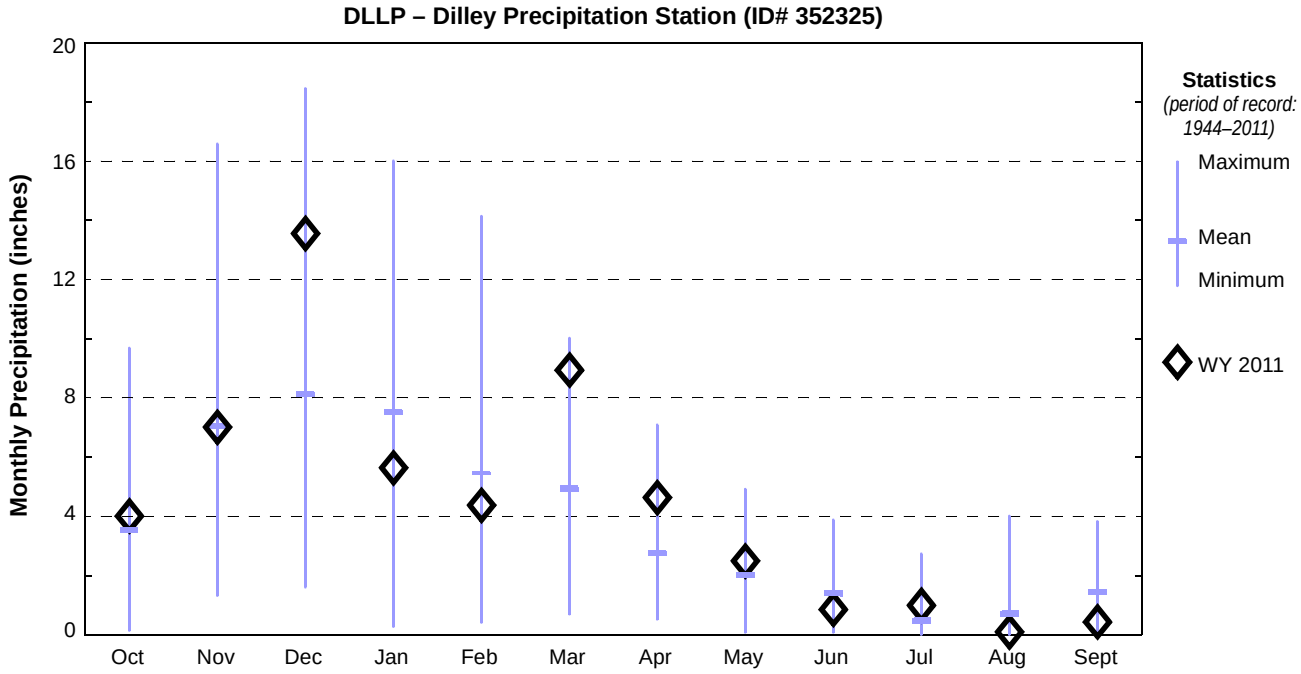
Source Agency: Western Climatic Data Center
www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?or2325

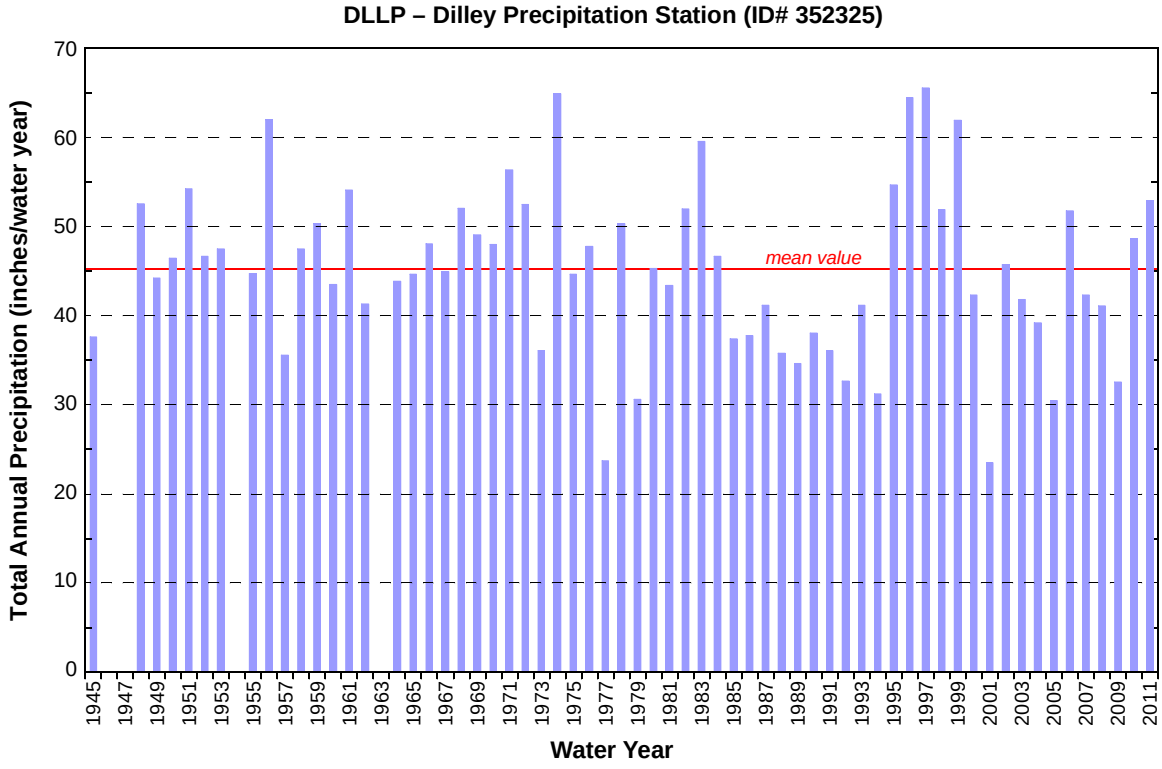
Water	Total Monthly Precipitation (inches)											
Year*	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1944			4.08	5.12	3.98	3.22	3.93	0.94	0.74	1.06	0.20	2.80
1945	1.56	5.5	2.74	4.13	6.99	7.18	2.09	3.71	0.22	0.20	0.13	3.17
1946	1.45	11.82	7.56	7.21	7.61	6.09	1.41	1.51	1.74			
1947		10.27	5.38	5.47	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
MIN	0.14	1.32	1.60	0.27	0.41	0.69	0.51	0.07	0.07	0.00	0.00	0.00
MAX	9.68	16.59	18.46	16.01	14.15	10.02	7.09	4.92	3.88	2.74	4.01	3.83
MEAN	3.50	7.03	8.10	7.51	5.44	4.92	2.74	2.00	1.37	0.45	0.69	1.42

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





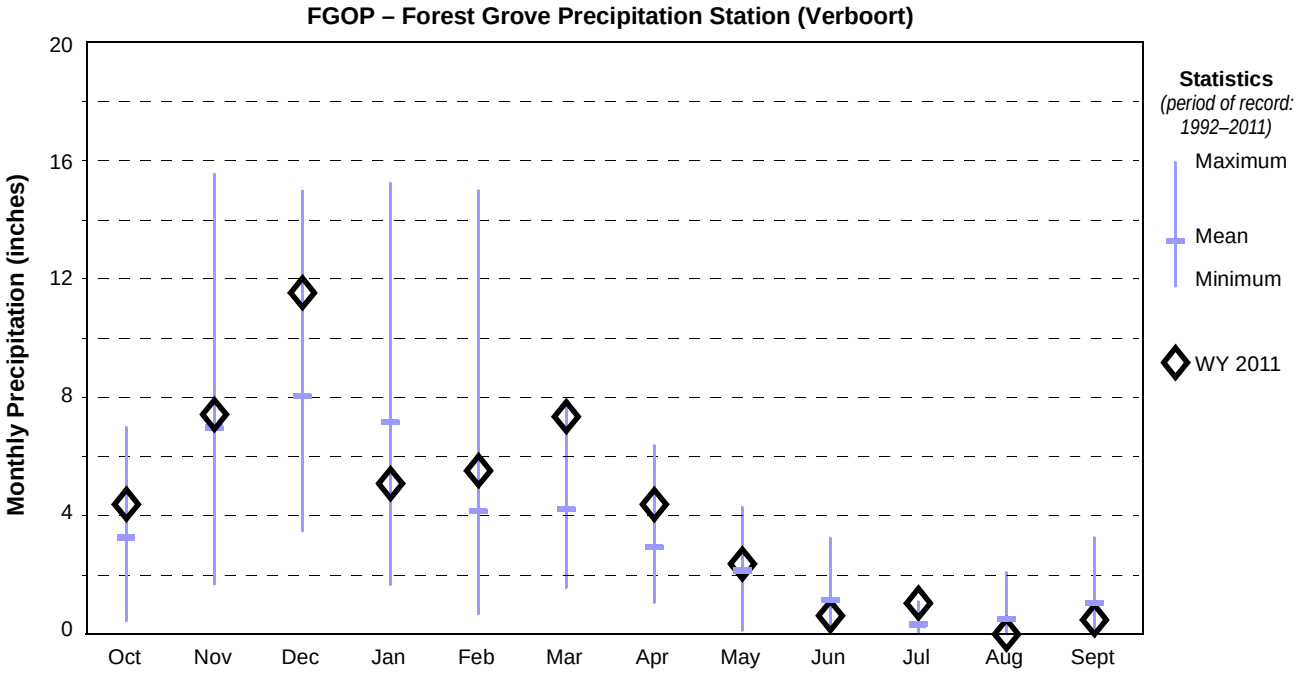
FGOP – FOREST GROVE PRECIPITATION STATION (VERBOORT)

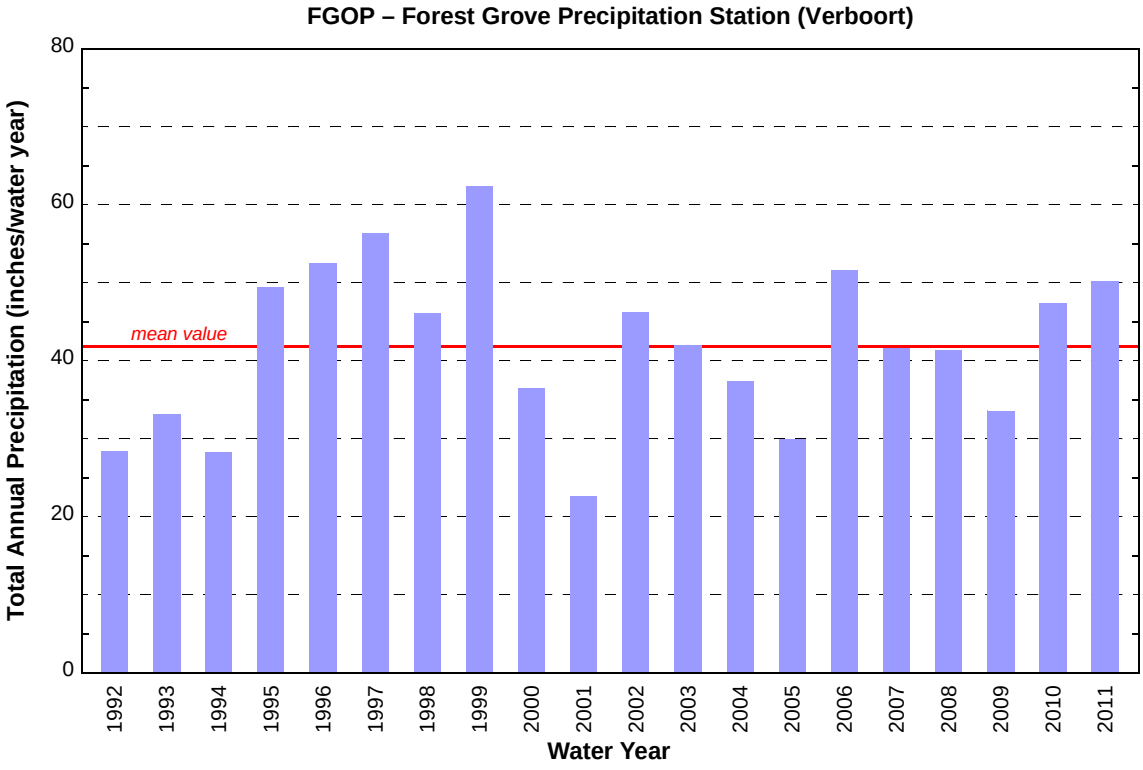
Elevation: 180 ft
Latitude: 45 33 11 Longitude: 123 05 01

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	1.5	5.1	3.7	5.9	3.6	1.6	4.4	0.1	0.9	0.3	0.3	1.1
1993	2.4	4.2	6.0	3.2	2.2	4.2	4.9	4.2	0.6	1.1	0.1	0.0
1994	1.1	1.7	7.6	5.0	5.8	2.3	1.5	1.3	1.0	0.0	0.2	0.8
1995	6.3	7.5	7.6	9.7	4.1	5.8	3.1	1.6	1.2	0.5	0.5	1.6
1996	3.1	11.7	8.6	9.1	3.6	2.3	6.4	4.1	0.9	0.5	0.3	2.0
1997	4.5	8.0	15.0	7.6	1.8	7.8	3.3	1.8	1.8	0.2	1.3	3.3
1998	7.0	7.1	3.5	9.1	7.2	4.6	1.4	4.3	1.1	0.1	0.0	0.8
1999	3.4	13.7	9.8	9.7	15.0	5.4	1.7	1.7	1.0	0.4	0.7	0.0
2000	2.8	7.8	5.9	7.7	4.0	2.4	1.1	2.1	1.6	0.1	0.1	0.9
2001	3.1	2.6	4.3	1.7	1.7	2.1	1.7	1.1	2.1	0.4	1.2	0.6
2002	2.8	11.2	9.7	9.3	3.5	4.6	1.6	1.2	1.2	0.2	0.0	0.9
2003	0.4	3.0	12.2	10.1	3.2	6.2	5.1	0.6	0.1	0.0	0.4	0.7
2004	3.5	4.6	7.9	6.1	5.2	1.9	2.6	1.1	0.8	0.0	2.1	1.5
2005	3.8	2.8	4.4	2.5	0.7	6.0	2.6	4.1	1.6	0.2	0.1	1.3
2006	4.3	7.4	11.4	15.2	2.2	4.4	2.2	2.9	0.7	0.2	0.1	0.6
2007	1.0	15.6	8.6	3.9	4.2	2.5	2.1	0.8	0.6	0.6	0.5	1.3
2008	3.1	4.5	13.0	8.8	2.7	4.1	2.5	0.7	0.8	0.0	1.0	0.1
2009	2.7	5.7	4.7	6.1	1.9	3.7	1.8	3.4	1.2	0.1	1.1	1.3
2010	3.8	7.7	5.3	7.4	4.8	5.3	4.2	3.4	3.2	0.5	0.2	1.5
2011	4.4	7.4	11.5	5.1	5.5	7.4	4.4	2.4	0.6	1.1	0.0	0.5
MIN	0.4	1.7	3.5	1.7	0.7	1.6	1.1	0.1	0.1	0.0	0.0	0.0
MAX	7.0	15.6	15.0	15.2	15.0	7.8	6.4	4.3	3.2	1.1	2.1	3.3
MEAN	3.25	6.97	8.03	7.15	4.14	4.22	2.92	2.14	1.14	0.32	0.50	1.04

*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: 1992–2011)
Maximum
Mean
Minimum
WY 2011

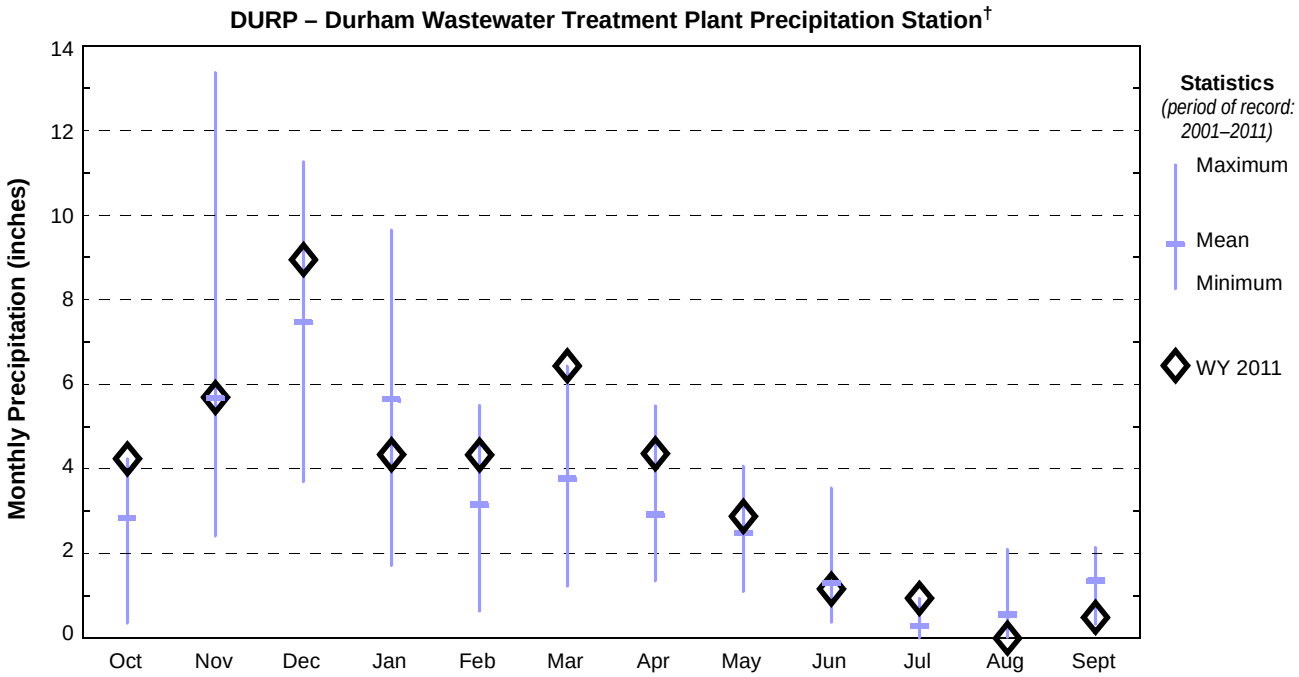

FGOP – Forest Grove Precipitation Station (Verboort)
Total Annual Precipitation (inches/water year)
80
60
40
20
0
mean value
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Water Year

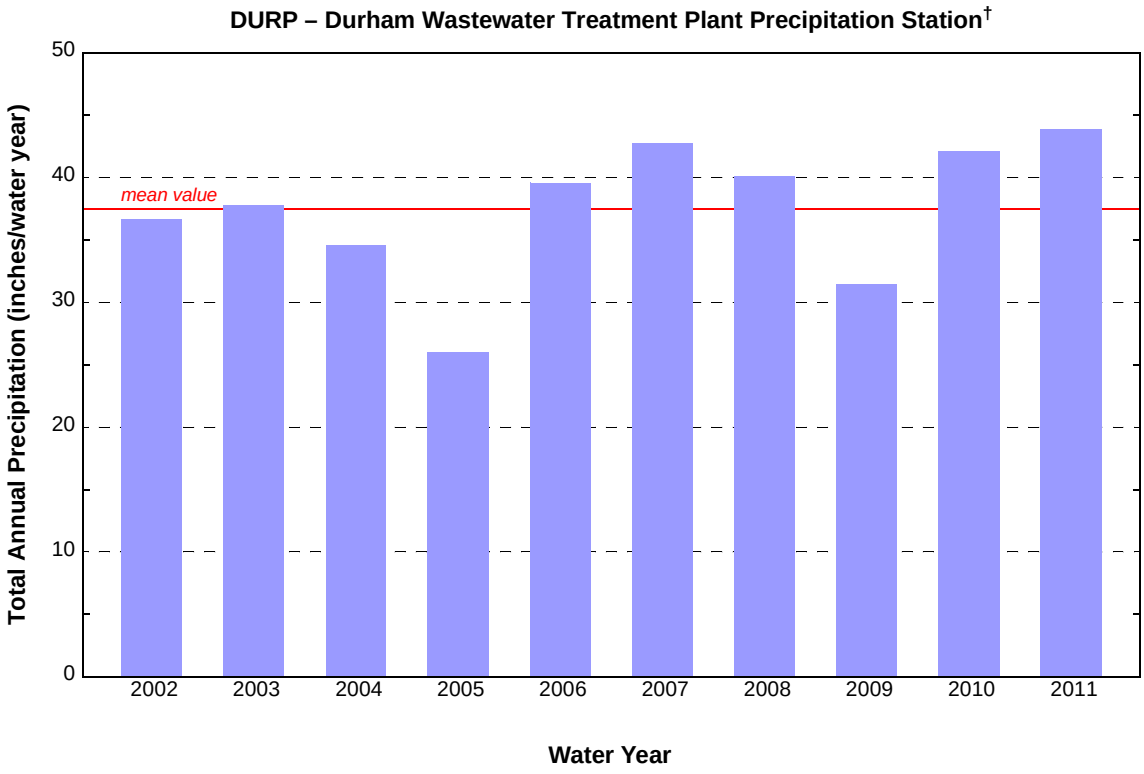
DURP – DURHAM WASTEWATER TREATMENT PLANT PRECIPITATION STATION

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	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
2001									1.5	0.8	0.7	0.7
2002	3.8	6.9	5.9	5.4	3.4	3.5	2.1	1.6	1.3	0.5	0.2	2.2
2003	0.4	2.6	10.4	8.1	3.2	4.7	5.5	1.3	0.4	0.0	0.4	0.9
2004	2.5	4.7	8.9	4.8	4.7	1.2	1.3	1.1	1.3	0.0	2.1	1.8
2005	3.1	2.4	3.7	1.7	0.6	3.5	3.1	4.1	1.6	0.4	0.0	1.8
2006	2.9	5.8	9.7	9.7	2.1	2.7	2.1	3.0	0.9	0.0	0.0	0.6
2007	1.1	13.4	7.5	3.6	5.5	3.2	2.6	1.6	0.9	0.5	0.7	2.0
2008	3.9	4.1	11.3	6.9	2.4	4.4	2.8	1.6	1.2	0.1	1.3	0.3
2009	3.2	5.4	3.7	5.5	1.9	3.1	1.8	3.7	0.8	0.1	0.7	1.4
2010	3.3	6.3	4.7	6.3	3.4	4.8	3.5	3.9	3.6	0.3	0.0	2.1
2011	4.2	5.7	9.0	4.3	4.3	6.4	4.4	2.9	1.2	0.9	0.0	0.5
MIN	0.4	2.4	3.7	1.7	0.6	1.2	1.3	1.1	0.4	0.0	0.0	0.3
MAX	4.2	13.4	11.3	9.7	5.5	6.4	5.5	4.1	3.6	0.9	2.1	2.2
MEAN	2.84	5.74	7.47	5.64	3.15	3.76	2.91	2.48	1.30	0.28	0.55	1.36

*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.





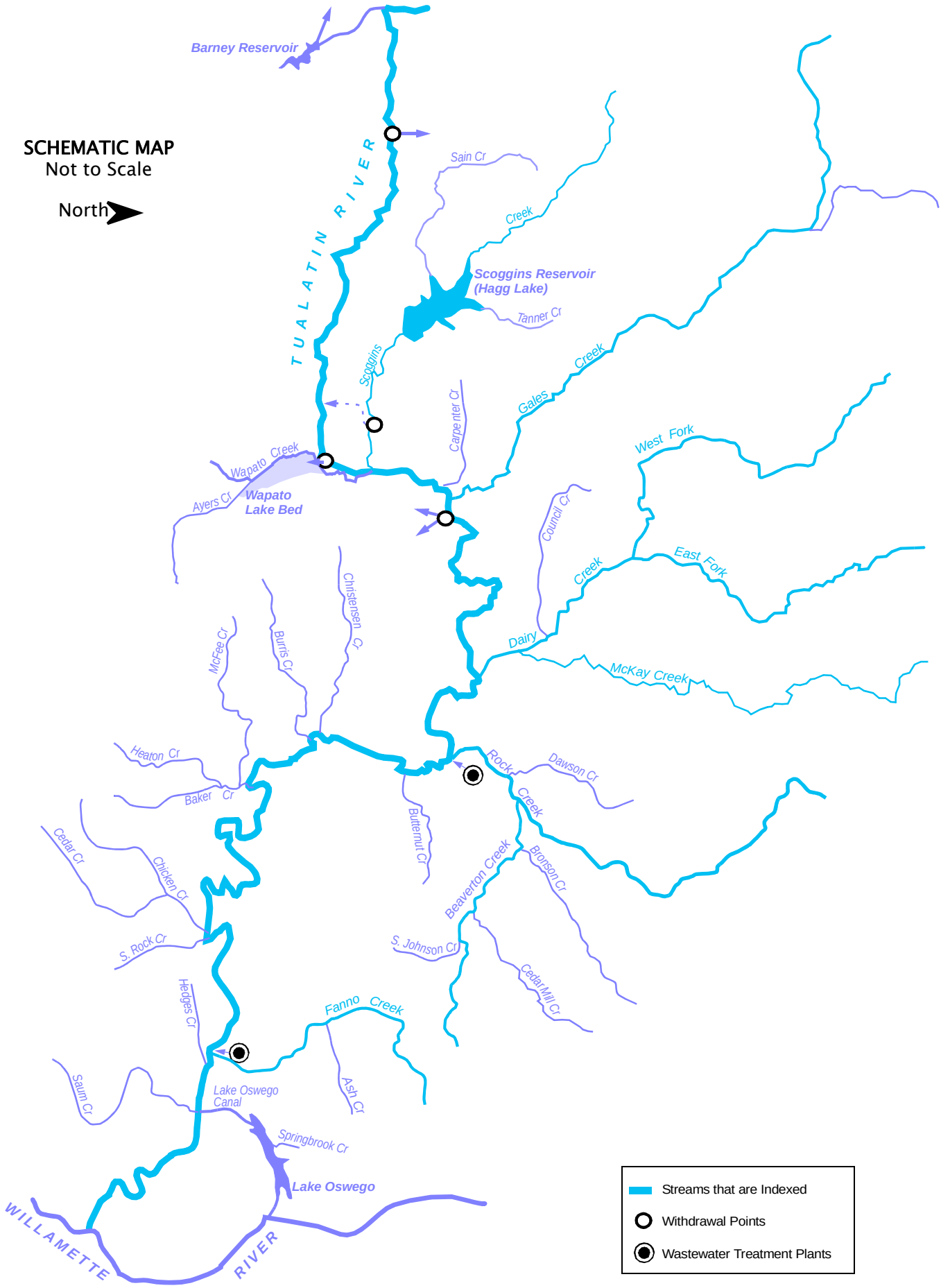
†The USGS adjusted all historical values for precipitation at the Durham Wastewater Treatment Plant in 2006 to correct for systematic undercatch of rainfall.

(this page intentionally blank)

Appendix I

River Mile Indices

STREAMS INDEXED



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)