# TUALATIN RIVER FLOW MANAGEMENT TECHNICAL COMMITTEE

Scoggins Creek Fire — September 19, 2014

# 2014 Annual Report

*prepared by*
*Bernie Bonn for*

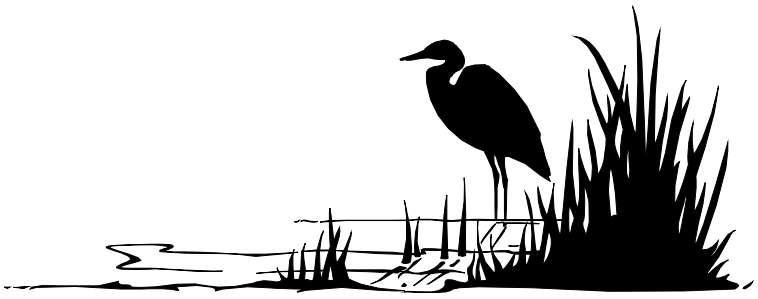
Clean Water Services

Scoggins Creek Fire — 5 months later

Cover photos taken by:
John Goans, Tualatin Valley Irrigation District

# TUALATIN RIVER FLOW MANAGEMENT TECHNICAL COMMITTEE

## 2014 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

| | |
|---|---|
| Kristel Fesler, Chair | *City of Hillsboro Water Department* |
| John Goans | *Tualatin Valley Irrigation District* |
| Jake Constans | *Oregon Water Resources Department* |
| Raj Kapur | *Clean Water Services* |
| Laura Porter | *Clean Water Services* |
| Scott Porter | *Washington County — Emergency Management System* |
| Mark Rosenkranz | *Lake Oswego Corporation* |
| Randy Smith | *City of Forest Grove* |
| Todd Winter | *Washington County Parks — Hagg Lake* |

## ACRONYMS USED IN THIS REPORT

| FULL NAME | ACRONYM |
|---|---|
| ***Facilities*** | |
| Spring Hill Pumping Plant | SHPP |
| Wastewater Treatment Facility | WWTF |
| ***Organization*** | |
| Barney Reservoir Joint Ownership Commission | BRJOC |
| Clean Water Services | CWS |
| Joint Water Commission | JWC |
| Lake Oswego Corporation | LOC |
| Oregon Department of Environmental Quality | ODEQ |
| Oregon Department of Fish and Wildlife | ODFW |
| Oregon Department of Forestry | ODF |
| Oregon Water Resources Department | OWRD |
| National Marine Fisheries Service | NMFS |
| Tualatin Valley Irrigation District | TVID |
| Tualatin Valley Water District | TVWD |
| Bureau of Reclamation | BOR |
| U.S. Fish and Wildlife Service | USFWS |
| U.S. Geological Survey | USGS |

| 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 |
| ***Other*** | |
| Biological Opinion | BiOp |
| Total Maximum Daily Load | TMDL |
| Wasteload Allocation | WLA |

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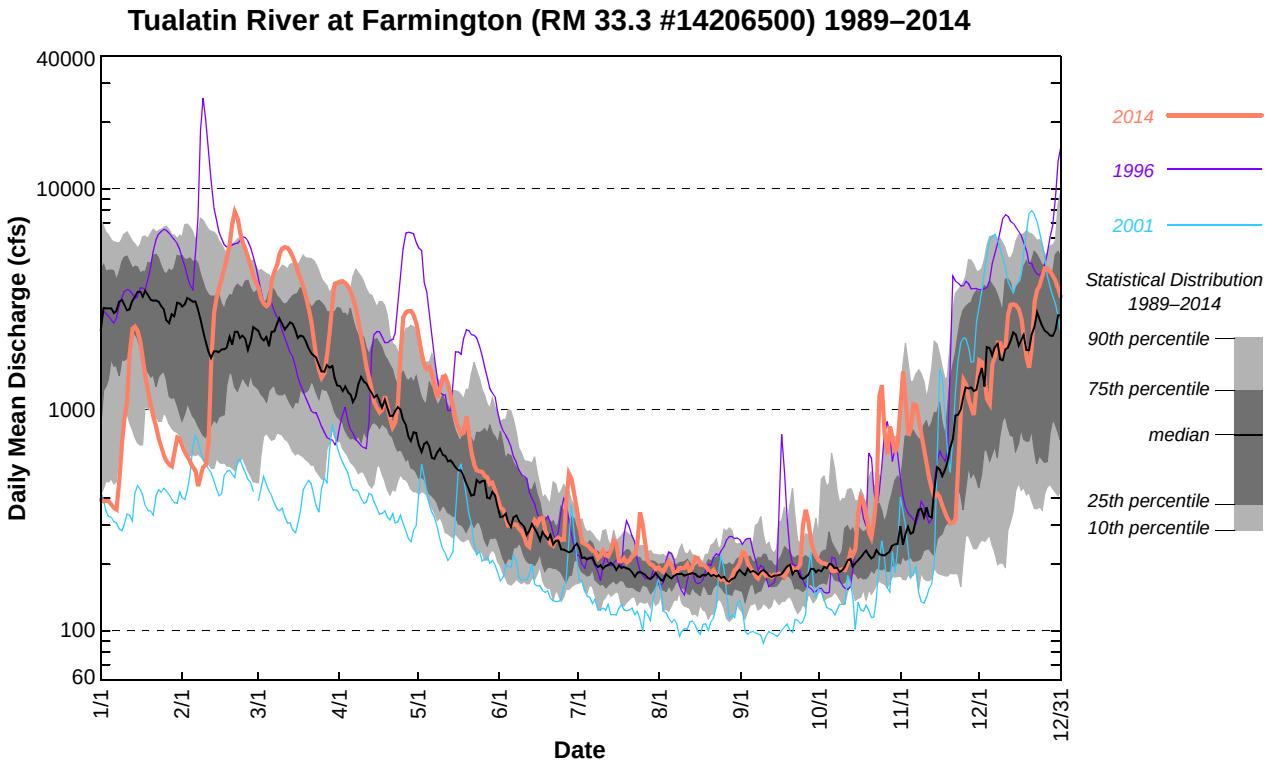
## Appendices

# 2014 SUMMARY

This is the twenty-sixth 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 2014 include:

- Both Scoggins and Barney Reservoirs filled.
- Two Biological Opinions were issued regarding the operation of the Bureau of Reclamation's facilities in the Tualatin River basin (collectively called the Tualatin Project). The National Marine Fisheries Service (NMFS) concluded that the Tualatin Project is not likely to adversely affect Chinook salmon or steelhead, which are federally listed as threatened species. The US Fish and Wildlife Service (USFWS) concluded that the Tualatin Project did not jeopardize the continued existence of Fender's Blue butterfly (endangered) and Kincaid's lupine (threatened).
- A forest fire burned for 6 days in September in the Scoggins Creek area northwest of Hagg Lake. About 200 acres were burned; the damage is estimated at about $2 million.
- Weather highlights: January through early-February were particularly dry, resulting in low stream flows during that time. Mid-February through mid-May were very wet, resulting in periods with high stream flows. Low temperatures were above average during June-September and set records at several locations. Otherwise, the summer weather was typical—dry and warm.
- Wapato Lake management was normal for water year 2014, with the lake pumped out by late April. The spring rains somewhat delayed the date at which the lake was finally pumped out.
- CWS continued its work to construct a natural treatment system at Forest Grove. The system is scheduled to be operational in 2017.



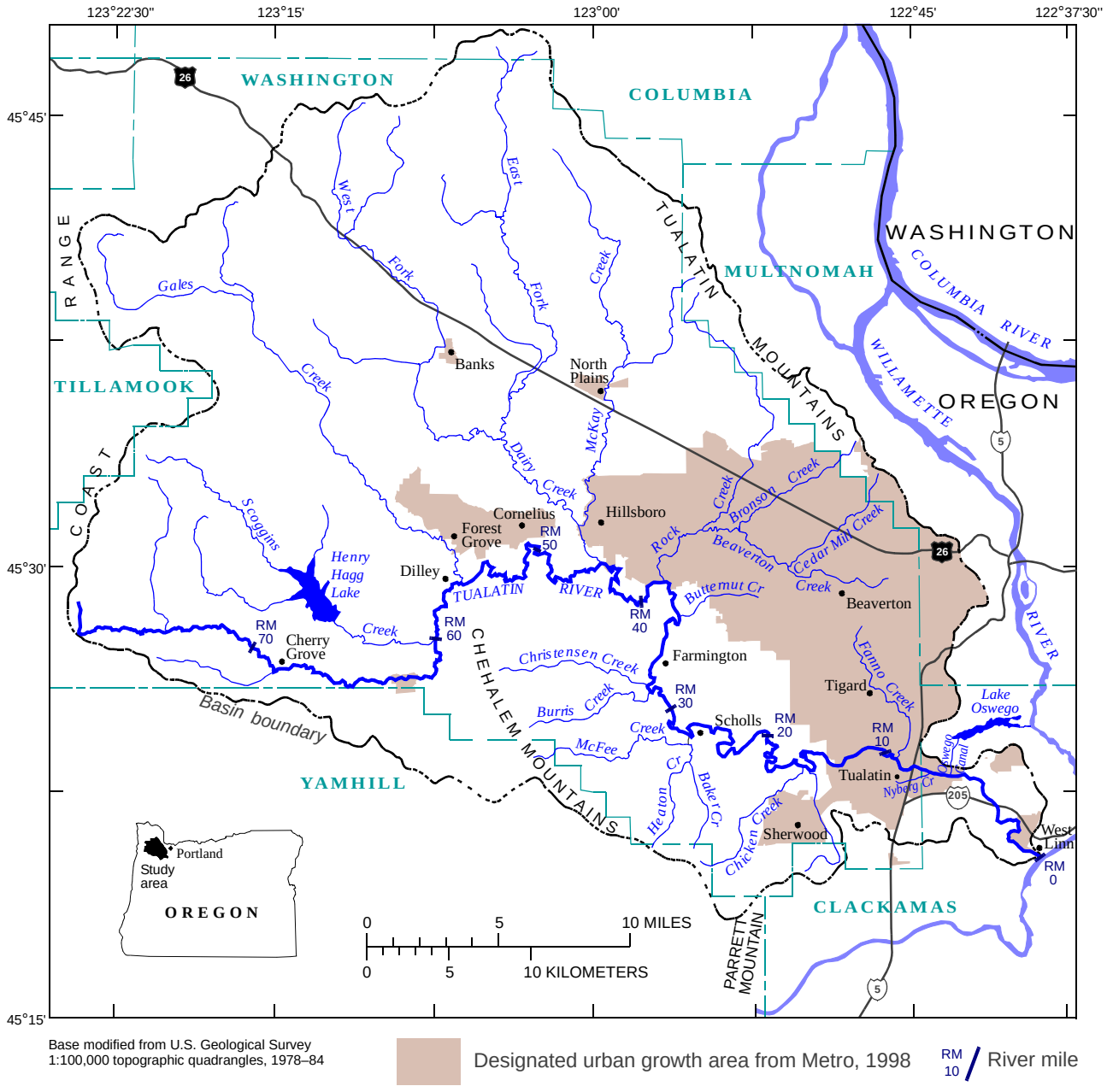
# BACKGROUND

## 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 Hillsboro, Forest Grove and Beaverton, 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. Storage in Barney Reservoir is also allocated to the Oregon Department of Fish and Wildlife. Those flows, to the Trask River, are measured using an instream weir.

**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 34 cfs (22 MGD) at RM 9.3. The Forest Grove and Hillsboro WWTFs (RM 55.2 and 43.8, respectively) are much smaller and do not discharge during the summer. (River mile locations given here are based on USGS topographic maps and may be slightly different from those used in Clean Water Services watershed-based NPDES permit which were obtained from a different source.) WWTF flow rates are continuously monitored at each WWTF. Clean Water Services also releases storage water from Scoggins and Barney Reservoirs for flow augmentation during the seasonal low flow periods to improve water quality in the Tualatin River, to offset a portion of the thermal load from the Rock Creek and Durham WWTFs, and to provide operational flexibility for their WWTFs.

## Water sources to the tributaries

**Clean Water Services:** Clean Water Services has been using Tualatin Valley Irrigation District transmission lines to deliver water to several tributaries for flow restoration in the summer. About 1 to 2.5 cfs of water was added to McKay Creek since 2005. Similar programs were implemented for Gales Creek (2009), East Fork Dairy Creek (2010), West Fork Dairy Creek (2011) and Blackjack Creek (2014). 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 rural residents of the Dilley and Cherry Grove areas (served by the City of Hillsboro), as well as the City of Gaston and the LA Water Cooperative (as Hillsboro wholesale customers). The diversion is less than 3 cfs and is monitored via metered flows.

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

**Wapato Canal Diversion:** The US Fish and Wildlife Service (USFWS) now owns most of the land within the levees surrounding the Wapato Lake area. The duties of the now defunct Wapato Improvement District have been split between USFWS (to maintain the dike and levee system), and TVID (to operate and maintain the irrigation water delivery system).

While USFWS develops a restoration plan, the area will remain in cooperative farming agreements. TVID diverts water from the Tualatin River at the Wapato Canal Diversion, near RM 62 as needed for irrigation of the historic lake bed and surrounding TVID customers. Water levels in Wapato Canal, which discharges from the lake bed into Wapato Creek, have been monitored by the USGS since 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. Historically, flash boards were installed to increase the water level during the summer, but they have not been used since 2003. The dam plus several natural basalt sills cause the water to pool in the reservoir reach. Flow in Lake Oswego Canal was 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. The JWC provides a daily email containing information about the rate of intake at the Spring Hill Pump Plant, releases from Scoggins and Barney Reservoirs, and available natural flow. Because use or release of water by any one of the entities can impact the other users, coordination of flow information is an important aspect of the committee's work. The data are collected by field staff from the cooperating entities or from the Corps of Engineers via telemetry.

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

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

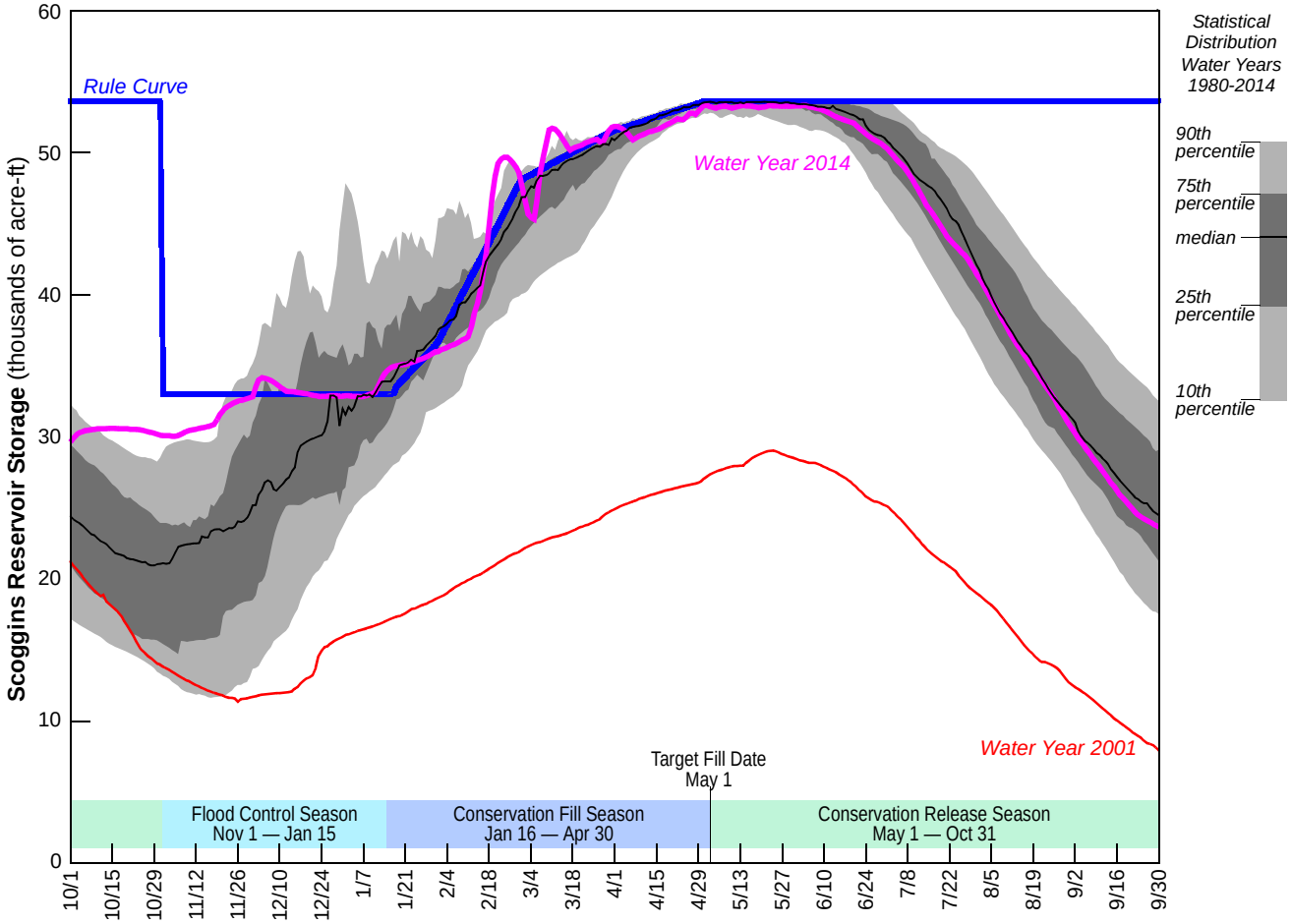
- Bureau of Reclamation data:
  http://www.usbr.gov/pn/hydromet/tuatea.html
- Jackson Bottom Wetlands Center data:
  http://www.jacksonbottom.org/monitoring-restoration/water-quality-tualatin-river-data/
- Oregon Water Resources Department data:
  http://apps.wrd.state.or.us/apps/sw/hydro_near_real_time/
- USGS data:
  http://or.water.usgs.gov/tualatin/

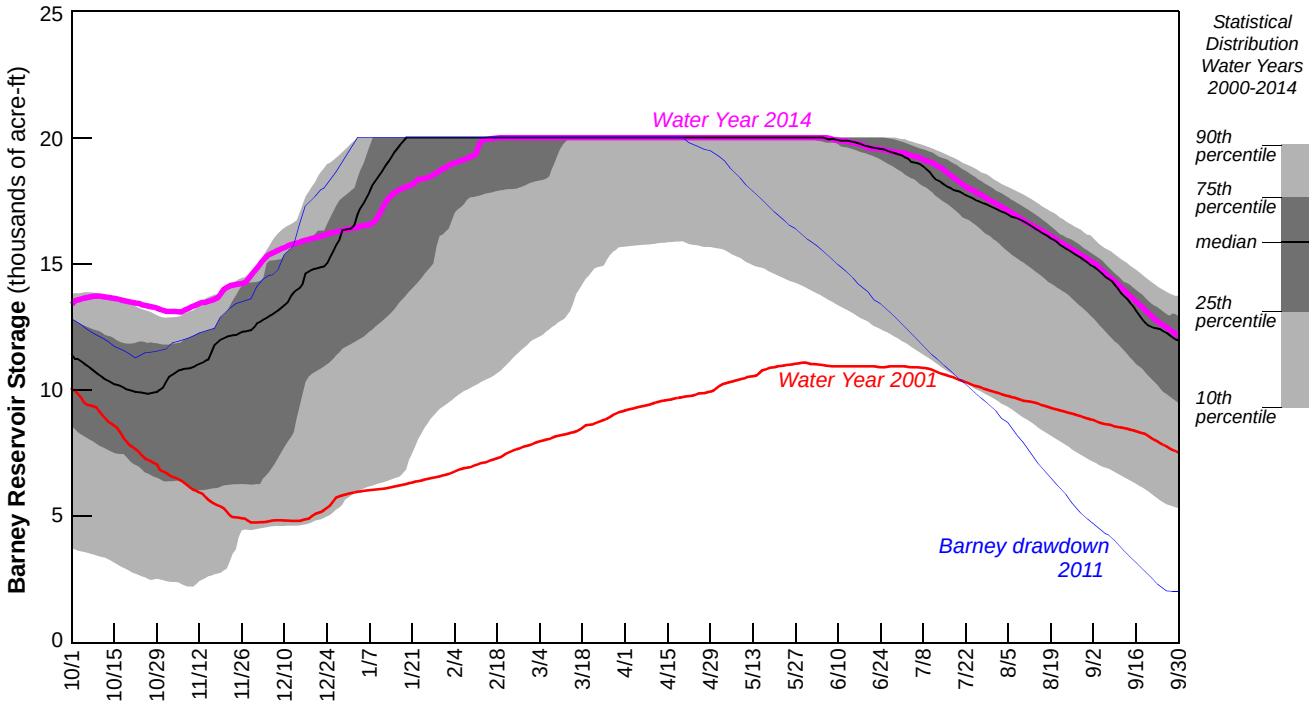
### Annual Tualatin Basin Flow Management Report

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

# RESERVOIR STATUS

After a dry January 2014, the months of February and March were particularly wet. Barney Reservoir filled in early February 2014. Scoggins Reservoir at that time was being managed for flood control. Scoggins Reservoir reached full pool on May 1st. The reservoir levels for 2014 and the reservoir filling histories are shown below.



# CLEAN WATER SERVICES

## BY RAJ KAPUR, CLEAN WATER SERVICES

Clean Water Services provides wastewater treatment, stormwater management, and watershed management to more than 550,000 customers mostly in the urban areas of Washington County. Clean Water Services has twelve member cities, and owns and operates four wastewater treatment facilities (WWTFs) at sites in Forest Grove, Hillsboro, and Tigard. Clean Water Services also implements the municipal separate storm sewer system (MS4) program in the urban parts of the Tualatin River watershed. The four WWTFs and the MS4 program are permitted by the Oregon Department of Environmental Quality (DEQ) under a watershed-based National Pollutant Discharge Elimination System (NPDES) permit. The watershed-based permit provides Clean Water Services with a mechanism to offset a portion of the thermal load from its WWTFs by releasing stored water from Scoggins and Barney Reservoirs. Stored water releases from the reservoirs are also used to improve water quality and 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 low flow season, photosynthetic production of oxygen by algae often offsets the consumption of oxygen by decaying substances in the sediment of the river (sediment oxygen demand). Low levels of dissolved oxygen can result if oxygen production by algae is less than the oxygen consumption by sediment oxygen demand. Although low dissolved oxygen can occur during any season it is more likely in the fall because photosynthetic oxygen production decreases as the days become shorter and low flows maximize the effect of sediment oxygen demand. Increasing streamflow reduces oxygen consumption by sediment oxygen demand because it shortens the contact time between the river water and the river sediments. 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).

### 2014 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 in July for thermal trading. In 2014, flow augmentation releases began on July 1. Flow augmentation was continuous until it ended for the season on October 23 when Tualatin River flow at Farmington exceeded 500 cfs and winter flow conditions started.

In 2014, Clean Water Services began release of Scoggins Reservoir water on July 1; the last release day was October 22. The average release was 41.9 cfs during the July/August period and 32.0 cfs during September. Clean Water Services released a total 9,037 acre-feet from Scoggins Reservoir for 2014. This was only 72% of its allocation.

Clean Water Services released water from Barney Reservoir at a constant rate of 14 cfs beginning on September 2, 2014 and continuing through October 23. Clean Water Services used a total of 1,438 acre-feet from Barney Reservoir which was 87% of its allocation.

Clean Water Services released flow augmentation water for a total of 115 days in 2014. The total average daily release (for days with releases) was 45.9 cfs. The amount of water available to and released by Clean Water Services during 2014 and monthly details of the water releases are summarized on page 11.

**CLEAN WATER SERVICES WATER AVAILABILITY AND USE — 2014**

| Reservoir | | Maximum Available (acre-ft) | Available (acre-ft) | Total CWS Release (acre-ft) |
|---|---|---|---|---|
| Scoggins Reservoir | Storage | 12,618 | 12,618 | 9,037 |
| | Natural flow credit | 4,282 | 0 | |
| Barney Reservoir | Storage | 2,000 | 1,654 | 1,438 |
| | Summer storage | — | 0 | |
| **Total** | | **18,900** | **14,285** | **10,476** |
| **Percent of available** | | | | **73.4%** |

**CLEAN WATER SERVICES WATER RELEASE SUMMARY 2014**

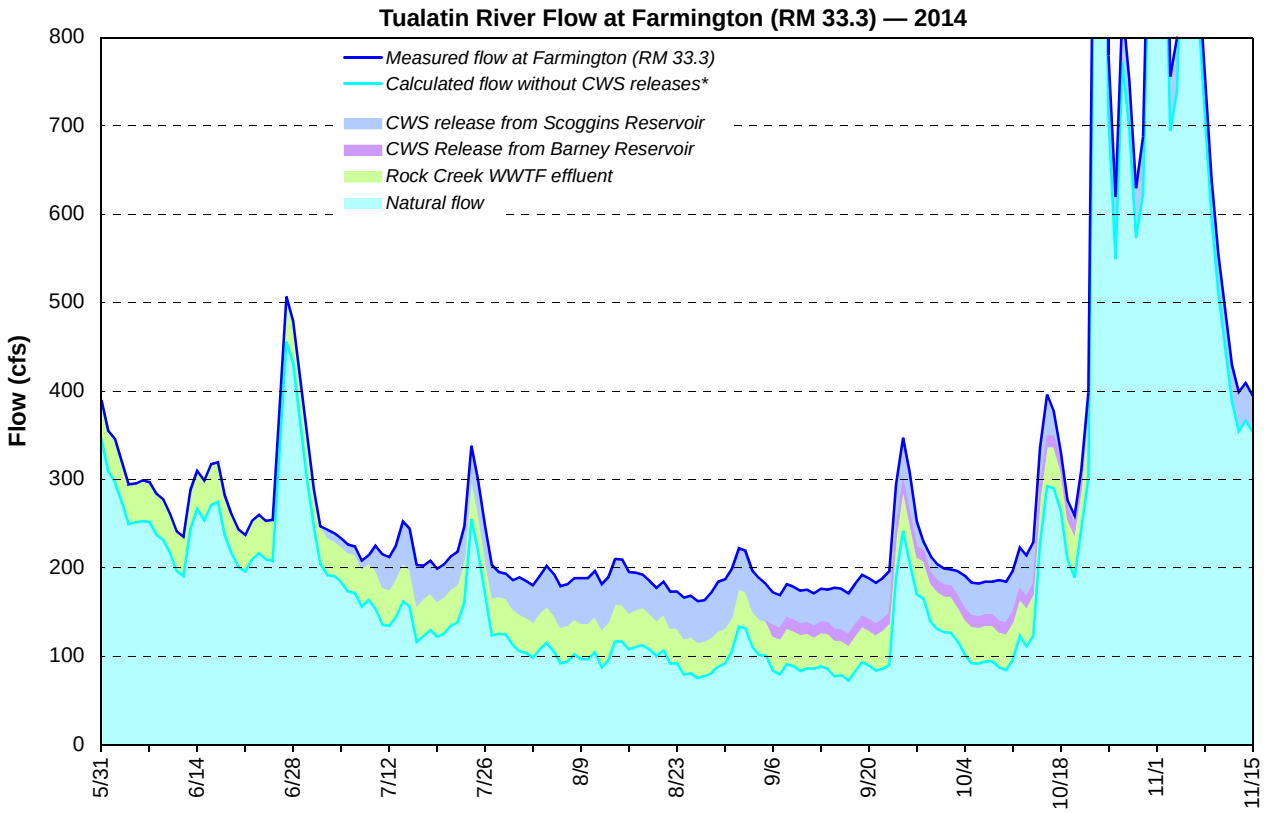
| | Units | May | June | July | Aug | Sept | Oct | Nov 1-18 | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Scoggins Release** | acre-ft | 0 | 0 | 2,063 | 3,095 | 2,430 | 1,448 | 0 | 9,037 |
| | days | 0 | 0 | 31 | 31 | 30 | 22 | 0 | 114 |
| **Barney Release** | acre-ft | 0 | 0 | 0 | 0 | 806 | 633 | 0 | 1,438 |
| | days | 0 | 0 | 0 | 0 | 29 | 23 | 0 | 52 |
| **Total Release** | acre-ft | 0 | 0 | 2,063 | 3,095 | 3,236 | 2,081 | 0 | 10,476 |
| **Daily Average Release** (for days with releases) | cfs | 0 | 0 | 34 | 50 | 54 | 46 | 0 | 46 |
| **Measured Flows for Tualatin River at Farmington (RM 33.3) – based on daily average** | | | | | | | | | |
| Measured minimum | cfs | 391 | 236 | 187 | 163 | 170 | 183 | 757 | — |
| Measured mean | cfs | 977 | 308 | 228 | 186 | 204 | 436 | 1,030 | — |
| Measured maximum | cfs | 2,100 | 508 | 339 | 211 | 348 | 1,280 | 1,480 | — |

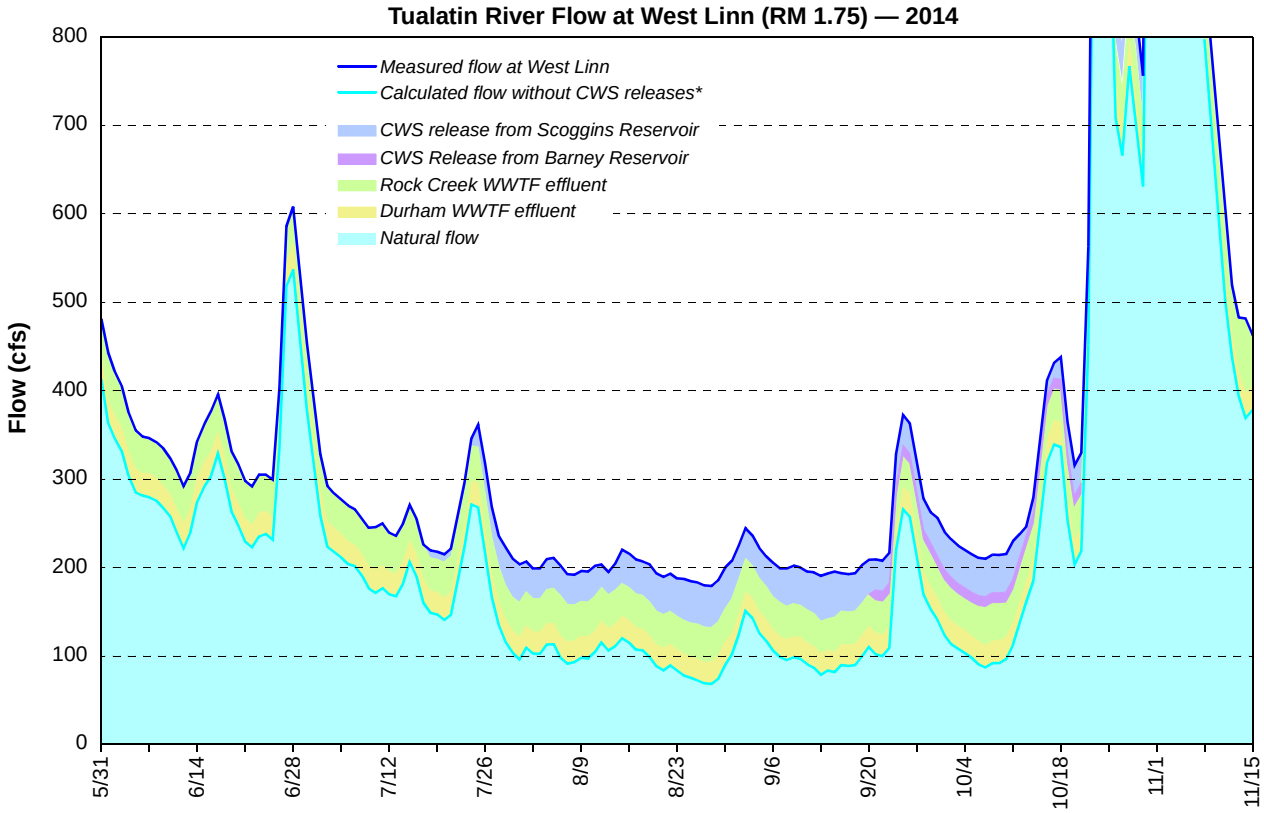
## Natural flow credit

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 2014.

**BUREAU OF RECLAMATION NATURAL FLOW CREDIT 2014**

| 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 | 1118 | 0 | 1118 | 85 | 13 | *[798]* | 0 |
| June | 373 | 0 | 373 | 140 | 21 | *[1250]* | 0 |
| October | 507 | 46 | 461 | 95 | 16 | *[984]* | 0 |
| November | 857 | 0 | 857 | 110 | 21 | *[1250]* | 0 |




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

Flow at Farmington without CWS releases =
+ Measured flow at Farmington
– 0.988 x Rock Ck WWTF flow from the same day
– 0.933 x CWS Scoggins Release from 2 days before
– 0.888 x CWS Barney Release from 4 days before

Flow at West Linn without CWS releases =
+ Measured flow at West Linn
– 0.981 x Durham WWTF flow from 3 days before
– 0.909 x Rock Ck WWTF flow from 14 days before
– 0.854 x CWS Scoggins Release from 17 days before
– 0.809 x CWS Barney Release from 19 days before

## Historical perspective

In 1987, Clean Water Services began managing the release of its water with the goal of maintaining a monthly average of 150 cfs at the Tualatin River at Farmington. Work by the United States Geological Survey in the early 1990s indicated that it was more important to have higher flows in the fall to maintain dissolved oxygen levels than in the early summer to prevent algal blooms. The flow goals were changed to maintaining 120 cfs in the early summer, 150 cfs in August and then 180–200 cfs from September until the winter flows start. Winter flows are defined as flows that exceed a 7-day median of at least 350 cfs. In 2004, an additional goal of releasing water in July and August for temperature trading was added. In 2008, as a result of the Rock Creek WWTF mixing zone study, the goal was increased to 150 cfs through August. The following table shows the history of Clean Water Services releases from Scoggins Reservoir.

**CLEAN WATER SERVICES — SCOGGINS RESERVOIR RELEASES**

| Year | Start Date | End Date | Total Release Days | Total Release (acre-ft) | Average per Release Day (cfs) | Minimum Daily Flow at Farmington (RM 33.3) (cfs) |
|---|---|---|---|---|---|---|
| 1987 | 6/9 | 11/30 | 175 | *16,722 | 48.2 | 63 |
| 1988 | 7/2 | 11/4 | 126 | *15,071 | 60.3 | 106 |
| 1989 | 6/27 | 11/15 | 141 | *16,586 | 59.3 | 112 |
| 1990 | 7/12 | 11/1 | 113 | 11,889 | 53.0 | 124 |
| 1991 | 7/12 | 11/4 | 116 | 13,024 | 56.6 | 125 |
| 1992 | 6/5 | 11/19 | 168 | 12,730 | 38.2 | 73 |
| 1993 | 7/3 | 12/1 | 150 | 11,486 | 38.6 | 98 |
| 1994 | 6/21 | 10/27 | 129 | 10,917 | 42.7 | 105 |
| 1995 | 6/24 | 11/8 | 138 | 9,824 | 35.9 | 118 |
| 1996 | 7/27 | 11/10 | 114 | 10,952 | 48.4 | 146 |
| 1997 | 7/4 | 10/2 | 91 | 6,716 | 37.2 | 154 |
| 1998 | 8/12 | 11/7 | 87 | 9,407 | 54.5 | 146 |
| 1999 | 7/27 | 11/12 | 109 | 12,001 | 55.5 | 156 |
| 2000 | 7/21 | 11/27 | 130 | **15,275 | 59.2 | 152 |
| 2001 | 9/25 | 11/14 | 50 | **2,403 | 24.0 | 88 |
| 2002 | 6/12 | 11/9 | 151 | 12,618 | 42.0 | 103 |
| 2003 | 7/11 | 11/17 | 130 | 11,765 | 52.4 | 107 |
| 2004 | 7/1 | 11/2 | 125 | 8,650 | 34.9 | 130 |
| 2005 | 7/8 | 10/31 | 116 | 9,918 | 43.1 | 153 |
| 2006 | 7/1 | 11/3 | 126 | 9,634 | 38.5 | 148 |
| 2007 | 7/3 | 11/13 | 119 | 10,134 | 42.9 | 148 |
| 2008 | 7/1 | 11/4 | 127 | 11,896 | 47.2 | 162 |
| 2009 | 7/1 | 10/27 | 119 | 10,614 | 45.0 | 147 |
| 2010 | 7/24 | 10/25 | 94 | 8,392 | 45.0 | 187 |
| 2011 | 7/23 | 11/18 | 119 | 10,464 | 44.3 | 173 |
| 2012 | 7/7 | 10/22 | 106 | 10,950 | 52.1 | 178 |
| 2013 | 7/2 | 11/4 | 103 | 6,884 | 33.7 | 163 |
| 2014 | 7/1 | 10/22 | 114 | 9,037 | 40.0 | 163 |

*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. Accounting for dead pool volume and the 15% allocation to Oregon Department of Fish and Wildlife, Clean Water Services has 1,654 ac-ft available at full pool.

**CLEAN WATER SERVICES — BARNEY RESERVOIR RELEASES**

| Year | Start Date | End Date | Total Release (acre-ft) | Daily Release Rate (cfs) | Comment |
|---|---|---|---|---|---|
| 1998 | 7/12 | 8/27 | 2,779 | 24.6 | extra water released to draw down reservoir |
| 1999 | 9/1 | 10/19 | 1,025 | 10 | 10 cfs also released 6/4–6/10 |
| 2000 | 9/8 | 10/23 | 1,461 | 18 | — |
| 2001 | 9/18 | 10/29 | 1,416 | 17 | 1000 acre-ft purchased in addition to allocation; reservoir did not fill; 4,000 acre-ft held in reserve |
| 2002 | 8/26 | 10/24 | 1,667 | 14 | — |
| 2003 | 8/15 | 10/14 | 1,742 | 14 | — |
| 2004 | 9/1 | 11/2 | 1,777 | 14 | — |
| 2005 | 9/1 | 11/8 | 1,874 | 14 | miscommunication about end date; extra water released |
| 2006 | 9/1 | 11/3 | 1,638 | 14 | — |
| 2007 | 9/1 | 10/30 | 1,667 | 14 | — |
| 2008 | 9/4 | 10/31 | 1,611 | 14 | — |
| 2009 | 9/1 | 10/30 | 1,667 | 14 | — |
| 2010 | 9/1 | 10/30 | 1,653 | 14 | 7 cfs on 9/1/2010 only, all other days 14 cfs |
| 2011 | 7/1 | 8/30 | 1,089 | 9 | Barney Reservoir was drawn down for maintenance which resulted in a reduced allocation |
| 2012 | 8/31 | 10/29 | 1,667 | 14 | — |
| 2013 | 8/30 | 11/5 | 1,611 | 14 | release suspended 9/30/2013 – 10/9/2013 |
| 2014 | 9/2 | 10/23 | 1,438 | 14 | — |

# JOINT WATER COMMISSION

BY KRISTEL FESLER, WATER RESOURCES PROGRAM COORDINATOR,
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 (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 to Cornelius, Gaston, and the LA Water Cooperative as wholesale customers of Hillsboro.

JWC's water treatment plant is supplied with water from the nearby Tualatin River. An intake facility at Spring Hill constructed by the Bureau of Reclamation, and 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 two impoundments—Hagg Lake and Barney Reservoir. Hagg Lake is located on Scoggins Creek behind Scoggins Dam. Scoggins Dam is owned by the Bureau of Reclamation (BOR) and operated by TVID under contract to the BOR. Barney Reservoir is located on the upper Trask River behind the Eldon S. Mills Dam. The reservoir and dam are owned and operated by the Barney Reservoir Joint Ownership Commission (BRJOC). The BRJOC includes the cities of Hillsboro (the managing and operating agency), Forest Grove, and Beaverton, the Tualatin Valley Water District, and Clean Water Services.

The JWC water treatment plant uses conventional dual media filtration plus disinfection to produce high quality potable water. Treated water is pumped from the plant to the member agencies either directly from the plant through finished water pipelines or via the Fern Hill Reservoirs. The Fern Hill Reservoirs are located about one-third mile to the east of the treatment plant and can store up to 40 million gallons of finished water (in two 20 million gallon covered concrete tanks). The JWC finished water pipelines include master meters and pressure reducing stations at the connection points to the member agencies.

Each Fern Hill Reservoir stores 20 million gallons of drinking water for the Joint Water Commission.

## 2014 Operations Summary

The average water production rate for 2014 was 31.8 MGD. This was 3.2 MGD higher than the daily average in 2013 and the first year since 2009 to be over 30 MGD. The maximum produced in one day was 58.1 MGD on July 30, 2014. This is well below the highest ever recorded maximum daily production of 66.8 MGD in 2008. The highest production months, July and August, accounted for about 24% of the total 11,618 MG that was produced and delivered in 2014.

**Efficiency:** JWC continued its emphasis on maximizing the capture of released waters through improved coordination of finished water storage at Fern Hill Reservoirs and careful tracking of individual JWC member use of their stored water and system demands. During the peak season, the JWC and Cherry Grove pump stations recovered an average of 98% of the water available for municipal use from natural flow rights and releases from impounded supplies.

**ESTIMATED WATER CAPTURE RATES – 2014**

***Loss Rate and Natural Flow***

| | Amount Released (acre-ft) | Loss | | Natural Flow (acre-ft) | Total Water Available (acre-ft) |
|---|---|---|---|---|---|
| | | **Rate** (percent) | **Total** (acre-ft) | | |
| Scoggins | 9,090 | 2.2% | 200 | | |
| Barney | 6,548 | 5.5% | 360 | | |
| **Total** | **15,638** | | **560** | **2,878** | **17,956** |

***Raw Water Pumping and Finished Water Production***

| | Raw Water Pumped (acre-ft) | Capture Rate (pumped/available) | Finished Water Produced (acre-ft) | Production Rate (produced/available) | Average Daily Production (acre-ft) | Peak Day Production (acre-ft) |
|---|---|---|---|---|---|---|
| JWC Treatment Plant (Springhill) | 17,289 | 96.3% | 17,479 | 97.3% | 123.1 | 178.3 |
| Slow Sand Filter Plant (Cherry Grove) | 223 | 1.2% | 223 | 1.2% | 1.6 | 3.2 |
| **Total** | **17,512** | **97.5%** | **17,702** | **98.6%** | **124.7** | **181.5** |

**Maintenance:** JWC staff determined that pump tolerances for the raw water pump and motor #3 at the Spring Hill intake were not within specifications. NW Motors rebuilt the pump and motor; they were re-installed by JWC staff.

**Back-up power project:** A recent seismic resiliency study identified loss of power as one of the greatest vulnerabilities at the JWC's water treatment. The JWC is in the process of addressing this issue with the installation of a backup power facility. Two 2.5 megawatt generators and paralleling switchgear will be installed in a new concrete building on the WTP site. The generators will be capable of operating the WTP at half-capacity (37.5 million gallons per day) during a power outage. Design of this project began in 2010 with funding assistance provided by a Department of Homeland Security grant. Design work was completed in 2014. The project is scheduled to be operational by the end of 2015.

## Acknowledgements

The Joint Water Commission 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. JWC remains a committed participant in the Tualatin Flow Management Committee. The communication and coordination that comes from this committee among the various Tualatin River users is invaluable.

## 2014 Stored Water Releases

2014 was an average year for stored water releases. Regulation off natural flow began on June 5 with releases beginning the same day. Releases continued until October 24 for a total of 142 days. Total stored water released and average daily release were both slightly higher than average.

**COMPARISON OF STORED WATER RELEASES— 10-YEAR RECORD**

| Year | Regulated Use | | | Stored Water Release (acre-ft) | | | Average Release (acre-ft/day) |
|---|---|---|---|---|---|---|---|
| | Start | End | Days* | Barney | Scoggins | Total | |
| **2014** | 6/5 | 10/24 | 142 | 6,548 | 9,090 | 15,638 | 110 |
| **2013** | 5/4 | 10/1 | 141 | 6,387 | 7,490 | 13,877 | 98 |
| **2012** | 6/23 | 10/30 | 129 | 6,557 | 7,016 | 13,573 | 105 |
| **2011** | 6/28 | 11/7 | 132 | 8,848 | 3,945 | 12,794 | 97 |
| **2010** | 6/30 | 10/22 | 114 | 5,647 | 5,171 | 10,818 | 95 |
| **2009** | 6/14 | 10/26 | 134 | 4,723 | 9,203 | 13,926 | 104 |
| **2008** | 6/18 | 10/31 | 135 | 4,407 | 10,163 | 14,571 | 108 |
| **2007** | 5/25 | 11/13 | 155 | 5,544 | 10,372 | 15,916 | 103 |
| **2006** | 5/18 | 11/3 | 160 | 8,101 | 11,332 | 19,432 | 121 |
| **2005** | 6/20 | 10/27 | 130 | 5,966 | 10,550 | 16,517 | 127 |
| 10-yr average | **6/9** | **10/27** | **137** | **6,273** | **8,433** | **14,706** | **107** |

*Days of Regulated Use is accurate; it does not equal the elapsed days between the start and end dates for regulation when regulation was temporarily suspended during that time.

The amount of stored water released by JWC for 2014 is summarized in the tables below. Slightly more than half of the total allocation was released (67% for Scoggins Reservoir and 44% for Barney Reservoir).

**STORED WATER RELEASE FROM EACH RESERVOIR — 2014**

| Description | Beginning Balance (acre-ft) | Amount Released (acre-ft) | Ending Balance (acre-ft) | Average Release (acre-ft/day) |
|---|---|---|---|---|
| Scoggins | 13,500 | 9,090 | 4,410 | 64 |
| Barney (M&I) | 14,886 | 6,548 | 8,338 | 46 |
| **Total** | **28,386** | **15,638** | **12,748** | **110** |

**STORED WATER RELEASE TO EACH AGENCY — 2014**

| Description | Beginning Storage (acre-ft) | Amount Released (acre-ft) | | | Ending Balance* (acre-ft) | Average Release (acre-ft/day) |
|---|---|---|---|---|---|---|
| | | from Scoggins | from Barney | Total | | |
| Hillsboro | 10,127 | 5,000 | 1,784 | 6,783 | 3,344 | 48 |
| Forest Grove | 4,914 | 1,205 | 318 | 1,523 | 3,391 | 11 |
| Beaverton | 7,556 | 2,886 | 832 | 3,718 | 3,838 | 26 |
| TVWD | 5,789 | — | 3,614 | 3,614 | 2,175 | 25 |
| **Total** | **28,386** | **9,090** | **6,548** | **15,638** | **12,748** | **110** |

North Plains (usage is reflected in the values for JWC partners).

# MILLS DAM/BARNEY RESERVOIR

BY KRISTEL FESLER, WATER RESOURCES PROGRAM COORDINATOR,
JOINT WATER COMMISSION/CITY OF HILLSBORO

## Overview

Mills Dam/Barney Reservoir is a rock and earth impoundment on the upper Trask River. When Trask Dam was built in 1970 by the Cities of Hillsboro and Forest Grove, the reservoir held 4,000 ac-ft of water. In 1999, the dam height was raised to accommodate 20,000 ac-ft of storage and was renamed the Mills Dam. Barney Reservoir is named for J.W. Barney and Mills Dam is named for Eldon S. Mills, both former Hillsboro City Managers and key leaders in the original dam construction and its later expansion.

Water stored in Barney Reservoir is released to both the Trask and Tualatin Rivers. Flows to the Trask River include all storage overflows and 15% of the stored water, which is allocated to Oregon Department of Fish and Wildlife (ODFW). A gravity flow diversion pipeline conveys water from the Trask River to the headwaters of the Tualatin River. The additional flow in the Tualatin River is used for municipal purposes and flow augmentation to improve water quality.

Release from Barney Reservoir to the Trask River through a Howell-Bunger Valve

The current owners of Barney Reservoir are the Cities of Hillsboro, Forest Grove, Beaverton, the Tualatin Valley Water District (the same entities that form the Joint Water Commission) and Clean Water Services. Collectively they form the Barney Reservoir Joint Ownership Commission (BRJOC). As with the Joint Water Commission, the City of Hillsboro serves as the managing and operating agency for the BRJOC.

**RESERVOIR OWNERSHIP AND WATER ALLOCATION FOR BARNEY RESERVOIR**

| | | **Water Allocation** (percent) | Storage at Full Capacity (acre-ft) | Reservoir Ownership (percent) |
|---|---|---|---|---|
| Reserved | Dead pool | 2.3% | 460 | — |
| | Oregon Department of Fish and Wildlife (ODFW) | 15.0% | 3,000 | 0.0% |
| BRJOC Partners | Clean Water Services | 8.3% | 1,654 | 10.0% |
| | JWC Partners | 74.4% | 14,886 | 90.0% |
| | *City of Hillsboro* | *25.6%* | *5,127* | *31.0%* |
| | *City of Forest Grove* | *2.1%* | *414* | *2.5%* |
| | *City of Beaverton* | *17.8%* | *3,556* | *21.5%* |
| | *Tualatin Valley Water District (TVWD)* | *28.9%* | *5,789* | *35.0%* |
| | TOTAL | 100.0% | 20,000 | 100.0% |

## Dam Inspection

OWRD inspected the Mills Dam on March 26, 2014, to identify conditions on the dam's exterior that may affect the safety of the dam. This dam is classified as a high hazard dam based on its risk to people and property and is in need of annual inspections. OWRD determined that Mills dam is “very well maintained” and no major issues of concern were identified. The crest and embankment show no signs of settlement, instability or internal erosion.

## 2014 Operations

Barney Reservoir filled on February 19, 2014. By the end of the release season, 53% of the total allocated water was released.

**Releases to the Tualatin River:** The majority of the JWC's natural flow rights were regulated off on June 5, 2014 and releases from Barney Reservoir to the Tualatin River began on June 5. Releases continued until October 23, for a total of 141 release days. Clean Water Services used 87% of their allotment and the JWC partners used 44%.

**Releases to the Trask River:** Releases from Barney Reservoir to the Trask River for ODFW began on June 6 and continued until November 30 for a total of 178 release days. Eighty-nine percent of the stored water for ODFW was released to the Trask River.

**STORED WATER ALLOCATION AND RELEASES FOR BARNEY RESERVOIR — 2014**

| | | | **BRJOC Partners** | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | **JWC Partners** | | | |
| | Total Storage | Oregon Dept of Fish and Wildlife | Clean Water Services | *JWC Total* | *City of Hillsboro* | *City of Forest Grove* | *City of Beaverton* | *TVWD* |
| **Water Allocation** (acre-ft) | 20,000 | 3,000 | 1,654 | 14,886 | *5,127* | *414* | *3,556* | *5,789* |
| **Water Released** (acre-ft) | 10,652 | 2,666 | 1,438 | 6,548 | *1,784* | *318* | *832* | *3,614* |
| **Percent Allocation Used** | 53% | 89% | 87% | 44% | *35%* | *77%* | *23%* | *62%* |

# LAKE OSWEGO CORPORATION

BY MARK ROSENKRANZ, WATER RESOURCE SPECIALIST, LAKE OSWEGO CORPORATION

## 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 open. Major inflows from the watershed include Springbrook Creek, Lostdog Creek, Blue Heron Creek, and 70-plus storm drains from the City of Lake Oswego.

Aerial view of the West Bay of Lake Oswego looking to the East

## 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 2014, 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).

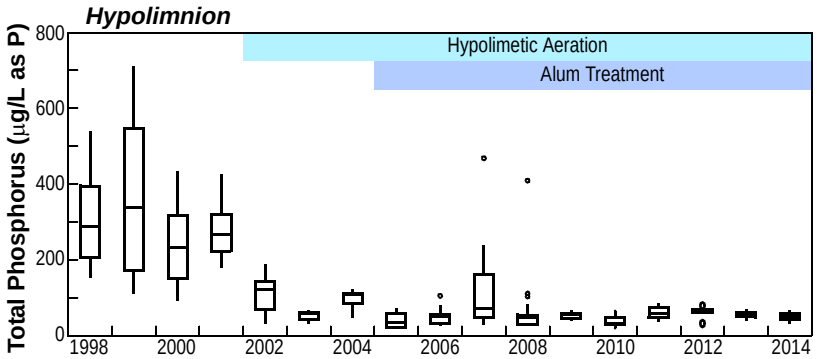
**Maintenance/Evaporation:** LOC also has a maintenance/evaporation water right of 3.36 cfs dating from 1985. This water can be diverted between September 16$^{th}$ and July 30$^{th}$.

## 2014 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. 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.

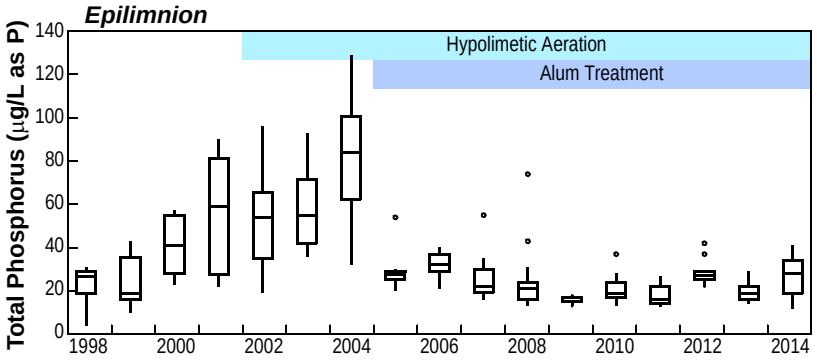
To limit the growth of algae (especially cyanobacteria) in the Lake, LOC has focussed its efforts on reducing the amount of available phosphorus. Two methods have been used in Oswego Lake: aeration and alum addition.

**Aeration:** Release of phosphorus from sediments in Lake Oswego is increased when the lower layers (hypolimnion) of the lake are anoxic. Phosphorus in the hypolimnion is available to feed cyanobacteria that can adjust their buoyancy. At night they descend to this phosphorus-rich water to obtain phosphorus and then return to the shallow upper layer (epilimnion) during day to photosynthesize. Aeration reduces anoxia in the hypolimnion which reduces the amount of phosphorus released from sediment. Consequently, the hypolimnion provides less food for algae. Since installing hypolimnetic aeration in late 2001, phosphorus in the hypolimnion has decreased by 78% during the summer season. See figure at right.

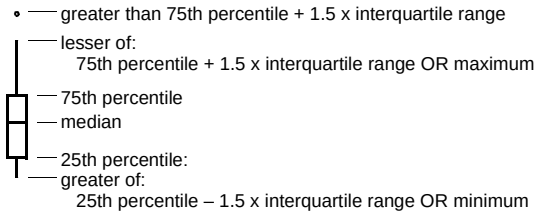



*Phosphorus concentrations in the hypolimnion of Oswego Lake during the summer (June–September). Before the aeration program, the average total phosphorus concentration in the hypolimnion was 299 µg/L; after the aeration program (2002–present), the average concentration was 65 µg/L.*

**Alum:** Dissolved phosphorus in the epilimnion of the lake promotes algal growth. When alum is added to lake water, dissolved phosphorus binds to alum particles making the phosphorus unavailable to algae. The alum particles settle to the bottom of the lake, taking the bound phosphorus as well. Thus, the epilimnion contains less phosphorus to feed algae. Since the alum treatment program began, the phosphorus concentration in the epilimnion has dropped by 52% during the summer season. See figure at right.




*Phosphorus concentrations in the epilimnion of Oswego Lake during the summer (June–September). Before the alum treatment program, the average total phosphorus concentration in the epilimnion was 48 µg/L; after the aeration program (2005–present), the average concentration was 23 µg/L.*



**Outfall treatment:** In addition to treating the lake with alum, in 2014 we experimented with alum treatment at outfalls where water with elevated phosphorus concentrations enters the lake. Most of the phosphorus in the epilimnion comes from inflows from the Tualatin River and the immediate watershed. The benefit of this targeted approach is that phosphorus is removed before it has an opportunity to promote algal growth in the lake. Treatment efficiency is increased and less alum is used overall.

Oswego Canal is fed by a spring that runs through Bryant Woods Park. This outfall is very high in phosphorus and is one of the main sources of nutrients to the lake during summer. Most of the phosphorus is in the soluble form which is immediately available to feed algae. (The total phosphorus concentration is 200 μg/L; the soluble phosphorus concentration is 185μg/L.) In 2014 we installed a system to capture water at this outfall and treat it with alum. Although we were unable to capture all the water, 78% of the soluble phosphorus was removed from the water that was captured and treated. In 2015 we will increase the size of the system to capture more water and remove more phosphorus.

**Tualatin River Flows:** Minimal Tualatin River flows were used to keep the lake full. Limiting river flow into the lake is desirable because river water contains high concentrations of phosphorus and sediment.

## 2014 Lake Water Quality

**2014 OSWEGO LAKE WATER QUALITY SUMMARY AVERAGES**

| Location | Season | Chlorophyll-a (μg/L) | Total P (μg/L) | SRP (μg/L) | Total N (μg/L) | Secchi (m) | Turbidity (NTU) |
|---|---|---|---|---|---|---|---|
| Lakewood Bay (depth 3.2 m) | Annual | 14 | 31 | 1 | 456 | 1.8 | 4.6 |
| | Summer | 17 | 40 | 1 | 524 | 1.0 | 8.1 |
| Main Lake (depth 16 m) | Annual | 16 | 25 | 1 | 567 | 2.6 | 3.9 |
| | Summer | 16 | 26 | 1 | 432 | 2.3 | 5.2 |
| West Bay (depth 1.4 m) | Annual | 26 | 76 | 6 | 1281 | 0.6 | 15 |
| | Summer | **25** | 74 | 2 | 730 | 0.5 | **18** |
| Oswego Canal (depth 1.2 m) | Annual | 9 | 103 | 37 | 4233 | 1.1 | 4.1 |
| | Summer | 12 | **79** | 14 | **4016** | 1.1 | 3.6 |
| Blue Heron Canal (depth 1.3 m) | Annual | 18 | 44 | 3 | 809 | 1.2 | 5.8 |
| | Summer | 8 | 34 | 1 | 567 | 1.2 | 3.1 |
| Outlet (depth 6 m) | Annual | 16 | 37 | 1 | 500 | 2.6 | 3.8 |
| | Summer | 14 | 38 | 2 | 413 | **2.4** | 4.3 |

**Bold** = highest average during the summer; Underline = lowest average during the summer; Summer=June–September

Abbreviations: Total P = Total Phosphorus, SRP = Soluble Reactive Phosphorus, Total N = Total Nitrogen, Secchi = Secchi depth, ug/L = micrograms per liter, m = meters, NTU = nephelometric turbidity units

## Staff Changes at the City of Lake Oswego

We have graduated another intern and have replaced her with another Masters student from PSU. She will be working on our watershed monitoring plan. The data collected using her plan will help us refine our nutrient budget— specifically helping us track our external and internal phosphorus sources.


# OREGON WATER RESOURCES DEPARTMENT

BY JAKE CONSTANS, 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 distribution management within the Tualatin, Lake Oswego, and Lower Willamette Drainage Basins in northwestern Oregon. District 18 covers approximately 1,111 square miles and serves the majority of the population in Washington and Columbia counties, as well as parts of Clackamas, Multnomah, and Yamhill counties. There are 2,806 total surface water rights in the district which cover 58,602 acres of land. As part of the surface water rights within the Tualatin River Basin there the following streams have instream water rights: Tualatin River, Gales Creek, Scoggins Creek, Rock Creek, West Fork Dairy Creek, and Fanno Creek. To assist in monitoring surface water in the basin we currently utilize 17 total gaging stations, 10 of which are on real time data.

**WATERMASTER DISTRICT 18 GAGING STATIONS FOR 2014**

| 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 |
| 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) (stage only) | 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

## 2014 Highlights

The Oregon Water Resources Commission meeting was held in November at Clean Water Services. As part of the meeting the District 18 Watermaster provided the Commission and attendees with an informational presentation about the Tualatin River Basin and the district in its entirety.

## Regulatory Overview 2014

The 2014 water year was an uncommonly warm and dry growing season. Small amounts of precipitation caused low stream flow levels throughout the summer and early fall. Due to the drier than average conditions during the irrigation season, regulation on the main stem of the Tualatin River and its tributaries occurred uncommonly far back in priority date in order to satisfy the needs of senior water right holders.

**2014 WATER RIGHTS REGULATION SUMMARY**

| Date | On/Off | Regulatory Activity | River Mile | Priority Date |
|---|---|---|---|---|
| 6/4 | Off | City of Beaverton (P-45455, 7/15/1980) – Tualatin River<br>City of Forest Grove (P-40615, 4/28/1976) – Tualatin River<br>City of Hillsboro (P-46423,2/6/1974) – Tualatin River<br>*(Hillsboro still has 14 cfs available from the Tualatin River)*<br>City of Hillsboro (P-50879, 6/9/1988) – Scoggins Creek | | 2/6/1974 |
| 6/11 | Off | TVID (P-35792, 2/20/1963) – Scoggins Creek<br>(partial regulation—20 cfs) | | 2/20/1963 |
| 6/20 | Off | TVID (P-35792, 2/20/1963) – Scoggins Creek | | 2/20/1963 |
| 7/3 | Off | Tualatin River & tributaries above Spring Hill Pump Plant<br>Tualatin River — 11, 2/20/1963<br>Gales Creek — 62, 9/24/1963<br>Carpenter Creek — 4, 7/10/1967<br>Scoggins Creek — 3, 7/28/1975 | > 56.09 | 2/20/1963 |
| 7/8 | Off | City of Hillsboro (P-2443, 5/1/1915) – Sain Creek (2 cfs) | | 5/1/1915 |
| 7/16 | Off | City of Hillsboro (P-1136, 1/22/1912) – Sain Creek (3 cfs) | | 1/22/1912 |
| 7/29 | Off | Tualatin River & tributaries above Spring Hill Pump Plant<br>Tualatin River — 18, 4/14/1949<br>Gales Creek — 38, 4/18/1949<br>Carpenter Creek — 5, 8/22/1949<br>Scoggins Creek — 5, 4/18/1955 | > 56.09 | 4/14/1949 |
| 8/11 | Off | *EF Dairy Creek and tributaries above<br>RM 13–EF Dairy Creek— 12 | =10.56<br>>13 | 3/6/1967 |
| 8/11 | Off | *McKay Creek and tributaries above Northrup Rd<br>McKay Creek—6<br>EF McKay Creek—2 | =44.73<br>=2.26<br>>15.5 | 8/8/1966 |
| 8/26 | Off | Tualatin River & tributaries above Spring Hill Pump Plant<br>Tualatin River — 22, 3/18/1936<br>Gales Creek — 33, 9/6/1932<br>Carpenter Creek — 7, 3/25/1935<br>Scoggins Creek — 8, 4/1/1932 | > 56.09 | 4/1/1932 |
| 8/26 | Off | Stimson Lumber Co (P-10633, 4/1/1932) – Scoggins Creek | >56.09 | 4/1/1932 |
| 10/22 | On | TVID (P-35792, 2/20/1963) – Scoggins Creek | | 2/20/1963 |
| 10/22 | On | Stimson Lumber Co (P-10633, 4/1/1932) – Scoggins Creek | >56.09 | 4/1/1932 |
| 10/22 | On | City of Hillsboro (P-2443, 5/15/1915) – Sain Creek<br>City of Hillsboro (P-1136, 1/22/1912) – Sain Creek<br>*(for a total of 5 cfs)* | | 5/1/1915<br>1/22/1912 |
| 10/22 | On | City of Beaverton (P-45455, 7/15/1980) – Tualatin River<br>City of Forest Grove (P-40615, 4/28/1976) – Tualatin River<br>City of Hillsboro (P-46423,2/6/1974) – Tualatin River<br>City of Hillsboro (P-50879, 6/9/1988) – Scoggins Creek | >56.09 | 2/6/1974 |

*Instream Senior Water Right; all others Senior Water Rights

# SCOGGINS DAM/HENRY HAGG LAKE

BY WALLY OTTO, RETIRED, TVID,
JOHN GOANS, RESERVOIR SUPERINTENDENT, TVID,
BERNIE BONN,
AND TOM VANDERPLAAT, CLEAN WATER SERVICES

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.

Scoggins Dam

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, Sain Creek, and for Scoggins Creek at RM 4.8.

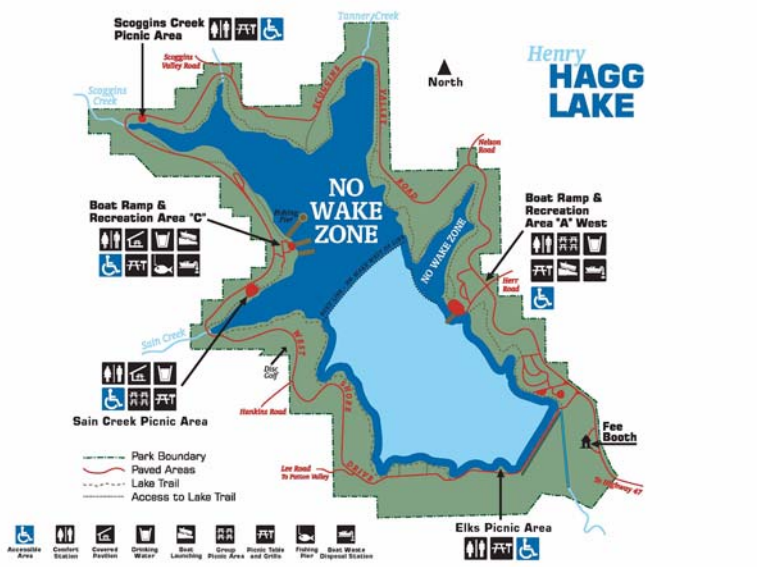
Scoggins Dam stores 53,640 acre-feet of water in Henry Hagg Lake as active storage—the amount of water that can be moved in or out of the reservoir between the intake structure and the top of the spillway gates. Another 7,000 acre-feet of stored water that is not engineered to be removed exists below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

**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 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 1st to January 15th, 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 year round and is for day-use only. Access to the boat ramps is limited to the first Saturday in March through the last Sunday before Thanksgiving.




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

## 2014 Water Use

Water year 2014 marks 40 years since Scoggins Dam began storing and releasing water for downstream beneficial use. A total of 38,495 acre-feet were delivered in 2014 bringing the total delivery from the Project to more than 1.25 million acre-feet.

2014 flow regulation began on June 5th for the Joint Water Commission and June 12th for TVID. With the exception of TVID's extended season irrigators, all users were permitted to return to natural flow use in the Tualatin River on October 23, 2014. As usual, TVID continued to deliver a small amount of storage water primarily to nurseries and greenhouses beginning in March and continuing until the end of November as permitted by the Oregon Water Resources Department.

**2014 WATER DELIVERIES FROM SCOGGINS RESERVOIR**

| Delivered to | Volume (ac-ft) |
|---|---|
| Tualatin Valley Irrigation District | 18,952 |
| Clean Water Services | 9,035 |
| Municipal Use (Cities of Beaverton, Forest Grove and Hillsboro) | 9,090 |
| Lake Oswego Corporation | 500 |
| Other (includes two golf courses, from TVID allocation) | 918 |
| **Total** | **38,495** |

## Events in 2014

**Recreation:** In 2014, there were 953,000 users recorded at Scoggins Valley Park/Henry Hagg Lake. The park and lake opened on March 1st and now remains open all year. The boat ramps closed on November 23rd. In addition to the usual recreational uses, numerous races were held including triathlons.

**Coho Salmon:** Thirty seven Coho were spotted in Scoggins Creek below the dam on November 7th.

**Lake Fish Habitat:** Over the previous years, the Oregon Panfish Club anchored a total of 183 fish habitat structures (8' diameter) in the upper reaches of Henry Hagg Lake. These 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:** Most of the fir trees planted in February 2012 remain standing and continue to form a visual barrier for the elk along the side of the Control House entry road. The field remains off limits to all trespassers including dogs. On numerous occasions, elk were observed grazing in the pasture.

**Endangered species:** As part of the consultation, BOR committed to avoid or minimize impacts to FBB and Kincaid's lupine. The Master Trail that traversed prairie patches containing FBB and Kincaid's lupine was relocated and trail maintenance practices modified to support Kincaid's lupine or FBB. Reclamation has also committed to work with partner agencies to study and control invasive weeds.

## Scoggins Dam Security

**Department of Homeland Security Alert Levels:** The Project follows the Department of Homeland Security (DHS) alert levels as required by BOR. No incidences of heightened security level occurred at Scoggins Dam in 2014 due to any specific terrorist alerts.

**Security Gates:** On July 31, 2014, security gates were installed on the north and south ends of the Dam. The gates are to allow the road to be closed in case of a security threat to the Dam.

## 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 primary operator, John Goans, and the back-up operator, Chad Peterson, attended the BOR Emergency Action Plan table top exercise Jan 8, 2014.

**Spills and Water Quality:** No spills or accidents that jeopardized the water quality in Henry Hagg Lake occurred in 2014 and the BOR on-site Response Trailer was not needed for emergency response. No containment booms were deployed to contain any contaminant spills during 2014.

**Drownings:** On August 25, 2014 at around 6 pm, a 3-year old boy was found drowned in the Sain Creek recreational area. The following day the boy's three missing family members were found in the same area. They also drowned.

**Earthquakes in 2014:** There were no earthquakes reported in 2014 that were near enough to the Dam that inspection of the facility was required.

**Fires:** A boat caught fire near Boat Ramp C on August 24, 2014. The boat burned almost completely along with 30 feet of the adjacent dock. No one was injured.

On the afternoon of September 19, 2014 a forest fire was spotted northwest of Henry Hagg Lake in the Scoggins Creek area. The lake was immediately closed. More details about the fire are in a special section in the Flow Report.

## Future of the Project

**Tualatin Basin Water Supply:** In 2001, the water resource agencies (except TVID) in the Tualatin Basin began to explore and compare alternatives for providing the additional water needed to meet future needs. TVID does not need additional water because it is limited to serving 17,000 acres of irrigated land and the current supply is adequate. After studying many different options as well as seismic issues, the municipal and industrial water providers decided to focus on the Willamette River for future water supply. Clean Water Services is collaborating with Reclamation to develop alternatives that strengthen the dam to reduce risk from a Cascadia Subduction Zone earthquake and to raise it by 12 feet to meet future water supply needs for the maintenance and improvement of water quality in the Tualatin River. Progress is currently delayed pending Federal legislation that would reauthorize the Safety of Dams Act and provide funding for seismic improvements on Scoggins Dam and other dams of concern nationwide.

# TUALATIN VALLEY IRRIGATION DISTRICT

BY WALLY OTTO, RETIRED, TVID
UPDATED BY JOHN GOANS, RESERVOIR SUPERINTENDENT, TVID

## 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.

## 2014 TVID Water Use

For the 2014 irrigation season (March through the end of November), TVID took delivery of 18,953 acre-feet of water from storage in Henry Hagg Lake—up 151 ac-ft from 2013. The least amount was 8,333 ac-ft in 1993 and the largest was 22,188 ac-ft in 2007. TVID 2014 peak use from storage was 109 cfs on August 7th.

**WEATHER STATISTICS AT SCOGGINS DAM 2014**

| Month | Description | Precipitation | | Average Temperature | | Other |
|---|---|---|---|---|---|---|
| | | 2014 | [average 1970-2014] | Low | High | |
| ***January*** | dry | 3.28” | [7.85”] | 33 ºF | 48 ºF | |
| ***February*** | very wet | 8.96” | [6.11”] | 33 ºF | 45 ºF | |
| ***March*** | very wet | 9.39” | [5.65”] | 37 ºF | 56ºF | |
| ***April*** | wet | 4.56” | [3.48”] | 40 ºF | 60 ºF | |
| ***May*** | average | 2.01” | [2.25”] | 46 ºF | 69 ºF | |
| ***June*** | dry | 0.94” | [1.51”] | 49 ºF | 72 ºF | 1 days 80 ºF or higher |
| ***July*** | dry, warm | 0.33” | [0.44”] | 55 ºF Rec* | 84 ºF | 9 days 90 ºF or higher |
| ***August*** | dry, warm | 0.10” | [0.67”] | 55 ºF Rec* | 84 ºF | 9 days 90 ºF or higher |
| ***September*** | warm | 1.37” | [1.54”] | 51 ºF Rec* | 78 ºF | 12 days 80 ºF or higher |
| ***October*** | very wet, warm | 7.15” | [3.75”] | 49 ºF | 67 ºF | 5 days 80 ºF or higher |
| ***November*** | dry | 3.75” | [7.76”] | 40 ºF | 52 ºF | |
| ***December*** | warm | 9.16” | [9.14”] | 38 ºF | 48 ºF | |

*Rec= The average low temperatures for July, August and September were the highest on record.

## 2014 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 2014.

**Pipeline Maintenance:** TVID delivers irrigation water by high pressure pipeline to customers from Gaston to North Plains and from west of Forest Grove to Highway 219 south of Hillsboro. The water is withdrawn from the Tualatin River at the Spring Hill Pump Plant and lifted by pumps to a water regulating tank off Winter’s Road. From there it flows under gravity pressure to all points of delivery through 120 miles of pipeline. Preventative maintenance continues to keep service delivery as dependable as possible. Several minor disruptions of service occurred during the year, but were quickly isolated and repaired. Service was restored in minutes in some cases or in up to a day if conditions did not allow quick access. There were no long term disruptions of service to District patrons.

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

# WATER QUALITY
BY BERNIE BONN

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

## Algal growth and pH

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

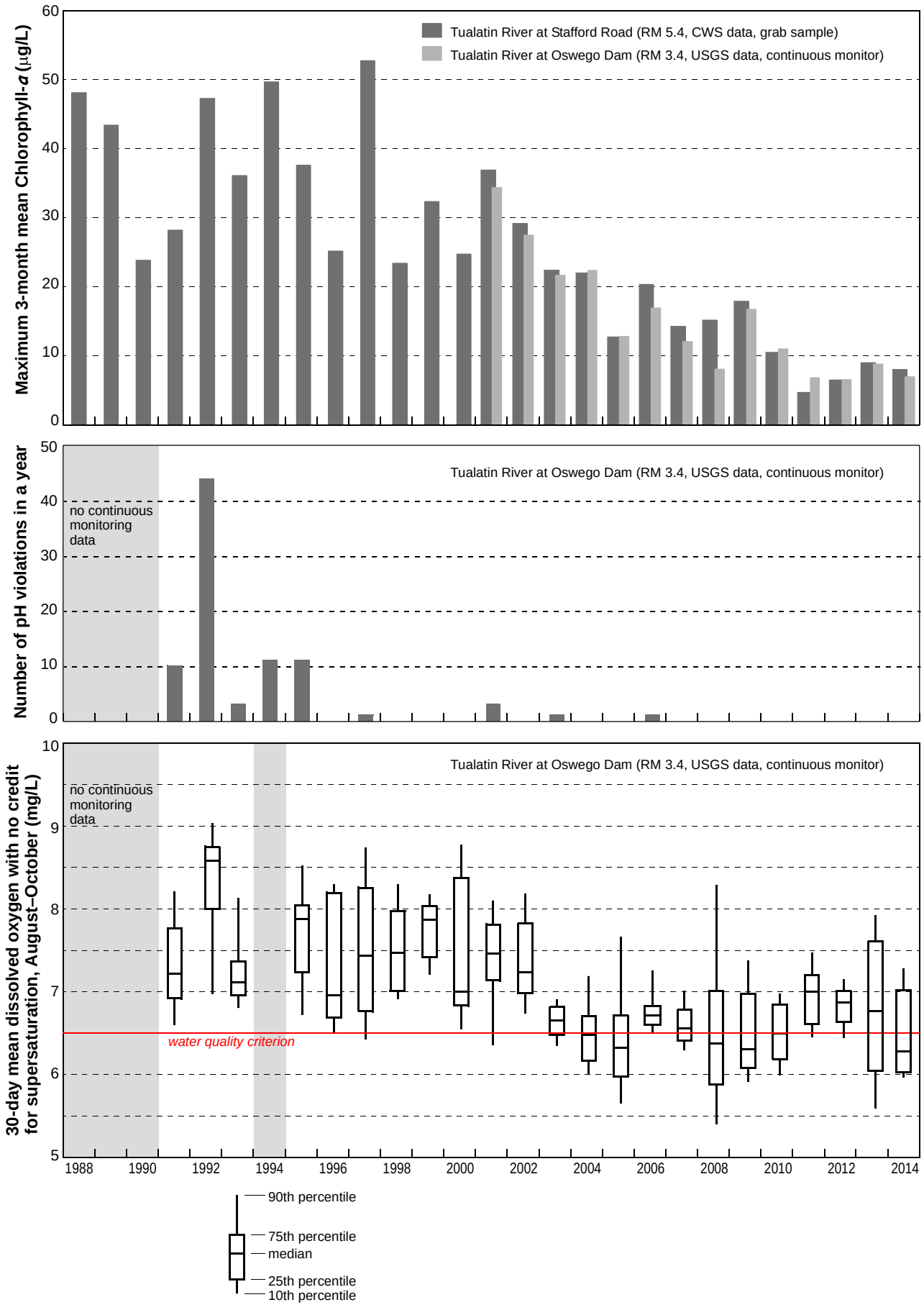
In the 1980s the lower section of the Tualatin River was listed by the ODEQ for elevated pH (>8.5) and degraded aesthetics due to nuisance algal growth. To address these water quality problems, the ODEQ developed a TMDL for phosphorus to limit nutrient availability. Since then, advanced wastewater treatment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

Chlorophyll-*a* concentrations are an indicator of the amount of algae in the river. Clean Water Services measures chlorophyll-*a* in water samples at several sites and since 2001, chlorophyll-*a* is measured hourly at the Oswego Dam (RM 3.4) by the USGS as part of a cooperative agreement with Clean Water Services. Chlorophyll-*a* levels have decreased substantially since the 1990s (see the figure on the following page). Chlorophyll-*a* levels continued to be low in 2014; during the past 4 years, the maximum 3-month average chlorophyll-a concentration was less than 10 μg/L.

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 2014, 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 inflow of oxygen rich water. The processes that consume oxygen are biochemical oxygen demand and sediment oxygen demand (from substances that decompose in the water and at the sediment water interface, respectively) and respiration by algae at night. Because the lower section of the river moves slowly and is not turbulent, oxygen exchange with the atmosphere is slow. Consequently, if dissolved oxygen becomes depleted, it cannot be quickly replenished from the air. Similarly, if dissolved oxygen is in excess, the river water stays supersaturated for a prolonged period of time.


Maximum 3-month mean Chlorophyll-a (µg/L)
Tualatin River at Stafford Road (RM 5.4, CWS data, grab sample)
Tualatin River at Oswego Dam (RM 3.4, USGS data, continuous monitor)
Number of pH violations in a year
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

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 into nitrate. Since then, Clean Water Services has dramatically decreased the amount of ammonia discharged to the river.

Streamflow in the Tualatin River during the summer 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 variable and 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 2014 met criteria from early through mid-summer. Toward the end of August, the algal population in the reservoir part of the river began to decrease as evidenced by a decrease in the chlorophyll-*a* concentration. With less algae, there was less photosynthesis and less oxygen production. Dissolved oxygen concentrations began to decrease and by September 7th, the 30-day dissolved oxygen criterion was not met at the Oswego Dam site (RM 3.4). Dissolved oxygen concentrations remained low there until a storm on October 22 increased flows. Even though the dissolved oxygen concentrations had increased, the 30-day mean remained below the criterion until October 30th due to previous low concentrations. Dissolved oxygen concentrations were never below the 7-day or daily criteria during 2014. Dissolved oxygen concentrations farther upstream at RM 24.5 were at or above criteria throughout the low flow season.

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

**NUMBER OF DAYS THAT DID NOT MEET DISSOLVED OXYGEN CRITERIA IN 2014**

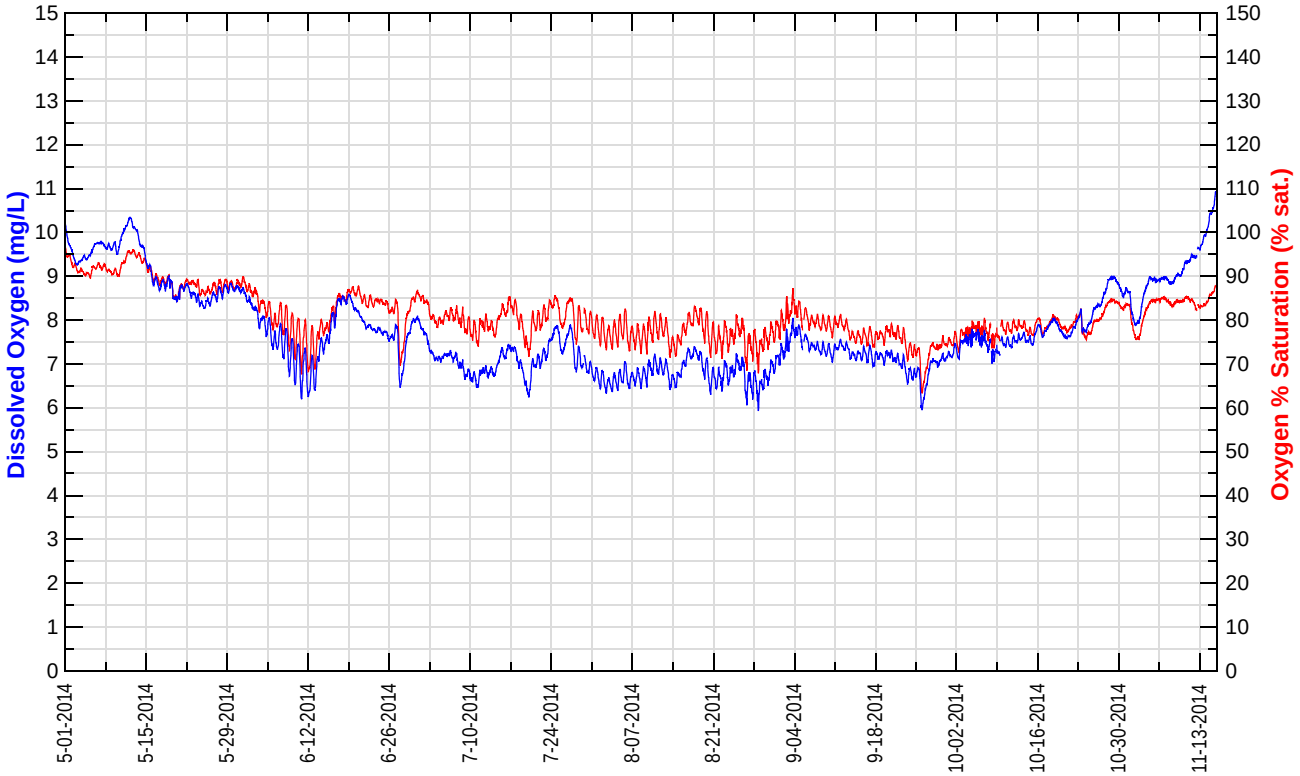
| Criterion | May | June | July | Aug | Sept | Oct | May–October Percentage |
|---|---|---|---|---|---|---|---|
| ***Tualatin River at RM 24.5*** | | | | | | | |
| 30 day | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| 7 day | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| Daily | 0 | 0 | 0 | 0 | 0 | 0 | 0% |
| ***Tualatin River at Oswego Dam (RM 3.4)*** | | | | | | | |
| 30 day | 0 | 0 | 0 | 0 | 24 | 29 | 29% |
| 7 day | 0 | 0 | 0 | 0 | 0 | 0 | 4% |
| Daily | 0 | 0 | 0 | 0 | 0 | 0 | 0% |

Data are available at:

http://or.water.usgs.gov/cgi-bin/grapher/table_setup.pl?basin_id=tualatin

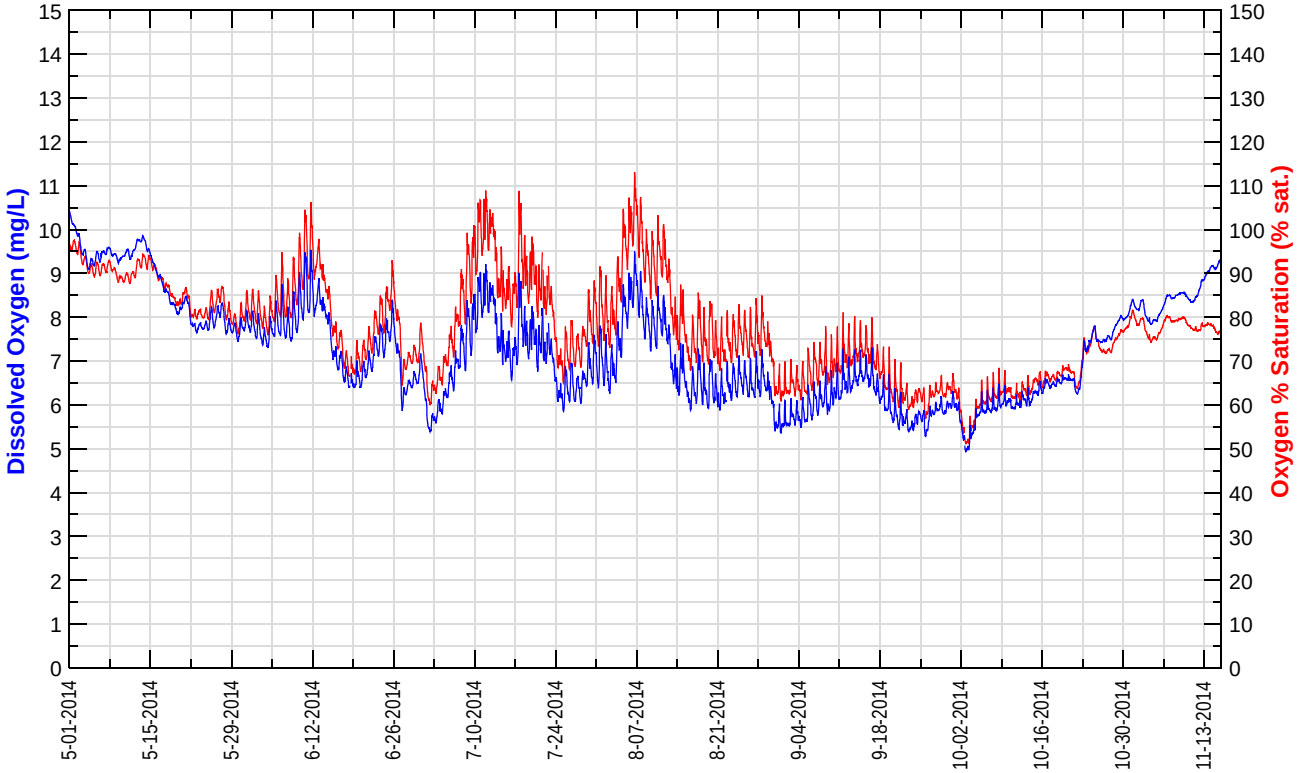
**Tualatin River at River Mile 24.5 (14206694)**

*Data from U.S. Geological Survey*




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

*Data from U.S. Geological Survey*



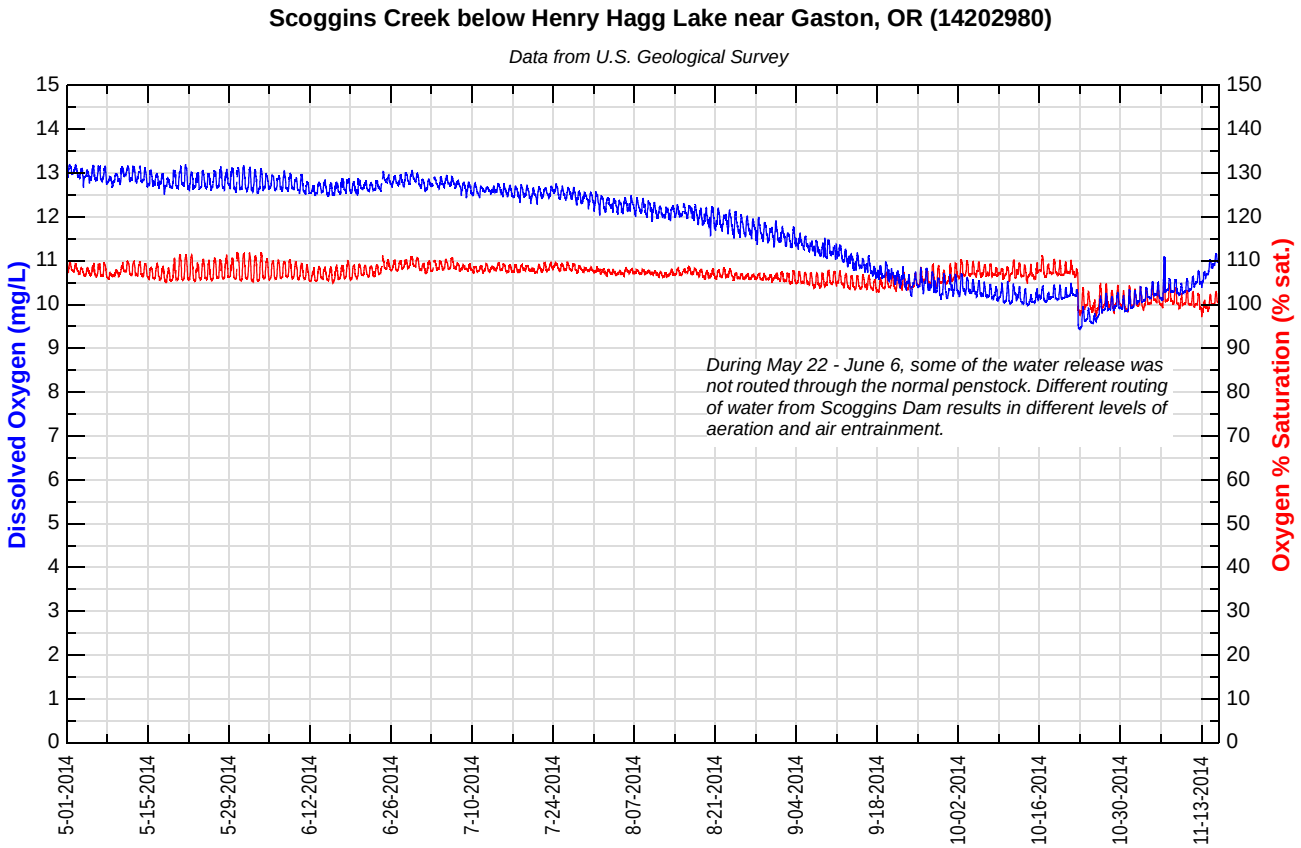
## Dissolved Oxygen Status in Tributaries

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

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

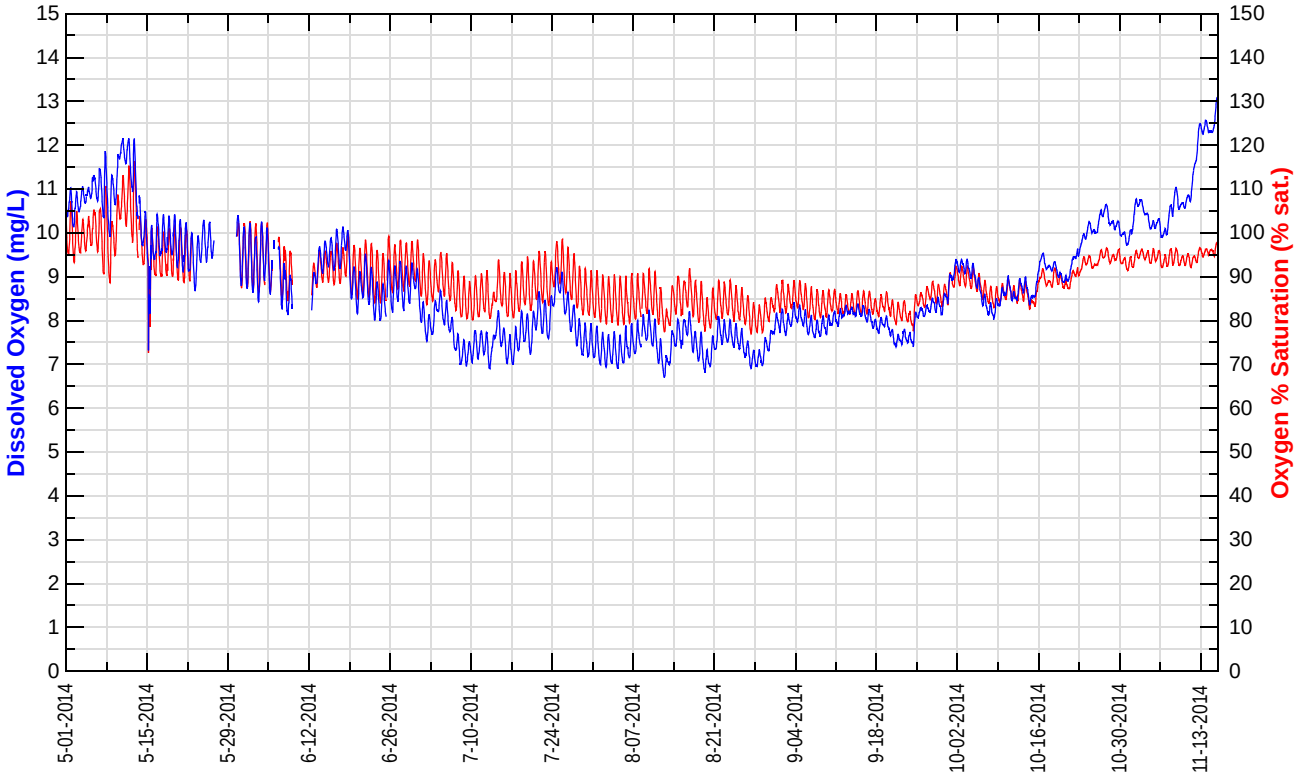
Dairy Creek at Hwy 8 (site ID=453113123003501), and

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



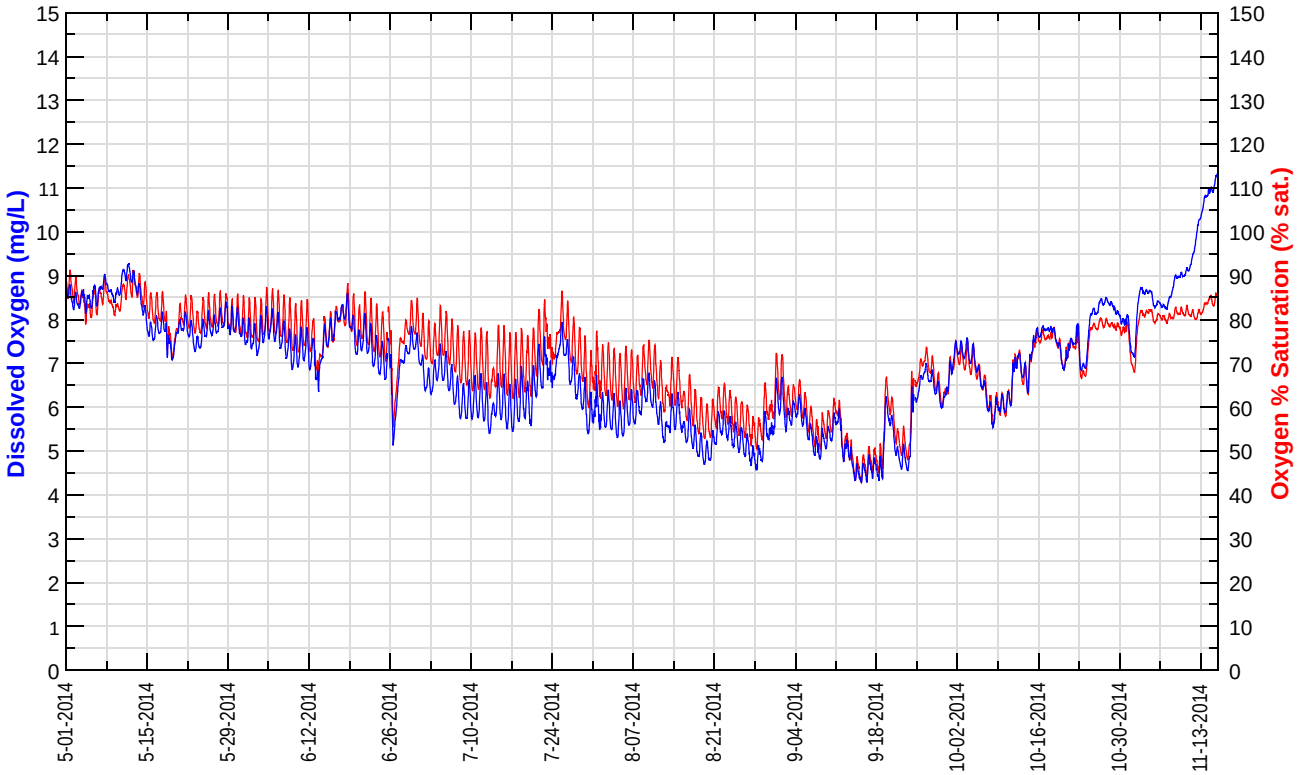
**Gales Creek at Old Hwy 47, Forest Grove, OR (453040123065201)**

*Data from U.S. Geological Survey*



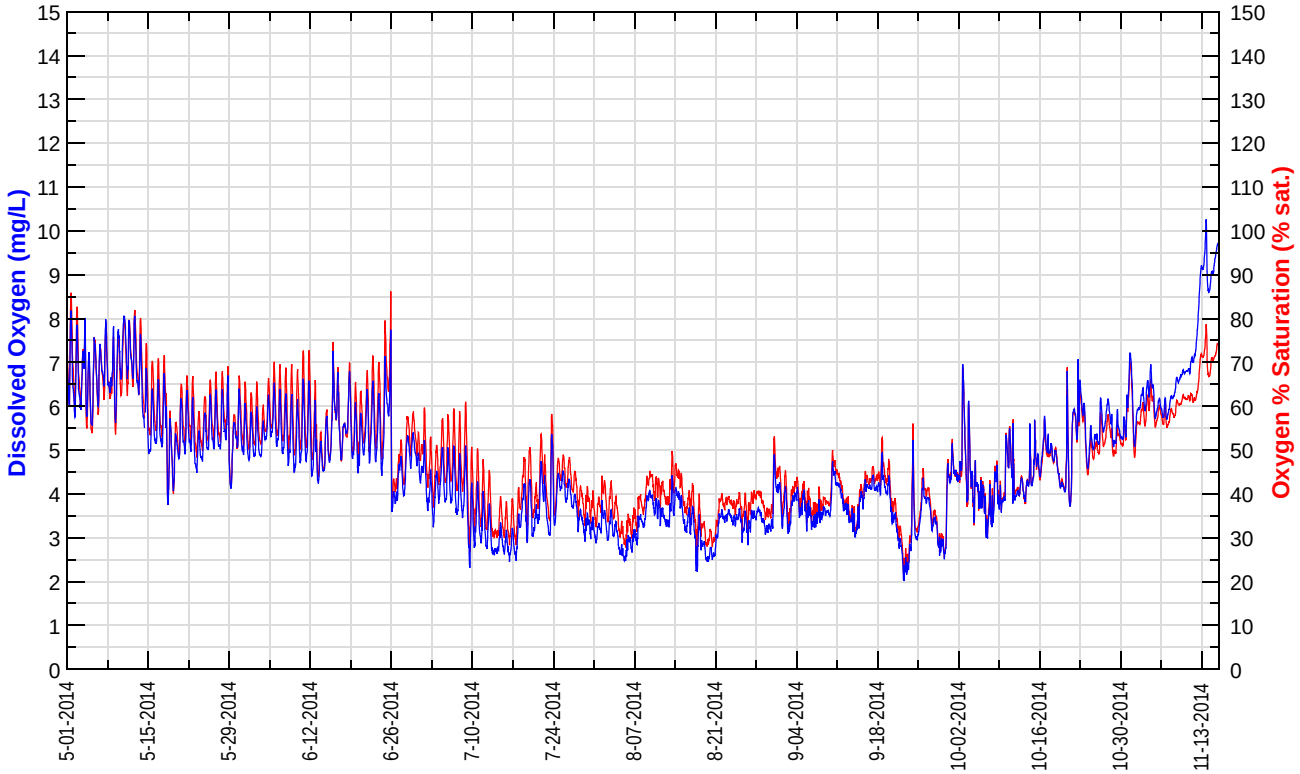

**Rock Creek at Brookwood Ave, Hillsboro, OR (453030122560101)**

*Data from U.S. Geological Survey*



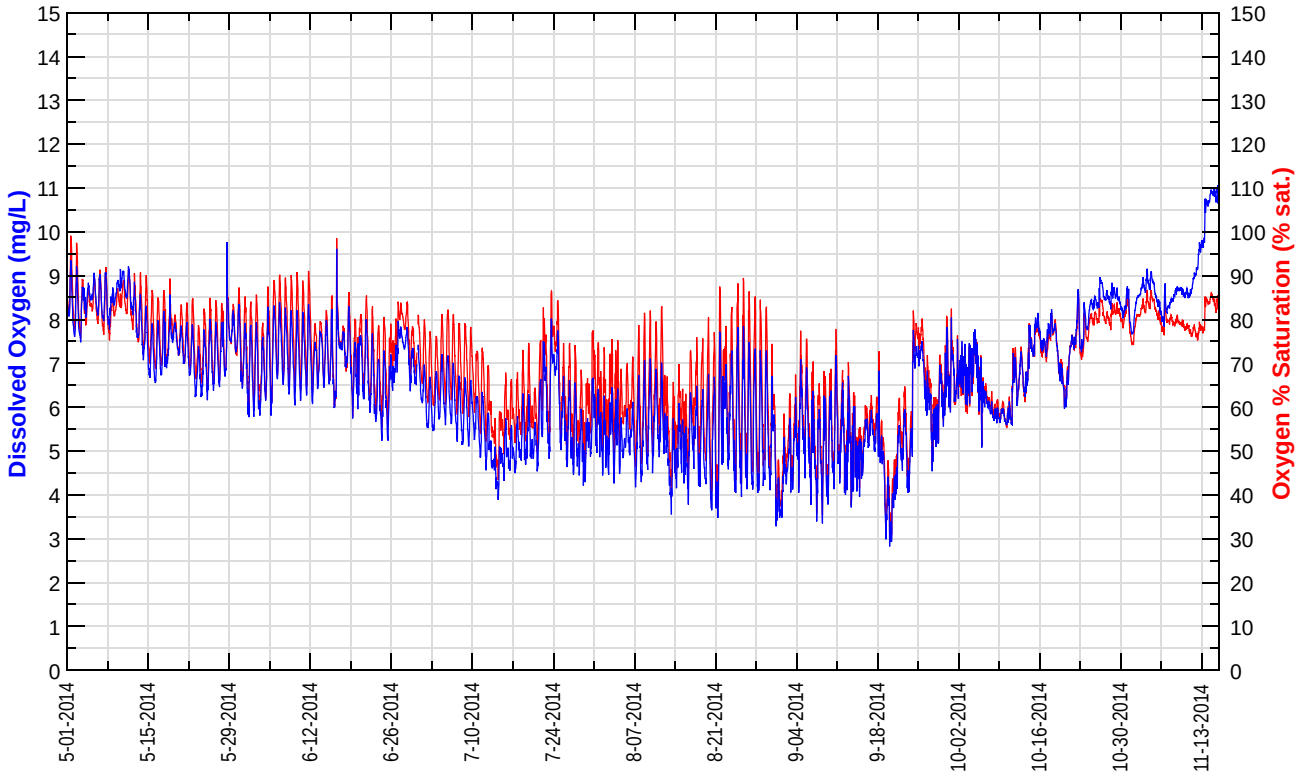
**Beaverton Creek at 170th Ave, Beaverton, OR (453004122510301)**

*Data from U.S. Geological Survey*




**Fanno Creek at Durham Road (14206950)**

*Data from U.S. Geological Survey*



# BIOLOGICAL OPINIONS RELEASED IN 2014

BY KRISTEL FESLER, WATER RESOURCES PROGRAM COORDINATOR,
JOINT WATER COMMISSION/CITY OF HILLSBORO,
JOE RUTLEDGE, DISTRICT MANAGER, TUALATIN VALLEY IRRIGATION DISTRICT;
LAURA PORTER, WATER RESOURCES ANALYST, CLEAN WATER SERVICES,
AND BERNIE BONN

## Background

The Endangered Species Act (ESA) directs all Federal agencies to work to conserve endangered and threatened species. Any actions taken by a Federal agency, including those funded or authorized by the agency, may not jeopardize the existence of a listed species. If an agency thinks a proposed action might affect a listed species, the agency must consult with the appropriate Federal Service—typically the U.S. Fish and Wildlife Service or the National Marine Fisheries Service. The Service will then respond with a Biological Opinion (BiOp) that details their findings, including any required or recommended corrective actions.

**Listed species in the Tualatin Basin:** The appropriate Federal Service lists an animal or plant species as "endangered" if it is in danger of extinction in a significant portion of its range or "threatened" if the species is likely to become endangered in the foreseeable future. The Tualatin Basin is home to several species that are listed. Fender's blue butterfly (*Icaricia icarioides fender*) is listed as endangered. Upper Willamette River UWR steelhead (*Oncorhynchus mykiss*), Kincaid's lupine (*Lupinus sulphureus ssp. kincaidi*i), and Nelson's checker-mallow (*Sidalcea nelsoniana*) are listed as threatened. Other species may also be listed. UWR Chinook salmon (*Oncorhynchus tshawytscha*) are listed as threatened in Oregon, but no essential habitat has been identified in the Tualatin Basin. Acorn woodpecker, yellow-breasted chat, and willow flycatcher are considered species of concern, but not listed as endangered or threatened at this time.

Fender's Blue Butterfly on Kincaid Lupine
public domain image, US Fish & Wildlife Service

Steelhead juvenile
photo by Chris Adams, California Department of Fish & Game

**The Tualatin Project:** The Bureau of Reclamation manages the Tualatin Project which provides irrigation water, flood control, and supplemental municipal and industrial water. Water from the Project augments flows for fish, wildlife, and improves water quality in the Tualatin Basin. The Tualatin Project includes Scoggins Dam, Henry Hagg Lake, Patton Valley Pumping Plant, Spring Hill Pumping Plant, booster pumping plants, and piped lateral irrigation distribution systems. Two biological opinions were issued in 2014 for the Tualatin Project.

## U.S. Fish and Wildlife Service Opinion

In 2011, Fender's blue butterfly (FBB) and its host flower, Kincaid's lupine were found in several areas around Hagg Lake. As a result, the BOR requested a reinitiation of the 2004 consultation with the U.S. Fish and Wildlife Service (USFWS) regarding the Henry Hagg Lake Resource Management Plan and how it would affect these two species. USFWS issued a Biological Opinion in September 2014. USFWS concluded that "the effects of the activities conducted at Hagg Lake under the existing Resource Management Plan and general Operations and Maintenance practices of the Tualatin Project, and the cumulative effects… will not jeopardize the continued existence of FBB and Kincaid's lupine."

The BiOp specified the following actions:

- Utilizing best management practices as part of ongoing restoration of prairie habitat, including the control of invasive vegetation;
- Limiting chemical treatment to 1/2–1/3 of occupied habitat;
- Conducting a survey of FBB (annual) and Kincaid's lupine (every 3 years);
- Reporting annually to the Oregon Fish and Wildlife Office of USFWS.

USFWS also indicated that a new consultation should be requested for any modifications to Scoggins Dam (due to a dam raise, seismic upgrades, or other reasons).

## National Marine Fisheries Service Opinion

The National Marine Fisheries Service (NMFS) reviewed the operations and maintenance of the Tualatin Project to determine if those actions jeopardize the existence of UWR Chinook salmon and UWR steelhead. Operation and maintenance of the facilities was defined as

- managing the reservoir for the temporary holding, storage, release, and distribution of water out of the Scoggins Creek watershed, and
- the various operation, maintenance, and construction or repair of existing structures and facilities.

An analysis of the Tualatin Project's likely effects on essential fish habitat (as authorized under the Magnuson-Stevens Fishery Conservation and Management Act (MSA)) was also required. NMFS released the BiOp for the Tualatin Project on October 1, 2014 (NWR-2009-2018).

### Findings related to threatened species

NMFS conclusions concerning the operations and maintenance of the Tualatin Project are summarized in the table below.

**NMFS DETERMINATION OF TUALATIN PROJECT ON AFFECTED SPECIES**

| Action | UWR Steelhead | UWR Chinook Salmon |
|---|---|---|
| **Is the Operation and Maintenance of the Tualatin Project likely to:** | | |
| affect this species or its critical habitat? | Yes | No |
| jeopardize this species? | No | No |
| destroy or adversely modify critical habitat for this species? | No | No |

NMFS concluded that the Tualatin Project is not likely to adversely affect UWR Chinook salmon. They also found that the Project will have a limited effect on UWR steelhead, but one that is not likely to imperil the species. Water withdrawals in particular were evaluated because of their potential to entrain juvenile UWR steelhead. NMFS concluded that water withdrawal has a low likelihood of entraining fish because:

- The period of highest withdrawals (July–August) does not coincide with the period of highest fish presence (March–June).
- The overall number of fish present is low during high withdrawal times.
- The design of the intakes at Patton Valley and Spring Hill pumping plants include screens that will exclude all but the smallest smolts.

Although NMFS concluded that the entrainment of steelhead at intake points would be minimal, they also noted that some entrainment would occur at Spring Hill Pumping Plant (SHPP) because the intake screen at SHPP (1/8" mesh) is coarser than the NMFS guideline (3/32" mesh). Consequently, the BiOp included an incidental take statement for steelhead regarding entrainment at the SHPP. (The term 'take' under ESA means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.) Measures to minimize the potential incidental take as well as nondiscretionary terms and required conditions were specified in the BiOp. NFMS found that the screen mesh size at the intake was sufficient to limit entrainment to only the smallest juvenile salmonids and that the extent of the taking was not likely to jeopardize the species.

**Terms and conditions related to findings:** The following required actions were specified in the BiOp to minimize the amount of incidental take:

- Maintain screens at water intake facilities;
- Monitor and report occurrences of incidental take; and
- Submit annual reports, including intake inspection reports and withdrawal amounts from March–June.

The BiOp does not require the BOR to replace the fish screens at Spring Hill Pumping Plant even though they do not meet the current NMFS-compliant 3/32" mesh size.

If the Tualatin Project operates under the terms just described, it will not be in violation of the take prohibition if UWR Chinook salmon or UWR steelhead are harmed. Lawful actions that harm a listed species are not considered a take provided that the action was performed in compliance with the terms and conditions outlined in a BiOp.

Annual reporting to document BiOp compliance will begin in 2015. ESA regulations do not require a response for non-jeopardy BiOps.

### Findings related to essential fish habitat

As required by the MSA, the BiOp also included the results of NMFS analysis of whether the operation and maintenance of the Tualatin Project would adversely affect essential fish habitat (EFH) for Chinook and coho salmon. NMFS concluded that operation of the Tualatin Project will adversely affect essential fish habitat for coho salmon because operation of the Tualatin Project causes:

- reduced flows in Scoggins Creek during the fall and winter that can restrict access to limited coho spawning habitat; and
- increases in the temperature in the Tualatin River in the summer that restrict rearing potential and could displace juvenile salmonids to other rearing locations.

**Terms and conditions related to findings:** The BiOp includes conservation recommendations to avoid, minimize, or otherwise offset these potential adverse effects on essential fish habitat. The MSA conservation recommendations include:

- Seek ways to increase flows within Scoggins Creek during fall and winter (potentially through additional efficiencies in delivery, distribution and use of water); and
- Begin an integrated water management assessment for the Tualatin Project to identify if any changes to the flow management regime could benefit the listed species of salmon and essential fish habitat.

On January 6, 2015 BOR issued a statutory response letter to NMFS accepting both MSA conservation recommendations.

### Next steps

Another NMFS review of the effects on salmonids due to the activities of the Tualatin Project must occur when the withdrawals from SHPP increase to a total of 30,000 ac-ft from March through June (equivalent of 80 mgd). This represents the maximum withdrawal of the SHPP in its current configuration.

# SCOGGINS CREEK FIRE

BY TACY STEEL, PUBLIC INFORMATION OFFICER
KRISTEL FESLER, WATER RESOURCES PROGRAM COORDINATOR,
BOTH OF JOINT WATER COMMISSION/CITY OF HILLSBORO
AND JOHN GOANS, RESERVOIR SUPERINTENDENT, TVID

## Fire Summary

A brush fire two miles northwest of Hagg Lake was reported on the afternoon of Friday, September 19th, 2014. The fire was on Oregon Department of Forestry (ODF) protected private forestland in 10-15 year-old reproduction timber. Hagg Lake was immediately closed.

Hagg Lake Fire (photo taken by John Goans 9/19/2014)

The blaze moved quickly as embers that were cast ahead of the flame-front started new spot fires. Firefighters were seeing fire whirls—evidence of extreme fire behavior. Gaston Rural Fire and the Forest Grove District of ODF responded first, assisted by the landowner, Stimson Lumber Company. The fire grew to a point that mandatory evacuation was ordered for approximately 40 homes.

After the Governor invoked the Conflagration Act, the State Fire Marshal and ODF formed a Unified Command Structure on Saturday, September 20th. Fire crews came in from various areas to work on containment. Fire retardant was used on the first day when the fire was out-of-control and expanding rapidly. Retardant must be dropped 300 feet or more away from any waterway. Because the fire broke out near Hagg Lake, helicopters and the Super Scooper plane were able to collect and dump loads of water in quick succession—every 2 minutes. The amount of water dipped out of the lake to fight the fire was considered "water well spent" and amounted to a minimal 136,000 gallons (less than 1 ac-ft).

After 6 days, on Tuesday, September 23, 2014, the Scoggins Creek Fire was declared 100 percent contained. No one was injured and no structures were lost. In total 211 acres burned and damages were estimated at $1,958,722. The cause of the fire is still under investigation. The burned area was replanted in early 2015.

Washington County opened an Emergency Operations Center (EOC) from which the JWC and CWS coordinated communications. This included participating in the County Joint Information Center, issuing daily co-releases to the media, and networking with Incident Command to receive regular updates.

## Future Risks and Monitoring Plans:

The JWC had been planning to begin water quality monitoring in Hagg Lake in late 2014. After the fire, CWS and JWC adjusted this monitoring plan and are jointly conducting the monitoring effort. Monitoring sites include the lake surface, the deepest point, and Sain, Tanner and Scoggins Creeks above Hagg Lake in the vicinity of the fire.

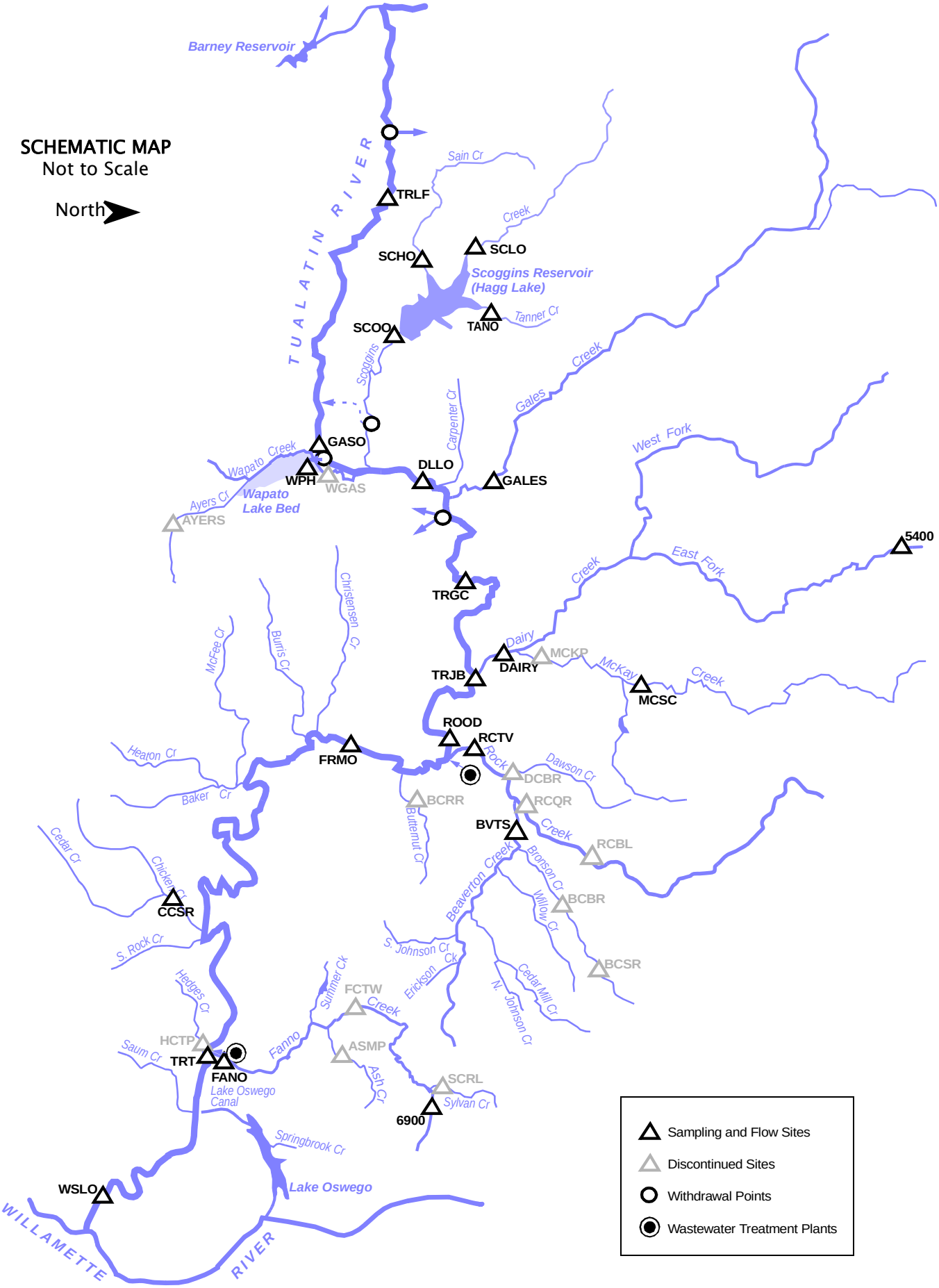
The primary water quality concerns are increased turbidity due to increased erosion in fire-damaged areas and algal blooms due to increased nutrients in the water from ash or dead plant material.

Many of the Flow Management Committee members cooperated in the fire response effort including: Clean Water Services, Joint Water Commission, Washington County Parks and Emergency Management, and Tualatin Valley Irrigation District.

# 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-14 |
| 6900 | Fanno Creek at 56th Avenue | 11.9 | 14206900 | A-23 |
| BVTS | Beaverton Creek at NE Guston Court near Orenco, Oregon | 1.2 | 14206435 | A-19 |
| CCSR | Chicken Creek at Roy Rogers Road near Sherwood, Oregon | 2.3 | 14206750 | A-22 |
| DAIRY | Dairy Creek at Hwy 8 near Hillsboro, Oregon | 2.06 | 14206200 | A-16 |
| DLLO | Tualatin River at Dilley, Oregon | 58.8 | 14203500 | A-11 |
| FANO | Fanno Creek at Durham Road near Tigard, Oregon | 1.2 | 14206950 | A-24 |
| FRMO | Tualatin River at Farmington, Oregon | 33.3 | 14206500 | A-21 |
| GALES | Gales Creek at Old Hwy 47 near Forest Grove, Oregon | 2.36 | 14204530 | A-12 |
| GASO | Tualatin River at Gaston, Oregon | 62.3 | 14202510 | A-5 |
| MCSC | McKay Creek at Scotch Church Rd above Waible Ck near North Plains, Oregon | 6.3 | 14206070 | A-15 |
| RCTV | Rock Creek at Hwy 8 near Hillsboro, Oregon | 1.2 | 14206450 | A-20 |
| ROOD | Tualatin River at Rood Bridge Road near Hillsboro, Oregon | 38.4 | 14206295 | A-18 |
| SCHO | Sain Creek above Henry Hagg Lake near Gaston, Oregon | 1.6 | 14202920 | A-8 |
| SCLO | Scoggins Creek above Henry Hagg Lake near Gaston, Oregon | 9.3 | 14202850 | A-7 |
| SCOO | Scoggins Creek below Henry Hagg Lake near Gaston, Oregon | 4.80 | 14202980 | A-10 |
| TANO | Tanner Creek above Henry Hagg Lake near Gaston, Oregon | 1.6 | 14202860 | A-9 |
| TRGC | Tualatin River at Golf Course Road near Cornelius, Oregon | 51.5 | 14204800 | A-13 |
| TRJB | Tualatin River at Hwy 219 Bridge | 44.4 | 14206241 | A-17 |
| TRLF | Tualatin River below Lee Falls near Cherry Grove, Oregon | 70.7 | 14202450 | A-4 |
| TRT | Tualatin River at Tualatin, Oregon | 8.9 | 14206956 | A-25 |
| WPH | Wapato Canal at Pumphouse at Gaston, Oregon | — | 14202630 | A-6 |
| WSLO | Tualatin River at West Linn | 1.75 | 14207500 | A-26 |

**Discontinued Sites**

| | | | | |
|---|---|---|---|---|
| ASMP | Ash Creek at Metzger Park at Metzger, Oregon | 1.25 | 14206933 | |
| AYERS | Ayers Creek at NE North Valley Road near Gaston, Oregon | — | 14202550 | |
| BCBR | Bronson Creek at Bronson Road near Orenco, Oregon | 2.1 | 14206423 | |
| BCRR | Butternut Creek at Rosa Road | 1.0 | 14206483 | |
| BCSR | Bronson Creek at Saltzman Road | 5.1 | 14206419 | |
| DCBR | Dawson Creek at Brookwood Road near Hillsboro, Oregon | 0.7 | 14206443 | |
| FCTW | Fanno Creek at Tuckerwood | 7.3 | 14206927 | |
| HCTP | Hedges Creek at Tualatin Park at Tualatin, Oregon | 0.3 | 14206958 | |
| MCKP | McKay Creek at Padgett Road near Hillsboro, Oregon | 1.31 | 14206190 | |
| RCBL | Rock Creek below Bethany Lake | 8.9 | 14206340 | |
| RCQR | Rock Creek at Quatama Road near Orenco, Oregon | 4.9 | 14206347 | |
| SCRL | Sylvan Creek at Raleighwood Lane near West Slope, Oregon | 1.0 | 14206905 | |
| WGAS | Wapato Creek at Gaston Road at Gaston, Oregon | — | 14202650 | |

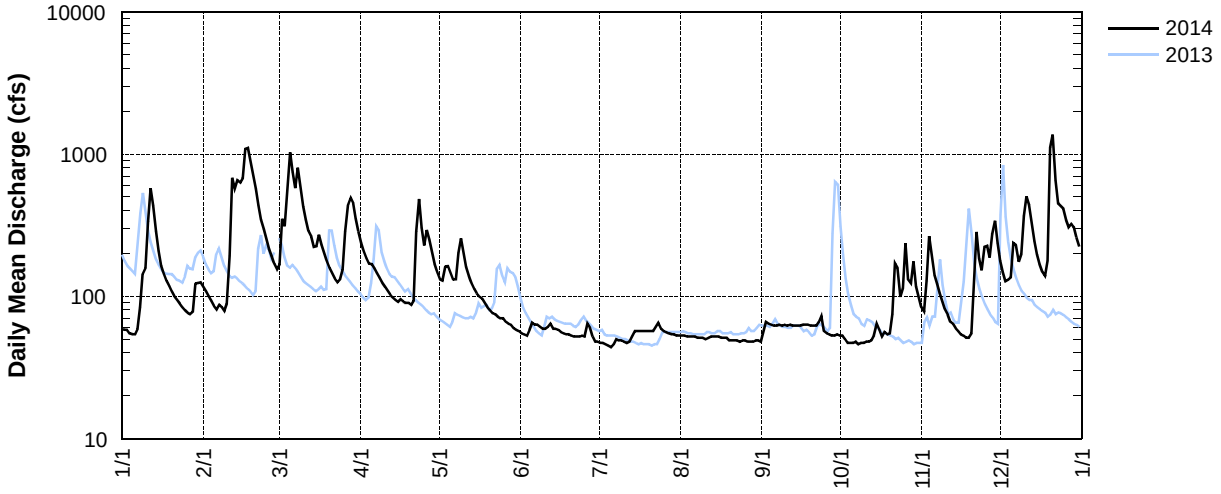
## TRLF – 14202450 – TUALATIN RIVER BELOW LEE FALLS NEAR CHERRY GROVE, OREGON [RM 70.7]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second† | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 59 | 116 | 155 | 287 | 147 | 57 | 48 | 53 | 48 | 53 | 84 | 177 |
| 2 | 58 | 108 | 168 | 237 | 132 | 55 | 47 | 53 | 56 | 53 | 78 | 148 |
| 3 | 58 | 100 | 350 | 207 | 129 | 54 | 47 | 53 | 66 | 50 | 129 | 128 |
| 4 | 55 | 93 | 312 | 185 | 162 | 53 | 46 | 52 | 64 | 47 | 265 | 131 |
| 5 | 54 | 86 | 555 | 170 | 163 | 58 | 45 | 52 | 63 | 47 | 196 | 136 |
| 6 | 54 | 81 | 1030 | 168 | 146 | 65 | 44 | 52 | 62 | 47 | 140 | 237 |
| 7 | 59 | 87 | 749 | 157 | 131 | 63 | 46 | 52 | 62 | 48 | 122 | 229 |
| 8 | 84 | 84 | 576 | 145 | 132 | 63 | 50 | 51 | 63 | 46 | 105 | 175 |
| 9 | 144 | 79 | 803 | 135 | 203 | 61 | 49 | 51 | 62 | 47 | 92 | 198 |
| 10 | 159 | 89 | 565 | 125 | 255 | 59 | 49 | 51 | 63 | 47 | 81 | 368 |
| 11 | 335 | 192 | 427 | 117 | 200 | 59 | 48 | 50 | 62 | 48 | 74 | 504 |
| 12 | 576 | 680 | 345 | 110 | 160 | 61 | 47 | 51 | 63 | 48 | 66 | 441 |
| 13 | 436 | 571 | 288 | 103 | 138 | 64 | 48 | 52 | 62 | 49 | 64 | 318 |
| 14 | 287 | 652 | 263 | 98 | 123 | 59 | 52 | 52 | 62 | 53 | 60 | 244 |
| 15 | 209 | 631 | 222 | 94 | 113 | 59 | 57 | 52 | 62 | 64 | 57 | 196 |
| 16 | 164 | 678 | 225 | 91 | 105 | 58 | 57 | 52 | 62 | 58 | 54 | 168 |
| 17 | 144 | 1090 | 270 | 95 | 99 | 56 | 57 | 51 | 63 | 52 | 53 | 148 |
| 18 | 129 | 1110 | 230 | 92 | 96 | 55 | 57 | 51 | 63 | 56 | 51 | 139 |
| 19 | 118 | 900 | 199 | 90 | 90 | 54 | 57 | 51 | 63 | 54 | 51 | 178 |
| 20 | 108 | 708 | 175 | 90 | 84 | 54 | 57 | 49 | 62 | 55 | 55 | 1110 |
| 21 | 100 | 570 | 158 | 87 | 80 | 53 | 57 | 49 | 62 | 75 | 118 | 1370 |
| 22 | 95 | 436 | 145 | 93 | 76 | 52 | 57 | 49 | 62 | 170 | 284 | 653 |
| 23 | 89 | 346 | 134 | 285 | 75 | 52 | 61 | 49 | 66 | 158 | 184 | 450 |
| 24 | 84 | 296 | 126 | 484 | 72 | 52 | 65 | 48 | 73 | 99 | 152 | 431 |
| 25 | 80 | 252 | 132 | 304 | 70 | 53 | 59 | 49 | 57 | 114 | 224 | 413 |
| 26 | 77 | 216 | 154 | 228 | 70 | 52 | 57 | 49 | 55 | 236 | 227 | 343 |
| 27 | 75 | 192 | 287 | 293 | 66 | 64 | 56 | 48 | 54 | 132 | 187 | 307 |
| 28 | 78 | 170 | 443 | 251 | 64 | 60 | 55 | 48 | 53 | 124 | 273 | 322 |
| 29 | 123 | — | 493 | 202 | 63 | 52 | 54 | 48 | 53 | 176 | 340 | 307 |
| 30 | 124 | — | 451 | 167 | 60 | 48 | 54 | 49 | 54 | 117 | 237 | 260 |
| 31 | 125 | — | 351 | — | 58 | — | 53 | 49 | — | 99 | — | 223 |
| TOTAL | 4340 | 10613 | 10781 | 5190 | 3562 | 1705 | 1636 | 1566 | 1822 | 2522 | 4103 | 10452 |
| MEAN | 140.0 | 379.0 | 347.8 | 173.0 | 114.9 | 56.8 | 52.8 | 50.5 | 60.7 | 81.4 | 136.8 | 337.2 |
| MAX | 576 | 1110 | 1030 | 484 | 255 | 65 | 65 | 53 | 73 | 236 | 340 | 1370 |
| MIN | 0 | 79 | 126 | 87 | 58 | 48 | 44 | 48 | 48 | 46 | 51 | 128 |
| AC-FT | 8610 | 21050 | 21390 | 10300 | 7070 | 3380 | 3250 | 3110 | 3610 | 5000 | 8140 | 20730 |

† Provisional data–subject to revision

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



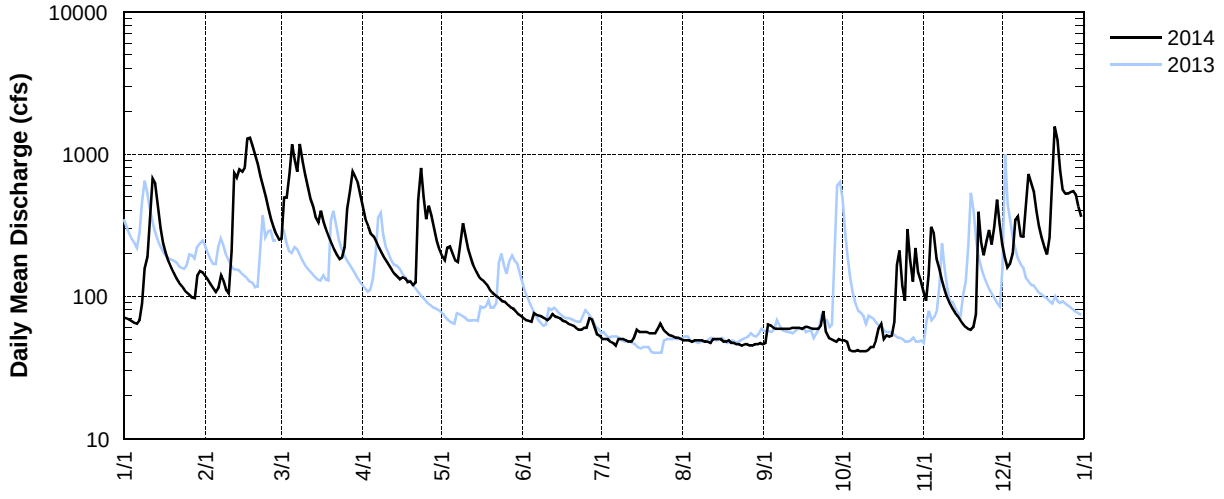
## GASO – 14202510 – TUALATIN RIVER AT GASTON, OREGON [RM 62.3]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second[†] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| **1** | 71 | 139 | 250 | 511 | 213 | 73 | 53 | 50 | 46 | 49 | 110 | 233 |
| **2** | 70 | 130 | 254 | 411 | 192 | 70 | 50 | 49 | 47 | 49 | 93 | 188 |
| **3** | 69 | 121 | 493 | 344 | 179 | 68 | 50 | 49 | 63 | 48 | 141 | 160 |
| **4** | 67 | 114 | 493 | 310 | 220 | 67 | 50 | 49 | 62 | 42 | 308 | 172 |
| **5** | 65 | 107 | e737 | 275 | 225 | 66 | 48 | 48 | 60 | 41 | 278 | 200 |
| **6** | 64 | 115 | e1170 | 263 | 200 | 76 | 47 | 49 | 59 | 41 | 183 | 346 |
| **7** | 68 | 140 | e915 | 242 | 180 | 74 | 45 | 49 | 59 | 42 | 158 | 365 |
| **8** | 89 | 128 | e751 | 220 | 174 | 73 | 50 | 49 | 59 | 41 | 131 | 264 |
| **9** | 156 | 111 | e1180 | 203 | 243 | 72 | 50 | 49 | 59 | 41 | 113 | 262 |
| **10** | 189 | 105 | e888 | 187 | 326 | 70 | 50 | 48 | 59 | 41 | 99 | e431 |
| **11** | e330 | 209 | e712 | 174 | 265 | 68 | 49 | 48 | 59 | 42 | 89 | e726 |
| **12** | e670 | e732 | e593 | 163 | 215 | 70 | 48 | 47 | 60 | 44 | 82 | e634 |
| **13** | e620 | e682 | 488 | 152 | 184 | 75 | 48 | 50 | 60 | 44 | 77 | 543 |
| **14** | 428 | e777 | 427 | 144 | 163 | 72 | 51 | 50 | 60 | 49 | 73 | 399 |
| **15** | 302 | e750 | 357 | 137 | 149 | 71 | 58 | 50 | 60 | 60 | 68 | 310 |
| **16** | 235 | e805 | 330 | 132 | 138 | 70 | 56 | 50 | 59 | 64 | 64 | 259 |
| **17** | 201 | e1290 | 399 | 136 | 131 | 67 | 56 | 48 | 61 | 50 | 61 | 221 |
| **18** | 177 | e1310 | 334 | 134 | 127 | 66 | 56 | 48 | 61 | 53 | 59 | 197 |
| **19** | 159 | e1150 | 290 | 126 | 121 | 64 | 56 | 49 | 60 | 52 | 58 | 260 |
| **20** | 145 | e973 | 260 | 127 | 113 | 63 | 55 | 47 | 59 | 53 | 61 | e561 |
| **21** | 134 | e845 | 235 | 120 | 107 | 62 | 55 | 47 | 59 | 66 | 75 | e1560 |
| **22** | 125 | e697 | 213 | 125 | 102 | 60 | 55 | 46 | 59 | 166 | 393 | e1250 |
| **23** | 118 | e596 | 196 | e475 | 99 | 58 | 59 | 46 | 62 | 210 | 241 | e772 |
| **24** | 111 | e498 | 183 | e800 | 96 | 58 | 64 | 45 | 79 | 118 | 194 | e558 |
| **25** | 106 | 415 | 187 | 498 | 92 | 60 | 59 | 46 | 56 | 93 | 244 | e524 |
| **26** | 102 | 348 | 221 | 348 | 91 | 60 | 56 | 46 | 51 | 297 | 293 | e529 |
| **27** | 98 | 306 | 411 | 433 | 87 | 70 | 54 | 45 | 50 | 183 | 232 | 541 |
| **28** | 97 | 273 | e552 | 372 | 84 | 69 | 53 | 45 | 49 | 127 | 307 | 551 |
| **29** | 141 | — | e750 | 297 | 82 | 61 | 52 | 46 | 48 | 219 | 478 | 519 |
| **30** | 151 | — | e692 | 245 | 79 | 54 | 51 | 46 | 50 | 148 | 323 | 428 |
| **31** | 148 | — | e630 | — | 75 | — | 51 | 47 | — | 130 | — | 361 |
| TOTAL | 5506 | 13866 | 15591 | 8104 | 4752 | 2007 | 1635 | 1481 | 1735 | 2703 | 5086 | 14324 |
| MEAN | 177.6 | 495.2 | 502.9 | 270.1 | 153.3 | 66.9 | 52.7 | 47.8 | 57.8 | 87.2 | 169.5 | 462.1 |
| MAX | 670 | 1310 | 1180 | 800 | 326 | 76 | 64 | 50 | 79 | 297 | 478 | 1560 |
| MIN | 0 | 105 | 183 | 120 | 75 | 54 | 45 | 45 | 46 | 41 | 58 | 160 |
| AC-FT | 10920 | 27510 | 30930 | 16080 | 9430 | 3980 | 3240 | 2940 | 3440 | 5360 | 10090 | 28410 |

[†] 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: 14202630 WAPATO CANAL AT PUMPHOUSE AT GASTON, OREG.**

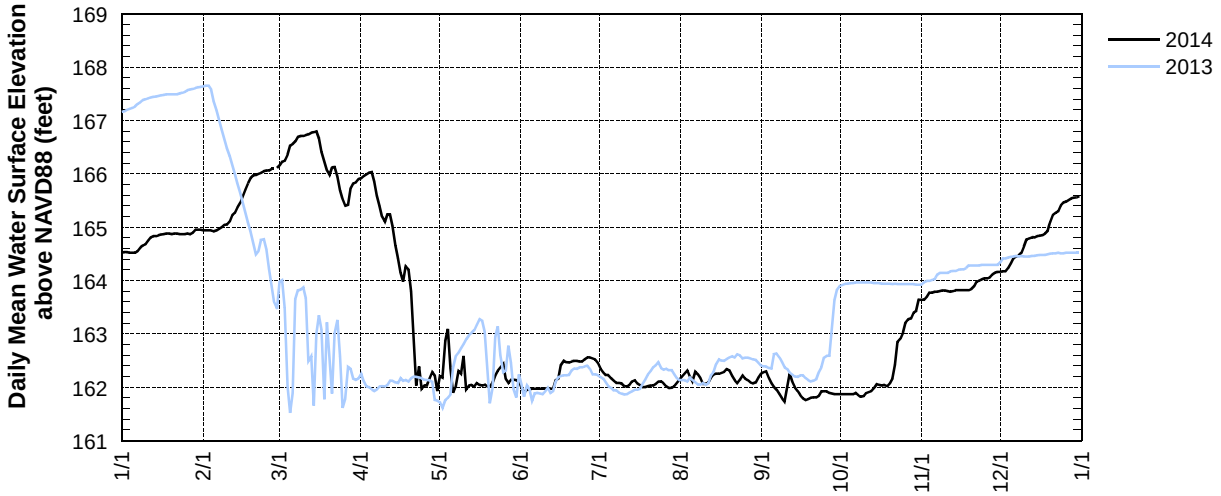
LATITUDE: 452625 LONGITUDE: 1230731

**Water Surface Elevation above NAVD88, in feet, Calendar Year January to December 2014 Daily Mean Values**

| Day | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT† | NOV† | DEC† |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 164.52 | 164.94 | 166.11 | 165.90 | 161.93 | 162.11 | 162.46 | 162.14 | 162.25 | 161.87 | 163.64 | 164.16 |
| 2 | 164.53 | 164.94 | 166.16 | 165.92 | 162.21 | 161.99 | 162.35 | 162.20 | 162.28 | 161.87 | 163.64 | 164.17 |
| 3 | 164.53 | 164.94 | 166.23 | 165.96 | 162.18 | 161.90 | 162.28 | 162.26 | 162.30 | 161.87 | 163.69 | 164.17 |
| 4 | 164.52 | 164.94 | 166.25 | 165.99 | 162.87 | 161.95 | 162.23 | 162.31 | 162.17 | 161.87 | 163.76 | 164.24 |
| 5 | 164.52 | 164.92 | 166.36 | 166.02 | 163.09 | 161.96 | 162.23 | 162.20 | 162.07 | 161.87 | 163.77 | 164.32 |
| 6 | 164.52 | 164.94 | 166.53 | 166.03 | 162.37 | 161.97 | 162.17 | 162.10 | 162.00 | 161.87 | 163.78 | 164.42 |
| 7 | 164.55 | 164.97 | 166.56 | 165.86 | 161.90 | 161.97 | 162.12 | 162.29 | 161.95 | 161.89 | 163.79 | 164.45 |
| 8 | 164.61 | 165.00 | 166.61 | 165.59 | 162.03 | 161.97 | 162.08 | 162.24 | 161.87 | 161.85 | 163.80 | 164.47 |
| 9 | 164.66 | 165.04 | 166.69 | 165.40 | 162.30 | 161.97 | 162.08 | 162.17 | 161.79 | 161.82 | 163.81 | 164.52 |
| 10 | 164.68 | 165.05 | 166.71 | 165.20 | 162.24 | 161.97 | 162.07 | 162.06 | 161.73 | 161.83 | 163.81 | 164.64 |
| 11 | 164.75 | 165.11 | 166.71 | 165.10 | 162.60 | 161.97 | 162.02 | 162.06 | 161.98 | 161.89 | 163.80 | 164.77 |
| 12 | 164.81 | 165.22 | 166.73 | 165.24 | 161.96 | 161.98 | 162.01 | 162.09 | 162.26 | 161.91 | 163.79 | 164.79 |
| 13 | 164.83 | 165.27 | 166.74 | 165.24 | 162.03 | 161.97 | 162.04 | 162.18 | 162.09 | 161.93 | 163.80 | 164.81 |
| 14 | 164.83 | 165.37 | 166.77 | 165.02 | 162.04 | 161.97 | 162.11 | 162.24 | 161.99 | 161.98 | 163.82 | 164.81 |
| 15 | 164.85 | 165.46 | 166.78 | 164.66 | 162.01 | 162.12 | 162.13 | 162.25 | 161.93 | 162.06 | 163.82 | 164.83 |
| 16 | 164.86 | 165.59 | 166.80 | 164.42 | 162.08 | 162.16 | 162.07 | 162.25 | 161.85 | 162.04 | 163.82 | 164.84 |
| 17 | 164.87 | 165.71 | 166.67 | 164.15 | 162.04 | 162.42 | 162.04 | 162.27 | 161.79 | 162.03 | 163.82 | 164.85 |
| 18 | 164.88 | 165.82 | 166.41 | 163.98 | 162.03 | 162.50 | 162.00 | 162.29 | 161.76 | 162.04 | 163.82 | 164.88 |
| 19 | 164.88 | 165.92 | 166.23 | 164.27 | 162.05 | 162.47 | 162.00 | 162.34 | 161.78 | 162.02 | 163.82 | 164.93 |
| 20 | 164.87 | 165.97 | 166.06 | 164.21 | 162.01 | 162.46 | 162.01 | 162.32 | 161.80 | 162.07 | 163.84 | 165.10 |
| 21 | 164.88 | 165.98 | 165.98 | 163.81 | 162.01 | 162.48 | 162.03 | 162.21 | 161.81 | 162.16 | 163.89 | 165.23 |
| 22 | 164.88 | 166.00 | 166.12 | 162.86 | 162.09 | 162.49 | 162.03 | 162.13 | 161.81 | 162.41 | 163.98 | 165.27 |
| 23 | 164.87 | 166.02 | 166.13 | 162.03 | 162.22 | 162.49 | 162.06 | 162.08 | 161.83 | 162.85 | 164.00 | 165.30 |
| 24 | 164.87 | 166.05 | 165.94 | 162.39 | 162.31 | 162.48 | 162.10 | 162.14 | 161.92 | 162.91 | 164.02 | 165.41 |
| 25 | 164.87 | 166.06 | 165.69 | 161.97 | 162.37 | 162.48 | 162.11 | 162.22 | 161.92 | 163.02 | 164.04 | 165.46 |
| 26 | 164.88 | 166.06 | 165.52 | 162.03 | 162.44 | 162.52 | 162.07 | 162.17 | 161.92 | 163.21 | 164.04 | 165.48 |
| 27 | 164.87 | 166.08 | 165.41 | 162.03 | 162.16 | 162.56 | 162.02 | 162.13 | 161.89 | 163.27 | 164.06 | 165.51 |
| 28 | 164.90 | 166.09 | 165.41 | 162.16 | 162.08 | 162.56 | 161.98 | 162.09 | 161.88 | 163.29 | 164.11 | 165.54 |
| 29 | 164.95 | — | 165.73 | 162.29 | 162.14 | 162.54 | 161.99 | 162.07 | 161.87 | 163.40 | 164.15 | 165.55 |
| 30 | 164.95 | — | 165.82 | 162.22 | 162.15 | 162.52 | 162.02 | 162.09 | 161.87 | 163.43 | 164.16 | 165.56 |
| 31 | 164.95 | — | 165.84 | — | 162.13 | — | 162.08 | 162.18 | — | 163.64 | — | 165.58 |
| MEAN | 164.77 | 165.48 | 166.25 | 164.26 | 162.20 | 162.23 | 162.10 | 162.19 | 161.95 | 162.33 | 163.87 | 164.91 |
| MAX | 164.95 | 166.09 | 166.80 | 166.03 | 163.09 | 162.56 | 162.46 | 162.34 | 162.30 | 163.64 | 164.16 | 165.58 |
| MIN | 164.52 | 164.92 | 165.41 | 161.97 | 161.90 | 161.90 | 161.98 | 162.06 | 161.73 | 161.82 | 163.64 | 164.16 |

†Provisional data (10/23–12/31)–subject to revision

**14202630 — Wapato Canal Pumphouse at Gaston, Oregon**



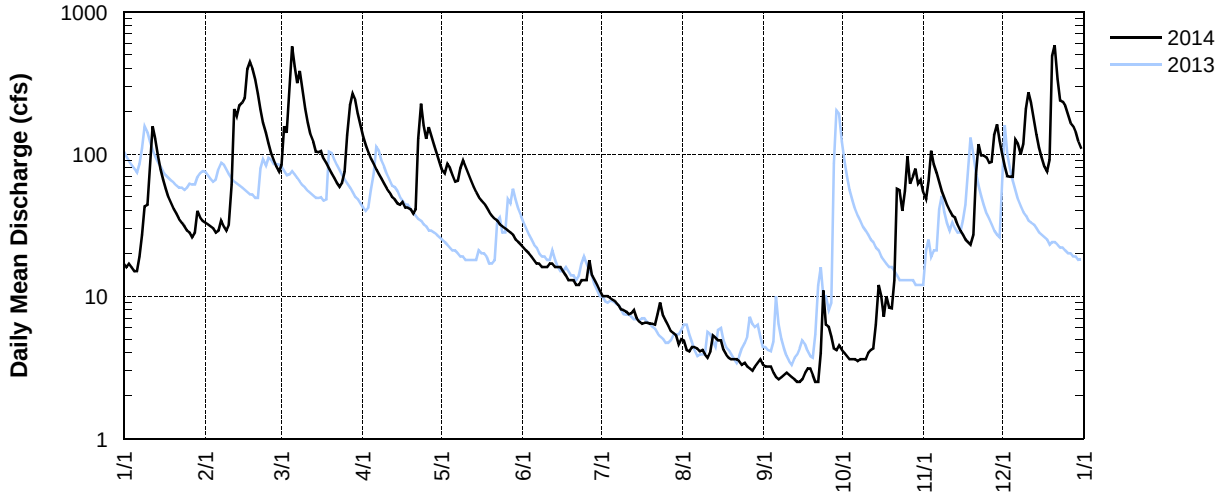
## SCLO – 14202850 – SCOGGINS CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 9.3]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second† | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| **1** | 17 | 33 | 75 | 161 | 88 | 23 | 11 | 5.0 | 3.3 | 4.2 | 54 | 100 |
| **2** | 16 | 32 | 84 | 133 | 78 | 22 | 10 | 4.9 | 3.2 | 4.0 | 48 | 82 |
| **3** | 17 | 31 | 157 | 116 | 73 | 21 | 10 | e4.2 | 3.2 | 3.8 | 65 | 70 |
| **4** | 16 | 30 | 141 | 103 | 85 | 20 | 10 | e4.1 | 3.2 | 3.6 | 106 | 69 |
| **5** | 15 | 28 | 300 | 93 | 80 | 19 | 9.7 | 4.4 | 2.9 | 3.6 | 85 | 69 |
| **6** | 15 | 29 | 572 | 85 | 71 | 18 | 9.4 | 4.4 | 2.7 | 3.6 | 74 | 126 |
| **7** | 19 | 34 | 416 | 78 | 64 | 17 | 9.1 | 4.3 | 2.6 | 3.5 | 64 | 118 |
| **8** | 27 | 31 | 315 | 72 | 65 | 17 | 8.7 | 4.1 | 2.7 | 3.6 | 55 | 100 |
| **9** | 43 | 29 | 385 | 67 | 80 | 16 | 8.1 | 4.2 | 2.8 | 3.6 | 49 | 118 |
| **10** | 44 | 32 | 276 | 62 | 90 | 16 | 8.0 | 3.9 | 2.9 | 3.6 | 44 | 208 |
| **11** | 90 | 61 | 208 | 57 | 81 | 16 | 7.8 | 3.7 | 2.8 | 4.0 | 40 | 271 |
| **12** | 157 | 207 | 166 | 54 | 73 | 17 | 7.5 | 4.1 | 2.7 | 4.2 | 37 | 230 |
| **13** | 129 | 185 | 138 | 50 | 65 | 17 | 7.6 | 5.3 | 2.6 | 4.3 | 36 | 175 |
| **14** | 97 | 220 | 122 | 48 | 59 | 16 | 8.0 | 5.1 | 2.5 | 6.3 | 32 | 137 |
| **15** | 78 | 230 | 104 | 45 | 54 | 16 | 7.0 | 4.9 | 2.5 | 12 | 29 | 111 |
| **16** | 66 | 248 | 103 | 44 | 50 | 16 | 6.6 | 4.9 | 2.6 | 10 | 27 | 95 |
| **17** | 57 | 397 | 105 | 46 | 47 | 15 | 6.4 | 4.2 | 2.9 | 7.2 | 25 | 81 |
| **18** | 50 | 444 | 93 | 42 | 45 | 14 | 6.5 | 3.9 | 3.1 | 10.0 | 24 | 75 |
| **19** | 45 | 399 | 86 | 42 | 42 | 13 | 6.5 | 3.7 | 3.1 | 8.3 | 23 | 91 |
| **20** | 41 | 332 | 79 | 41 | 39 | 13 | 6.4 | 3.6 | 2.8 | 8.2 | 27 | 490 |
| **21** | 38 | 266 | 73 | 38 | 37 | 13 | 6.4 | 3.6 | 2.5 | 13 | 72 | 582 |
| **22** | 35 | 206 | 68 | 41 | 35 | 12 | 6.3 | 3.6 | 2.5 | 57 | 117 | 337 |
| **23** | 33 | 166 | 63 | 128 | 34 | 12 | 7.5 | 3.5 | 4.0 | 56 | 98 | 239 |
| **24** | 31 | 141 | 59 | 226 | 32 | 13 | 9.0 | 3.3 | 11 | 40 | 98 | 234 |
| **25** | 29 | 119 | 63 | 159 | 31 | 13 | 7.3 | 3.4 | 6.3 | 55 | 95 | 218 |
| **26** | 28 | 102 | 75 | 128 | 30 | 13 | 6.7 | 3.2 | 6.1 | 97 | 87 | 188 |
| **27** | 26 | 91 | 136 | 154 | 29 | 18 | 6.2 | 3.1 | 5.2 | 62 | 88 | 165 |
| **28** | 28 | 82 | 221 | 134 | 28 | 14 | 5.7 | 3.0 | 4.3 | 70 | 136 | 157 |
| **29** | 40 | — | 266 | 115 | 27 | 13 | 5.5 | 3.2 | 4.2 | 79 | 162 | 142 |
| **30** | 36 | — | 241 | 101 | 25 | 12 | 5.3 | 3.4 | 4.5 | 62 | 124 | 122 |
| **31** | 34 | — | 193 | — | 24 | — | 4.6 | 3.6 | — | 66 | — | 109 |
| TOTAL | 1397 | 4205 | 5383 | 2663 | 1661 | 475 | 234.8 | 123.8 | 107.7 | 768.6 | 2021 | 5309 |
| MEAN | 45.1 | 150.2 | 173.6 | 88.8 | 53.6 | 15.8 | 7.6 | 4.0 | 3.6 | 24.8 | 67.4 | 171.3 |
| MAX | 157 | 444 | 572 | 226 | 90 | 23 | 11 | 5.3 | 11.0 | 97 | 162 | 582 |
| MIN | 0 | 28 | 59 | 38 | 24 | 12 | 4.6 | 3.0 | 2.5 | 3.5 | 23 | 69 |
| AC-FT | 2770 | 8340 | 10680 | 5280 | 3290 | 940 | 470 | 250 | 210 | 1520 | 4010 | 10530 |

† Provisional data–subject to revision

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



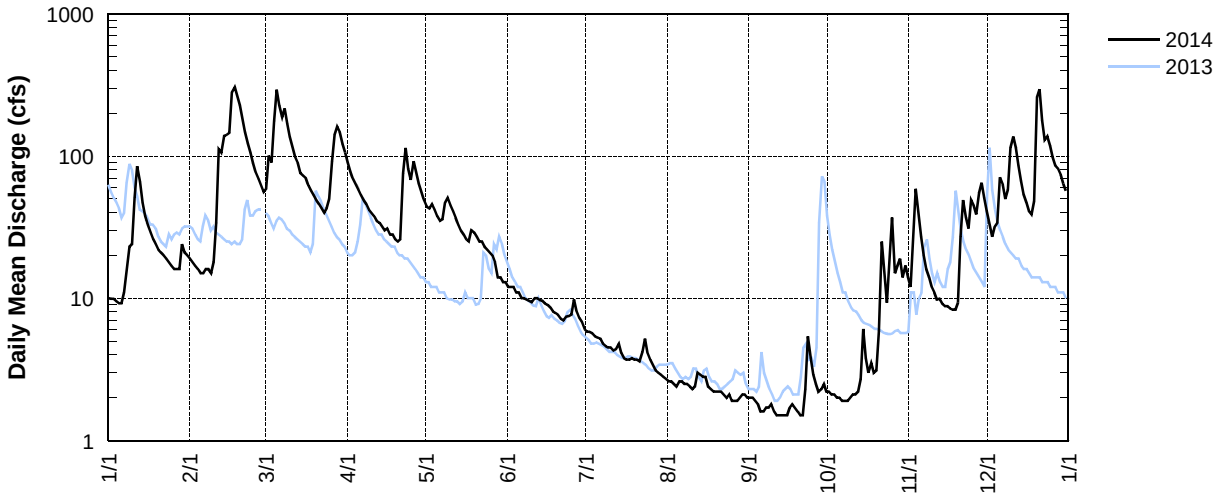
## SCHO – 14202920 – SAIN CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 1.6]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second[†] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| **1** | 10 | 19 | 56 | 106 | 49 | 13 | 6.1 | 2.7 | 2.0 | 2.2 | 14 | 41 |
| **2** | 10 | 18 | 59 | 90 | 44 | 12 | 5.8 | 2.6 | 2.0 | 2.2 | 12 | 33 |
| **3** | 10 | 17 | 101 | 78 | 43 | 12 | 5.8 | 2.6 | 2.0 | 2.1 | 24 | 27 |
| **4** | 10 | 16 | 90 | 69 | 46 | 12 | 5.7 | 2.5 | 1.9 | 2.1 | 59 | 32 |
| **5** | 9 | 15 | 177 | 63 | 42 | 11 | 5.4 | 2.4 | 1.8 | 2.0 | 39 | 34 |
| **6** | 9 | 15 | 294 | 58 | 38 | 11 | 5.3 | 2.6 | 1.6 | 2.0 | 27 | 71 |
| **7** | 11 | 16 | 228 | 53 | 35 | 10 | 5.2 | 2.6 | 1.6 | 1.9 | 20 | 63 |
| **8** | 16 | 16 | 188 | 49 | 36 | 10 | 4.8 | 2.5 | 1.7 | 1.9 | 16 | 50 |
| **9** | 23 | 15 | 216 | 46 | 47 | 10 | 4.6 | 2.5 | 1.7 | 1.9 | 14 | 58 |
| **10** | 24 | 18 | 169 | 42 | 51 | 10 | 4.5 | 2.4 | 1.8 | 2.0 | 12 | 114 |
| **11** | 51 | 34 | 136 | 40 | 45 | 9 | 4.5 | 2.3 | 1.6 | 2.1 | 11 | 137 |
| **12** | 85 | 112 | 116 | 38 | 41 | 10 | 4.3 | 2.4 | 1.5 | 2.1 | 9.8 | 114 |
| **13** | 66 | 106 | 98 | 35 | 37 | 10 | 4.4 | 3.0 | 1.5 | 2.2 | 9.9 | 86 |
| **14** | 47 | 139 | 89 | 34 | 33 | 10 | 4.8 | 2.9 | 1.5 | 2.7 | 9.1 | 67 |
| **15** | 38 | 141 | 76 | 32 | 30 | 10 | 4.1 | 2.8 | 1.5 | 6.1 | 8.8 | 54 |
| **16** | 33 | 146 | 73 | 30 | 28 | 9.2 | 3.8 | 2.8 | 1.5 | 3.8 | 8.8 | 47 |
| **17** | 29 | 281 | 70 | 31 | 26 | 9.0 | 3.7 | 2.4 | 1.7 | 3.0 | 8.5 | 41 |
| **18** | 26 | 306 | 62 | 28 | 25 | 8.6 | 3.7 | 2.3 | 1.8 | 3.5 | 8.3 | 39 |
| **19** | 24 | 264 | 57 | 28 | 30 | 8.1 | 3.8 | 2.2 | 1.7 | 3.0 | 8.3 | 48 |
| **20** | 22 | 228 | 53 | 26 | 29 | 7.9 | 3.7 | 2.2 | 1.6 | 3.1 | 9.3 | 259 |
| **21** | 21 | 184 | 49 | 25 | 27 | 7.6 | 3.7 | 2.2 | 1.5 | 5.9 | 27 | 295 |
| **22** | 20 | 147 | 46 | 26 | 25 | 7.2 | 3.6 | 2.2 | 1.5 | 25 | 49 | 178 |
| **23** | 19 | 122 | 43 | 76 | 25 | 7.0 | 4.2 | 2.1 | 2.3 | 16 | 37 | 130 |
| **24** | 18 | 106 | 40 | 114 | 23 | 7.4 | 5.2 | 2.0 | 5.4 | 9.3 | 31 | 138 |
| **25** | 17 | 89 | 43 | 81 | 22 | 7.5 | 4.1 | 2.1 | 3.8 | 19 | 49 | 118 |
| **26** | 16 | 77 | 50 | 68 | 21 | 7.7 | 3.7 | 1.9 | 2.9 | 37 | 45 | 98 |
| **27** | 16 | 69 | 92 | 92 | 20 | 9.8 | 3.4 | 1.9 | 2.5 | 15 | 39 | 86 |
| **28** | 16 | 62 | 141 | 77 | 18 | 8.1 | 3.1 | 1.9 | 2.2 | 17 | 55 | 82 |
| **29** | 24 | — | 161 | 64 | 14 | 7.3 | 3.0 | 2.0 | 2.3 | 19 | 65 | 74 |
| **30** | 21 | — | 147 | 56 | 14 | 6.8 | 2.9 | 2.1 | 2.5 | 14 | 51 | 64 |
| **31** | 20 | — | 121 | — | 13 | — | 2.8 | 2.1 | — | 17 | — | 57 |
| TOTAL | 760.7 | 2778 | 3341 | 1655 | 977 | 278.3 | 133.7 | 73.2 | 60.9 | 246.1 | 776.8 | 2735 |
| MEAN | 24.5 | 99.2 | 107.8 | 55.2 | 31.5 | 9.3 | 4.3 | 2.4 | 2.0 | 7.9 | 25.9 | 88.2 |
| MAX | 85 | 306 | 294 | 114 | 51 | 13 | 6.1 | 3.0 | 5.4 | 37 | 65 | 295 |
| MIN | 0 | 15 | 40 | 25 | 13 | 6.8 | 2.8 | 1.9 | 1.5 | 1.9 | 8 | 27 |
| AC-FT | 1510 | 5510 | 6630 | 3280 | 1940 | 550 | 270 | 150 | 120 | 490 | 1540 | 5430 |

[†] Provisional data–subject to revision

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



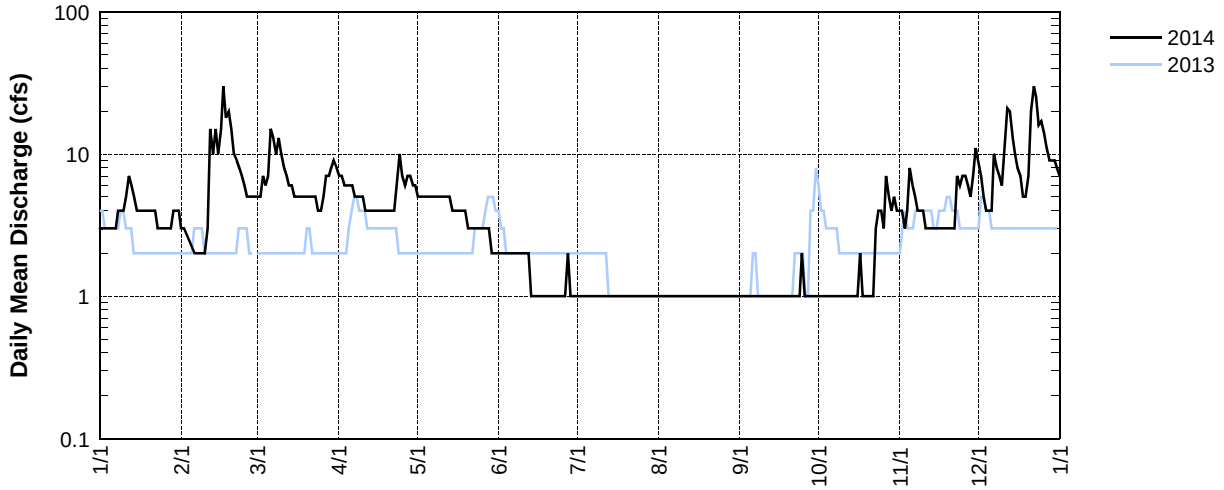
## TANO – 14202860 – TANNER CREEK ABOVE HENRY HAGG LAKE NEAR GASTON, OREGON [RM 1.6]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second[a] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| **1** | 3 | 3 | 5 | 7 | 5 | 2 | 1 | 1 | 1 | 1 | 4 | 7 |
| **2** | 3 | 3 | 5 | 7 | 5 | 2 | 1 | 1 | 1 | 1 | 3 | 5 |
| **3** | 3 | 3 | 7 | 6 | 5 | 2 | 1 | 1 | 1 | 1 | 4 | 4 |
| **4** | 3 | 3 | 6 | 6 | 5 | 2 | 1 | 1 | 1 | 1 | 8 | 4 |
| **5** | 3 | 2 | 7 | 6 | 5 | 2 | 1 | 1 | 1 | 1 | 6 | 4 |
| **6** | 3 | 2 | 15 | 6 | 5 | 2 | 1 | 1 | 1 | 1 | 5 | 10 |
| **7** | 3 | 2 | 13 | 5 | 5 | 2 | 1 | 1 | 1 | 1 | 4 | 8 |
| **8** | 4 | 2 | 10 | 5 | 5 | 2 | 1 | 1 | 1 | 1 | 4 | 7 |
| **9** | 4 | 2 | 13 | 5 | 5 | 2 | 1 | 1 | 1 | 1 | 4 | 6 |
| **10** | 4 | 2 | 10 | 5 | 5 | 2 | 1 | 1 | 1 | 1 | 3 | 11 |
| **11** | 5 | 3 | 8 | 4 | 5 | 2 | 1 | 1 | 1 | 1 | 3 | 21 |
| **12** | 7 | 15 | 7 | 4 | 5 | 2 | 1 | 1 | 1 | 1 | 3 | 20 |
| **13** | 6 | 10 | 6 | 4 | 5 | 1 | 1 | 1 | 1 | 1 | 3 | 13 |
| **14** | 5 | 15 | 6 | 4 | 4 | 1 | 1 | 1 | 1 | 1 | 3 | 10 |
| **15** | 4 | 10 | 5 | 4 | 4 | 1 | 1 | 1 | 1 | 1 | 3 | 8 |
| **16** | 4 | 15 | 5 | 4 | 4 | 1 | 1 | 1 | 1 | 2 | 3 | 7 |
| **17** | 4 | 30 | 5 | 4 | 4 | 1 | 1 | 1 | 1 | 1 | 3 | 5 |
| **18** | 4 | 18 | 5 | 4 | 4 | 1 | 1 | 1 | 1 | 1 | 3 | 5 |
| **19** | 4 | 20 | 5 | 4 | 4 | 1 | 1 | 1 | 1 | 1 | 3 | 7 |
| **20** | 4 | 15 | 5 | 4 | 3 | 1 | 1 | 1 | 1 | 1 | 3 | 20 |
| **21** | 4 | 10 | 5 | 4 | 3 | 1 | 1 | 1 | 1 | 1 | 3 | 30 |
| **22** | 4 | 9 | 5 | 4 | 3 | 1 | 1 | 1 | 1 | 3 | 7 | 25 |
| **23** | 3 | 8 | 5 | 6 | 3 | 1 | 1 | 1 | 1 | 4 | 6 | 16 |
| **24** | 3 | 7 | 4 | 10 | 3 | 1 | 1 | 1 | 2 | 4 | 7 | 17 |
| **25** | 3 | 6 | 4 | 7 | 3 | 1 | 1 | 1 | 1 | 3 | 7 | 14 |
| **26** | 3 | 5 | 5 | 6 | 3 | 1 | 1 | 1 | 1 | 7 | 6 | 11 |
| **27** | 3 | 5 | 7 | 7 | 3 | 2 | 1 | 1 | 1 | 5 | 5 | 9 |
| **28** | 3 | 5 | 7 | 7 | 3 | 1 | 1 | 1 | 1 | 4 | 7 | 9 |
| **29** | 4 | — | 8 | 6 | 2 | 1 | 1 | 1 | 1 | 5 | 11 | 9 |
| **30** | 4 | — | 9 | 6 | 2 | 1 | 1 | 1 | 1 | 4 | 9 | 8 |
| **31** | 4 | — | 8 | — | 2 | — | 1 | 1 | — | 4 | — | 7 |
| TOTAL | 118 | 230 | 215 | 161 | 122 | 43 | 31 | 31 | 31 | 65 | 143 | 337 |
| AC-FT | 230 | 460 | 430 | 320 | 240 | 90 | 60 | 60 | 60 | 130 | 280 | 670 |

[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]**

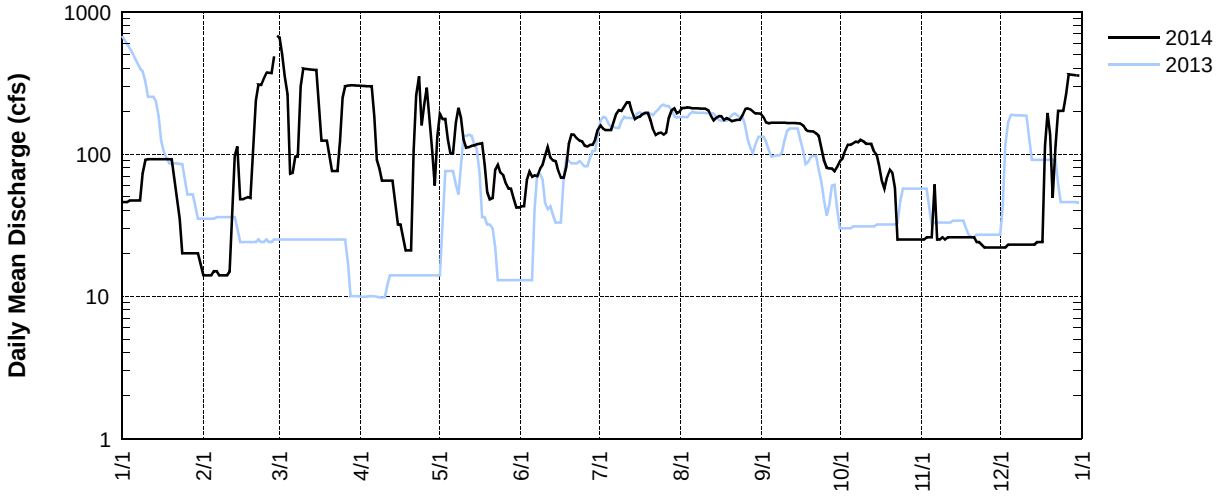


## SCOO – 14202980 – SCOGGINS CREEK BELOW HENRY HAGG LAKE NEAR GASTON, OREGON [RM 4.8]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 46 | 14 | 679 | 303 | 133 | 42 | 148 | 198 | 192 | 89 | 25 | 22 |
| 2 | 46 | 14 | 661 | 301 | 191 | 43 | 159 | 211 | 182 | 93 | 25 | 22 |
| 3 | 46 | 14 | 505 | 301 | 176 | 43 | 151 | 211 | 167 | 106 | 26 | 22 |
| 4 | 47 | 14 | 356 | 300 | 177 | 66 | 147 | 213 | 164 | 116 | 26 | 23 |
| 5 | 47 | 15 | 263 | 299 | 127 | 75 | 147 | 212 | 166 | 116 | 26 | 23 |
| 6 | 47 | 15 | 73 | 299 | 101 | 69 | 147 | 210 | 166 | 119 | 61 | 23 |
| 7 | 47 | 14 | 74 | 185 | 101 | 71 | 168 | 209 | 166 | 122 | 25 | 23 |
| 8 | 47 | 14 | 96 | 91 | 167 | 70 | 192 | 209 | 166 | 121 | 25 | 23 |
| 9 | 73 | 14 | 96 | 79 | 212 | 79 | 204 | 208 | 166 | 126 | 26 | 23 |
| 10 | 91 | 14 | 299 | 65 | 179 | 84 | 201 | 208 | 166 | 123 | 25 | 23 |
| 11 | 92 | 15 | 398 | 65 | 126 | 98 | 216 | 208 | 165 | 118 | 26 | 23 |
| 12 | 92 | 39 | 396 | 65 | 111 | 112 | 231 | 203 | 165 | 118 | 26 | 23 |
| 13 | 92 | 97 | 394 | 65 | 112 | 95 | 231 | 185 | 165 | 118 | 26 | 23 |
| 14 | 92 | 113 | 393 | 65 | 114 | 90 | 199 | 172 | 165 | 105 | 26 | 23 |
| 15 | 92 | 48 | 391 | 45 | 115 | 89 | 176 | 179 | 164 | 99 | 26 | 24 |
| 16 | 92 | 48 | 390 | 32 | 117 | 76 | 181 | 185 | 164 | 82 | 26 | 24 |
| 17 | 92 | 49 | 231 | 32 | 118 | 68 | 183 | 184 | 159 | 65 | 26 | 24 |
| 18 | 92 | 50 | 124 | 26 | 119 | 68 | 191 | 174 | 149 | 57 | 26 | 114 |
| 19 | 92 | 49 | 124 | 21 | 84 | 81 | 195 | 179 | 145 | 70 | 26 | 195 |
| 20 | 92 | 115 | 124 | 21 | 54 | 118 | 195 | 176 | 144 | 78 | 26 | 138 |
| 21 | 69 | 239 | 96 | 21 | 48 | 137 | 174 | 170 | 144 | 74 | 26 | 49 |
| 22 | 51 | 308 | 76 | 105 | 49 | 137 | 149 | 172 | 140 | 58 | 24 | 115 |
| 23 | 35 | 306 | 76 | 261 | 78 | 129 | 136 | 174 | 134 | 25 | 24 | 201 |
| 24 | 20 | 343 | 76 | 351 | 84 | 124 | 140 | 174 | 111 | 25 | 23 | 201 |
| 25 | 20 | 375 | 124 | 159 | 74 | 123 | 141 | 189 | 91 | 25 | 22 | 201 |
| 26 | 20 | 372 | 249 | 223 | 71 | 114 | 137 | 207 | 80 | 25 | 22 | 264 |
| 27 | 20 | 370 | 299 | 293 | 62 | 113 | 141 | 209 | 79 | 25 | 22 | 363 |
| 28 | 20 | 487 | 302 | 175 | 57 | 116 | 178 | 206 | 79 | 25 | 22 | 361 |
| 29 | 20 | — | 305 | 106 | 57 | 116 | 203 | 199 | 76 | 25 | 22 | 359 |
| 30 | 20 | — | 305 | 60 | 49 | 126 | 210 | 193 | 81 | 25 | 22 | 357 |
| 31 | 17 | — | 303 | — | 42 | — | 194 | 193 | — | 25 | — | 356 |
| TOTAL | 1769 | 3565 | 8278 | 4414 | 3305 | 2772 | 5465 | 6020 | 4301 | 2398 | 779 | 3665 |
| MEAN | 57 | 127 | 267 | 147 | 107 | 92 | 176 | 194 | 143 | 77 | 26 | 118 |
| MAX | 92 | 487 | 679 | 351 | 212 | 137 | 231 | 213 | 192 | 126 | 61 | 363 |
| MIN | 17 | 14 | 73 | 21 | 42 | 42 | 136 | 170 | 76 | 25 | 22 | 22 |
| AC-FT | 3509 | 7071 | 16419 | 8755 | 6555 | 5498 | 10840 | 11940 | 8531 | 4756 | 1545 | 7269 |

**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.**

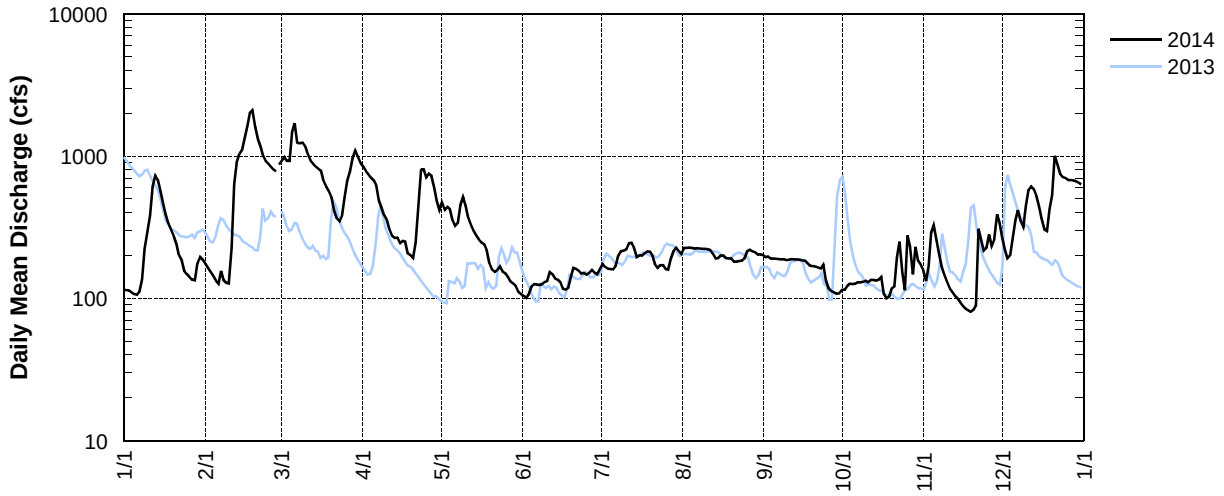
LATITUDE: 452830 LONGITUDE: 1230723 DRAINAGE AREA: 125.00 DATUM: 147.57

**Discharge, Cubic Feet per Second, Calendar Year January to December 2014 Daily Mean Values**

| Day | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT† | NOV† | DEC† |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 116 | 175 | 872 | 902 | 418 | 107 | 159 | 205 | 202 | 114 | 158 | 267 |
| 2 | 114 | 163 | 923 | 841 | 473 | 104 | 175 | 226 | 194 | 115 | 133 | 221 |
| 3 | 113 | 153 | 984 | 786 | 420 | 101 | 166 | 226 | 196 | 121 | 166 | 192 |
| 4 | 110 | 144 | 924 | 749 | 438 | 107 | 161 | 227 | 189 | 127 | 288 | 201 |
| 5 | 107 | 134 | 921 | 708 | 423 | 121 | 161 | 226 | 190 | 126 | 327 | 265 |
| 6 | 106 | 126 | 1470 | 676 | 354 | 125 | 159 | 224 | 189 | 127 | 255 | 350 |
| 7 | 112 | 156 | 1700 | 622 | 323 | 125 | 169 | 224 | 188 | 130 | 205 | 417 |
| 8 | 135 | 134 | 1240 | 489 | 338 | 124 | 199 | 223 | 187 | 129 | 166 | 347 |
| 9 | 222 | 129 | 1220 | 437 | 453 | 126 | 214 | 223 | 188 | 130 | 146 | 315 |
| 10 | 294 | 127 | 1240 | 385 | 515 | 130 | 215 | 222 | 186 | 133 | 131 | 445 |
| 11 | 378 | 225 | 1170 | 355 | 448 | 132 | 221 | 221 | 187 | 130 | 118 | 576 |
| 12 | 607 | 630 | 1030 | 305 | 371 | 152 | 244 | 217 | 188 | 135 | 111 | 609 |
| 13 | 725 | 903 | 933 | 275 | 326 | 148 | 245 | 206 | 188 | 134 | 104 | 584 |
| 14 | 672 | 1030 | 882 | 265 | 297 | 137 | 228 | 190 | 187 | 133 | 100 | 522 |
| 15 | 564 | 1110 | 842 | 266 | 277 | 135 | 195 | 191 | 186 | 135 | 94 | 443 |
| 16 | 463 | 1330 | 810 | 245 | 259 | 130 | 201 | 200 | 185 | 142 | 89 | 365 |
| 17 | 387 | 1620 | 794 | 252 | 247 | 117 | 200 | 199 | 184 | 107 | 85 | 305 |
| 18 | 337 | 2010 | 671 | 251 | 240 | 115 | 206 | 192 | 176 | 100 | 83 | 296 |
| 19 | 301 | 2100 | 603 | 208 | 219 | 119 | 213 | 190 | 169 | 103 | 81 | 424 |
| 20 | 273 | 1600 | 562 | 202 | 178 | 140 | 212 | 191 | 168 | 118 | 83 | 529 |
| 21 | 243 | 1320 | 513 | 192 | 159 | 164 | 199 | 181 | 167 | 121 | 89 | 1000 |
| 22 | 202 | 1170 | 418 | 245 | 153 | 161 | 173 | 181 | 165 | 192 | 306 | 870 |
| 23 | 185 | 1010 | 368 | 450 | 157 | 156 | 164 | 183 | 162 | 251 | 257 | 751 |
| 24 | 156 | 914 | 349 | 802 | 167 | 149 | 170 | 183 | 172 | 152 | 217 | 711 |
| 25 | 148 | 882 | 382 | 809 | 155 | 151 | 170 | 191 | 134 | 114 | 226 | 703 |
| 26 | 141 | 841 | 513 | 709 | 150 | 147 | 160 | 214 | 117 | 274 | 282 | 677 |
| 27 | 135 | 803 | 665 | 749 | 141 | 151 | 159 | 221 | 112 | 232 | 234 | 676 |
| 28 | 134 | 784 | 781 | 730 | 131 | 159 | 188 | 214 | 110 | 148 | 259 | 674 |
| 29 | 177 | — | 967 | 598 | 127 | 152 | 215 | 212 | 108 | 231 | 388 | 668 |
| 30 | 195 | — | 1090 | 485 | 123 | 147 | 227 | 202 | 108 | 184 | 340 | 652 |
| 31 | 187 | — | 995 | — | 111 | — | 216 | 204 | — | 172 | — | 634 |
| TOTAL | 8039 | 21723 | 26832 | 14988 | 8591 | 4032 | 5984 | 6409 | 5082 | 4560 | 5521 | 15689 |
| MEAN | 259 | 776 | 866 | 500 | 277 | 134 | 193 | 207 | 169 | 147 | 184 | 506 |
| MAX | 725 | 2100 | 1700 | 902 | 515 | 164 | 245 | 227 | 202 | 274 | 388 | 1000 |
| MIN | 106 | 126 | 349 | 192 | 111 | 101 | 159 | 181 | 108 | 100 | 81 | 192 |
| AC-FT | 15950 | 43090 | 53220 | 29730 | 17040 | 8000 | 11870 | 12710 | 10080 | 9040 | 10950 | 31120 |

†Provisional data (10/23–12/31)–subject to revision

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



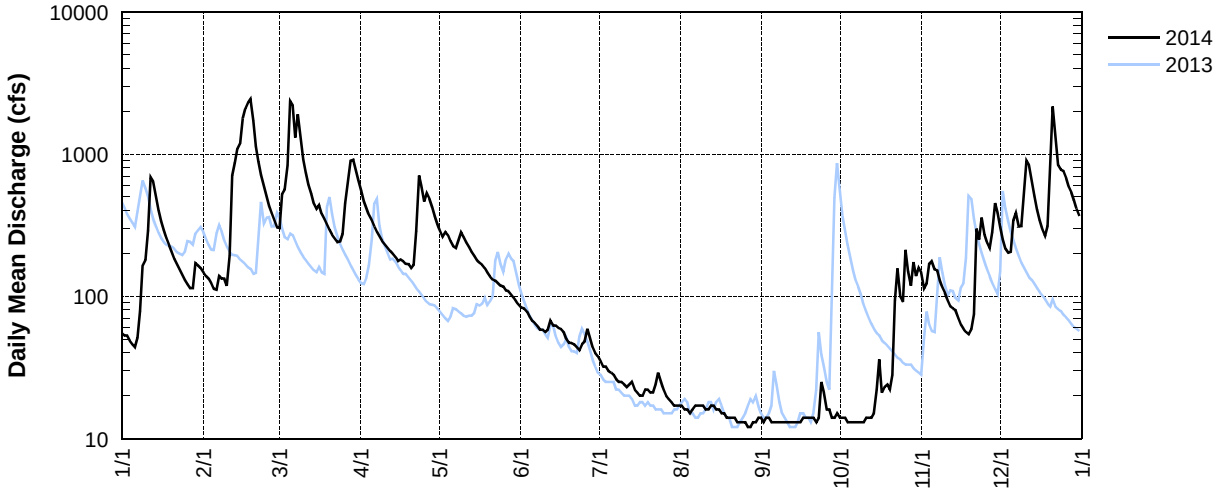
## GALES – 14204530 – GALES CREEK AT OLD HWY 47 NEAR FOREST GROVE, OREGON [RM 2.36]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second† | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 55 | 147 | 305 | 656 | 322 | 87 | 38 | 17 | 14 | 14 | 147 | 306 |
| 2 | 53 | 139 | 302 | 552 | 288 | 83 | 35 | 17 | 13 | 14 | 114 | 251 |
| 3 | 53 | 133 | 524 | 469 | 262 | 82 | 32 | 16 | 14 | 14 | 123 | 217 |
| 4 | 49 | 124 | 565 | 418 | 284 | 78 | 32 | 16 | 14 | 13 | 169 | 203 |
| 5 | 46 | 113 | 831 | 374 | 269 | 72 | 30 | 15 | 13 | 13 | 176 | 206 |
| 6 | 44 | 111 | e2350 | 341 | 244 | 67 | 29 | 16 | 13 | 13 | 155 | 341 |
| 7 | 51 | 139 | e2200 | 310 | 226 | 65 | 28 | 17 | 13 | 13 | 152 | 384 |
| 8 | 79 | 133 | 1310 | 283 | 219 | 62 | 26 | 17 | 13 | 13 | 130 | 310 |
| 9 | 165 | 133 | 1910 | 264 | 248 | 58 | 25 | 17 | 13 | 13 | 116 | 312 |
| 10 | 181 | 119 | 1320 | 245 | 281 | 58 | 25 | 17 | 13 | 13 | 106 | 546 |
| 11 | 290 | 193 | 919 | 232 | 259 | 56 | 24 | 16 | 13 | 14 | 93 | 895 |
| 12 | 686 | 706 | 738 | 220 | 239 | 58 | 23 | 16 | 13 | 14 | 85 | 833 |
| 13 | 639 | 864 | 612 | 209 | 221 | 67 | 24 | 17 | 13 | 14 | 82 | 645 |
| 14 | 498 | 1090 | 525 | 200 | 205 | 62 | 25 | 17 | 13 | 15 | 80 | 506 |
| 15 | 401 | 1200 | 448 | 189 | 192 | 62 | 22 | 16 | 13 | 22 | 70 | 408 |
| 16 | 337 | 1780 | 411 | 177 | 180 | 60 | 21 | 16 | 13 | 36 | 63 | 343 |
| 17 | 292 | e2100 | 438 | 182 | 172 | 59 | 20 | 15 | 14 | 21 | 59 | 294 |
| 18 | 257 | e2300 | 382 | 177 | 166 | 56 | 20 | 15 | 14 | 23 | 56 | 265 |
| 19 | 228 | e2450 | 348 | 169 | 158 | 50 | 22 | 14 | 14 | 24 | 54 | 312 |
| 20 | 204 | 1720 | 320 | 168 | 147 | 47 | 22 | 14 | 14 | 22 | 59 | 976 |
| 21 | 183 | 1130 | 293 | 158 | 138 | 47 | 21 | 14 | 14 | 28 | 75 | 2160 |
| 22 | 168 | 880 | 271 | 166 | 131 | 46 | 21 | 14 | 13 | 94 | 298 | 1260 |
| 23 | 153 | 714 | 255 | 288 | 129 | 44 | 24 | 13 | 14 | 157 | 250 | 832 |
| 24 | 141 | 599 | 240 | 706 | 124 | 42 | 29 | 13 | 25 | 99 | 358 | 779 |
| 25 | 130 | 506 | 243 | 584 | 119 | 46 | 25 | 13 | 21 | 91 | 271 | 763 |
| 26 | 121 | 433 | 275 | 464 | 117 | 48 | 22 | 13 | 16 | 212 | 238 | 678 |
| 27 | 114 | 385 | 452 | 532 | 110 | 59 | 20 | 12 | 16 | 150 | 218 | 590 |
| 28 | 114 | 345 | 643 | 487 | 109 | 51 | 19 | 12 | 14 | 119 | 282 | 538 |
| 29 | 171 | — | 900 | 423 | 103 | 44 | 18 | 13 | 14 | 174 | 452 | 477 |
| 30 | 165 | — | 913 | 366 | 98 | 40 | 17 | 13 | 15 | 139 | 385 | 413 |
| 31 | 158 | — | 776 | — | 91 | — | 17 | 14 | — | 158 | — | 368 |
| TOTAL | 6226 | 20686 | 22019 | 10009 | 5851 | 1756 | 756 | 465 | 429 | 1759 | 4916 | 17411 |
| MEAN | 200.8 | 738.8 | 710.3 | 333.6 | 188.7 | 58.5 | 24.4 | 15.0 | 14.3 | 56.7 | 163.9 | 561.6 |
| MAX | 686 | 2450 | 2350 | 706 | 322 | 87 | 38 | 17 | 25 | 212 | 452 | 2160 |
| MIN | 0 | 111 | 240 | 158 | 91 | 40 | 17 | 12 | 13 | 13 | 54 | 203 |
| AC-FT | 12350 | 41030 | 43680 | 19850 | 11610 | 3480 | 1500 | 920 | 850 | 3490 | 9750 | 34540 |

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

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



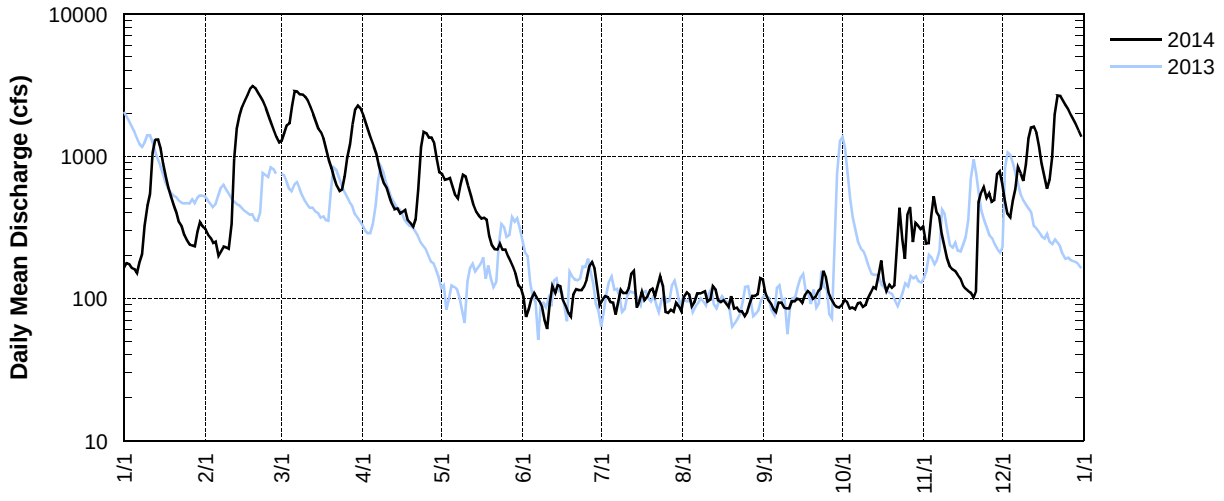
## TRGC – 14204800 – TUALATIN RIVER AT GOLF COURSE ROAD NEAR CORNELIUS, OREGON [RM 51.5]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second† | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| **1** | 164 | 306 | 1250 | 2170 | 771 | 118 | 90 | 81 | 136 | 90 | 319 | 642 |
| **2** | 177 | 280 | 1280 | 1950 | 752 | 102 | 98 | 102 | 109 | 97 | 243 | 490 |
| **3** | 174 | 266 | 1440 | 1720 | 680 | 74 | 104 | 110 | 98 | 94 | 244 | 395 |
| **4** | 164 | 245 | 1640 | 1510 | 689 | 85 | 102 | 106 | 92 | 85 | 375 | 371 |
| **5** | 160 | 251 | 1700 | 1330 | 702 | 100 | 94 | 88 | 84 | 86 | 523 | 484 |
| **6** | 150 | 199 | 2270 | 1170 | 614 | 109 | 93 | 94 | 80 | 84 | 402 | 585 |
| **7** | 179 | 214 | 2860 | 1040 | 537 | 101 | 77 | 108 | 93 | 92 | 375 | 837 |
| **8** | 204 | 231 | 2850 | 861 | 503 | 96 | 94 | 108 | 93 | 93 | 284 | 755 |
| **9** | 325 | 228 | 2720 | 730 | 627 | 87 | 115 | 110 | 86 | 87 | 233 | 671 |
| **10** | 448 | 224 | 2700 | 639 | 739 | 70 | 109 | 112 | 85 | 90 | 193 | 873 |
| **11** | 542 | 334 | 2600 | 592 | 721 | 61 | 109 | 95 | 85 | 101 | 168 | 1330 |
| **12** | 1050 | 963 | 2450 | 518 | 618 | 92 | 118 | 98 | 95 | 110 | 160 | 1580 |
| **13** | 1300 | 1560 | 2220 | 458 | 525 | 122 | 149 | 122 | 95 | 120 | 156 | 1610 |
| **14** | 1310 | 1910 | 1970 | 422 | 450 | 109 | 156 | 116 | 99 | 117 | 147 | 1460 |
| **15** | 1130 | 2240 | 1750 | 428 | 406 | 124 | 86 | 97 | 98 | 147 | 138 | 1170 |
| **16** | 880 | 2460 | 1560 | 395 | 381 | 122 | 95 | 94 | 93 | 184 | 124 | 885 |
| **17** | 719 | 2680 | 1470 | 406 | 364 | 97 | 111 | 97 | 106 | 131 | 117 | 718 |
| **18** | 600 | 2970 | 1330 | 419 | 368 | 88 | 97 | 92 | 112 | 113 | 113 | 590 |
| **19** | 515 | 3100 | 1100 | 356 | 357 | 79 | 102 | 87 | 108 | 125 | 110 | 682 |
| **20** | 451 | 2990 | 932 | 338 | 274 | 74 | 114 | 103 | 99 | 119 | 101 | 978 |
| **21** | 404 | 2780 | 824 | 320 | 237 | 107 | 117 | 85 | 102 | 123 | 113 | 1970 |
| **22** | 343 | 2610 | 707 | 359 | 221 | 116 | 104 | 86 | 113 | 225 | 474 | 2660 |
| **23** | 319 | 2420 | 619 | 580 | 220 | 114 | 121 | 81 | 117 | 433 | 557 | 2640 |
| **24** | 278 | 2170 | 567 | 1160 | 243 | 114 | 142 | 81 | 156 | 258 | 608 | 2460 |
| **25** | 255 | 1930 | 583 | 1480 | 219 | 121 | 121 | 75 | 140 | 189 | 509 | 2290 |
| **26** | 239 | 1720 | 717 | 1450 | 220 | 135 | 80 | 80 | 108 | 394 | 548 | 2130 |
| **27** | 235 | 1530 | 966 | 1350 | 198 | 169 | 79 | 92 | 98 | 439 | 479 | 1950 |
| **28** | 232 | 1370 | 1210 | 1350 | 183 | 180 | 83 | 104 | 91 | 249 | 490 | 1800 |
| **29** | 292 | — | 1680 | 1230 | 166 | 162 | 80 | 104 | 87 | 338 | 748 | 1670 |
| **30** | 342 | — | 2130 | 957 | 149 | 122 | 93 | 107 | 86 | 325 | 783 | 1520 |
| **31** | 319 | — | 2260 | — | 123 | — | 88 | 139 | — | 306 | — | 1370 |
| TOTAL | 13900 | 40181 | 50355 | 27688 | 13257 | 3250 | 3221 | 3054 | 3044 | 5444 | 9834 | 39566 |
| MEAN | 448.4 | 1435.0 | 1624.4 | 922.9 | 427.6 | 108.3 | 103.9 | 98.5 | 101.5 | 175.6 | 327.8 | 1276.3 |
| MAX | 1310 | 3100 | 2860 | 2170 | 771 | 180 | 156 | 139 | 156 | 439 | 783 | 2660 |
| MIN | 0 | 199 | 567 | 320 | 123 | 61 | 77 | 75 | 80 | 84 | 101 | 371 |
| AC-FT | 27570 | 79710 | 99890 | 54920 | 26300 | 6450 | 6390 | 6060 | 6040 | 10800 | 19510 | 78490 |

† 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**

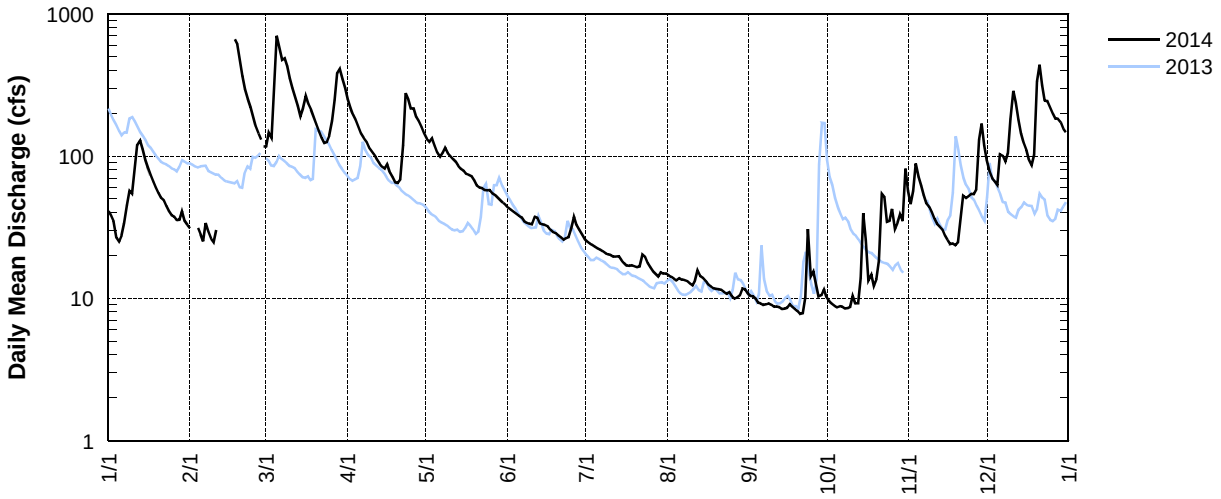
LATITUDE: 454051 LONGITUDE: 1230412 DRAINAGE AREA: 32.92 DATUM: 290

**Discharge, Cubic Feet per Second, Calendar Year January to December 2014 Daily Mean Values**

| Day | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT† | NOV† | DEC† |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 41 | e32 | 117 | 301 | 145 | 45 | 26 | 15 | 11 | 10 | 57 | 94 |
| 2 | 38 | e32 | 116 | 252 | 132 | 43 | 25 | 14 | 10 | 9.6 | 46 | 78 |
| 3 | 35 | e30 | 146 | 220 | 126 | 42 | 24 | 14 | 10 | 9.2 | 56 | 70 |
| 4 | 27 | e30 | 134 | 196 | 133 | 41 | 24 | 14 | 10 | 8.8 | 88 | 66 |
| 5 | 25 | 28 | 339 | 178 | 118 | 39 | 23 | 13 | 9.3 | 8.7 | 72 | 63 |
| 6 | 28 | 25 | 700 | 160 | 106 | 38 | 22 | 14 | 9.2 | 8.8 | 62 | 103 |
| 7 | 34 | 34 | 583 | 144 | 99 | 37 | 22 | 14 | 8.9 | 8.7 | 53 | 100 |
| 8 | 45 | 30 | 474 | 134 | 105 | 35 | 21 | 13 | 9.0 | 8.5 | 47 | 92 |
| 9 | 57 | 26 | 489 | 127 | 114 | 34 | 21 | 13 | 9.2 | 8.5 | 44 | 104 |
| 10 | 55 | 25 | 428 | 115 | 105 | 33 | 20 | 13 | 9.0 | 8.7 | 40 | 181 |
| 11 | 78 | e46 | 352 | 109 | 100 | 33 | 20 | 12 | 8.7 | 10 | 36 | 288 |
| 12 | 120 | e131 | 301 | 103 | 96 | 37 | 20 | 13 | 8.8 | 9.2 | 33 | 237 |
| 13 | 129 | e170 | 259 | 95 | 91 | 37 | 20 | 16 | 8.6 | 9.2 | 32 | 181 |
| 14 | 112 | e255 | 226 | 89 | 86 | 34 | 20 | 14 | 8.4 | 14 | 30 | 145 |
| 15 | 95 | e328 | 191 | 84 | 82 | 33 | 19 | 14 | 8.4 | 39 | 28 | 124 |
| 16 | 83 | e417 | 216 | 81 | 79 | 33 | 18 | 13 | 8.6 | 26 | 26 | 110 |
| 17 | 74 | e663 | 265 | 88 | 75 | 32 | 17 | 13 | 9.1 | 13 | 24 | 93 |
| 18 | 66 | e668 | 233 | 76 | 74 | 30 | 17 | 12 | 8.7 | 15 | 24 | 86 |
| 19 | 60 | 611 | 213 | 71 | 73 | 29 | 17 | 12 | 8.4 | 12 | 24 | 102 |
| 20 | 55 | 465 | 190 | 66 | 67 | 29 | 17 | 12 | 8.1 | 14 | 25 | 332 |
| 21 | 51 | 365 | 169 | 64 | 62 | 28 | 17 | 12 | 7.8 | 18 | 36 | 441 |
| 22 | 49 | 296 | 149 | 68 | 60 | 27 | 17 | 11 | 7.8 | 54 | 53 | 317 |
| 23 | 44 | 251 | 134 | 118 | 60 | 26 | 20 | 11 | 10 | 52 | 51 | 245 |
| 24 | 41 | 222 | 124 | 276 | 58 | 27 | 19 | 11 | 31 | 35 | 52 | 244 |
| 25 | 39 | 192 | 125 | 251 | 57 | 27 | 18 | 11 | 14 | 35 | 54 | 219 |
| 26 | 38 | e160 | 139 | 216 | 58 | 31 | 17 | 10 | 15 | 43 | 54 | 198 |
| 27 | 36 | 144 | 176 | 216 | 55 | 37 | 16 | 9.9 | 13 | 31 | 58 | 183 |
| 28 | 36 | 131 | 246 | 189 | 53 | 33 | 15 | 10 | 10 | 34 | 130 | 183 |
| 29 | 41 | — | 382 | 175 | 51 | 30 | 14 | 10 | 10 | 39 | 170 | 173 |
| 30 | 35 | — | 411 | 161 | 49 | 28 | 15 | 12 | 12 | 35 | 120 | 156 |
| 31 | 33 | — | 346 | — | 47 | — | 15 | 12 | — | 81 | — | 147 |
| TOTAL | 1700 | 5807 | 8373 | 4423 | 2616 | 1008 | 596 | 387.9 | 312.0 | 707.9 | 1625 | 5155 |
| MEAN | 54.8 | 207 | 270 | 147 | 84.4 | 33.6 | 19.2 | 12.5 | 10.4 | 22.8 | 54.2 | 166 |
| MAX | 129 | 668 | 700 | 301 | 145 | 45 | 26 | 16 | 31 | 81 | 170 | 441 |
| MIN | 25 | 25 | 116 | 64 | 47 | 26 | 14 | 9.9 | 7.8 | 8.5 | 24 | 63 |
| AC-FT | 3370 | 11520 | 16610 | 8770 | 5190 | 2000 | 1180 | 769 | 619 | 1400 | 3220 | 10220 |

†Provisional data (10/21–12/31)–subject to revision; e=estimated value

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



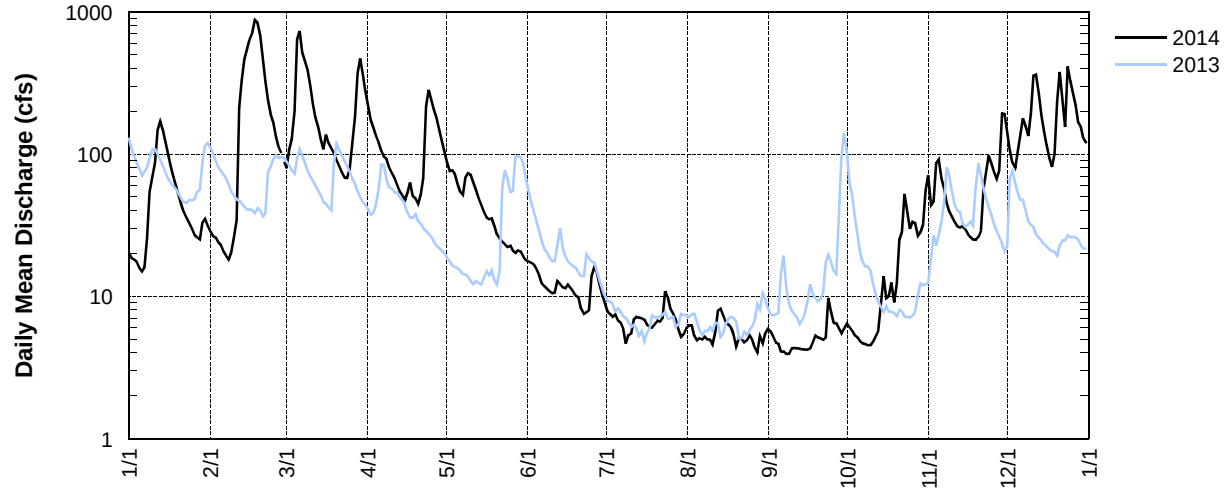
MCSC – 14206070 – MCKAY CREEK AT SCOTCH CHURCH RD ABOVE WAIBLE CREEK NEAR NORTH PLAINS, OREGON [RM 6.3]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 20 | 28 | 88 | 279 | 105 | 18 | 9.1 | 6.0 | 5.9 | e6.4 | 71 | 141 |
| 2 | 19 | 27 | 79 | 220 | 88 | 18 | 7.8 | 6.2 | 5.7 | e6.1 | 44 | 107 |
| 3 | 18 | 26 | 107 | 174 | 76 | 17 | 7.5 | 6.3 | 5.2 | e5.7 | 47 | 87 |
| 4 | 17 | 24 | 127 | 154 | 76 | 17 | 7.2 | 5.3 | 4.7 | e5.3 | 86 | 80 |
| 5 | 16 | 23 | 200 | 135 | 72 | 16 | 7.4 | 4.9 | 4.6 | e5.1 | 92 | 105 |
| 6 | 15 | e21 | 640 | 120 | 62 | 14 | 6.7 | 5.1 | 4.1 | e4.8 | 67 | 137 |
| 7 | 16 | e19 | 734 | 105 | 55 | 12 | 6.5 | 5.0 | e4.1 | e4.7 | 57 | 178 |
| 8 | 26 | e18 | 517 | 96 | 52 | 12 | 5.9 | 5.2 | e3.9 | e4.6 | 45 | 156 |
| 9 | 55 | e20 | 453 | 92 | 69 | 11 | 4.6 | 5.0 | e3.9 | e4.5 | 39 | 134 |
| 10 | 70 | 26 | 389 | 81 | 73 | 11 | 5.3 | 4.9 | e4.3 | e4.5 | 36 | 193 |
| 11 | 87 | 34 | 304 | 73 | 72 | 10 | 5.5 | 4.6 | e4.3 | e4.8 | 33 | 357 |
| 12 | 147 | 213 | 228 | 68 | 64 | 11 | 6.8 | 5.6 | e4.3 | e5.2 | 31 | 363 |
| 13 | 169 | e333 | 181 | 61 | 56 | 13 | 7.2 | 7.9 | e4.3 | e5.8 | 30 | 265 |
| 14 | 146 | e463 | 154 | 55 | 49 | 12 | 7.1 | 8.2 | e4.2 | e8.6 | 31 | 187 |
| 15 | 119 | e555 | 127 | 51 | 44 | 12 | 7.0 | 7.3 | e4.2 | 1e4 | 30 | 145 |
| 16 | 98 | e648 | 108 | 47 | 40 | 11 | 6.9 | 6.5 | e4.2 | e9.7 | 27 | 116 |
| 17 | 82 | e718 | 137 | 54 | 36 | 12 | 6.3 | 6.3 | e4.3 | e10 | 26 | 93 |
| 18 | 70 | e875 | 119 | 63 | 35 | 11 | 6.2 | 6.0 | e4.7 | e12 | 25 | e81 |
| 19 | 59 | e841 | 109 | 51 | 35 | 11 | 6.0 | 5.4 | e5.3 | e9.1 | 25 | e101 |
| 20 | 51 | 677 | 101 | 49 | 31 | 10 | 6.4 | 4.4 | e5.1 | e12 | 26 | e234 |
| 21 | 44 | 466 | 91 | 45 | 27 | 9.8 | 6.7 | 5.1 | e5.1 | 25 | 29 | e378 |
| 22 | 39 | 323 | 82 | 51 | 25 | 8.2 | 6.7 | 5.0 | e5.0 | 28 | 57 | e235 |
| 23 | 35 | 240 | 75 | 67 | 24 | 7.5 | 7.0 | 4.7 | e5.1 | 53 | 74 | e155 |
| 24 | 32 | 188 | 68 | 217 | 23 | 7.7 | 11 | 4.9 | e9.7 | 38 | 98 | e413 |
| 25 | 30 | 165 | 68 | 283 | 22 | 8.0 | 9.7 | 5.3 | e7.8 | 30 | 86 | e329 |
| 26 | 27 | 132 | 78 | 241 | 23 | 14 | 8.1 | 4.9 | e6.5 | 34 | 74 | e266 |
| 27 | 26 | 112 | 117 | 206 | 21 | 16 | 7.5 | 4.3 | e6.4 | 33 | 67 | e219 |
| 28 | 25 | 102 | 184 | 181 | 20 | 14 | 6.9 | 4.0 | e5.9 | 27 | 76 | e166 |
| 29 | 33 | — | 371 | 149 | 21 | 12 | 5.8 | 5.2 | e5.5 | 28 | 193 | e155 |
| 30 | 35 | — | 471 | 124 | 21 | 10 | 5.2 | 4.7 | e5.9 | 32 | 191 | e129 |
| 31 | 32 | — | 369 | — | 19 | — | 5.4 | 5.5 | — | 56 | — | e119 |
| TOTAL | 1658 | 7317 | 6876 | 3592 | 1436 | 366.2 | 213.4 | 169.7 | 154.2 | 526.9 | 1813 | 5824 |
| MEAN | 53.5 | 261.4 | 221.8 | 119.7 | 46.3 | 12.2 | 6.9 | 5.5 | 5.2 | 17.0 | 60.5 | 188.0 |
| MAX | 169 | 875 | 734 | 283 | 105 | 18 | 11 | 8.2 | 9.7 | 56 | 193 | 413 |
| MIN | 15 | 18 | 68 | 45 | 19 | 7.5 | 4.6 | 4.0 | 3.9 | 4.5 | 25 | 80 |
| AC-FT | 3289 | 14510 | 13640 | 7125 | 2848 | 726 | 423 | 337 | 306 | 1045 | 3596 | 11550 |

e=estimated value

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



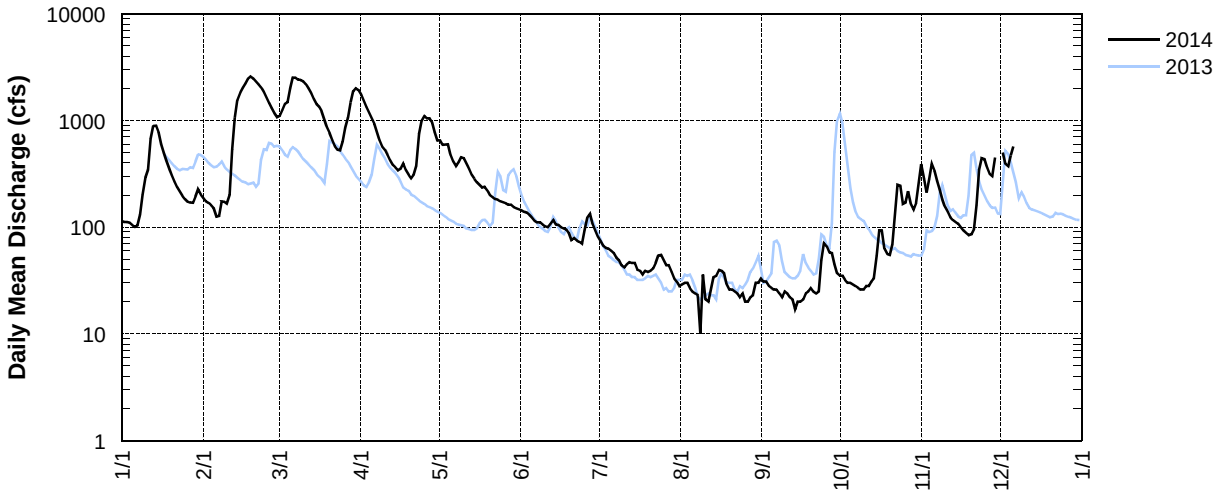
## DAIRY – 14206200 – DAIRY CREEK AT HWY 8 NEAR HILLSBORO, OREGON [RM 2.06]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second† | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC* |
| 1 | 115 | 187 | e1080 | e1930 | e650 | 147 | 82 | 28 | 33 | 35 | 391 | |
| 2 | 112 | 175 | e1110 | e1750 | e650 | 144 | 74 | 29 | 31 | 35 | 286 | e500 |
| 3 | 112 | 169 | e1250 | e1530 | e590 | 139 | 67 | 30 | 31 | 32 | 211 | 392 |
| 4 | 110 | 161 | e1430 | e1340 | e595 | 136 | 64 | 30 | 28 | 30 | 281 | 371 |
| 5 | 104 | 151 | e1490 | e1190 | e600 | 130 | 63 | 27 | 27 | 30 | 393 | 471 |
| 6 | 101 | 126 | e1990 | e1050 | 475 | 123 | 60 | 25 | 26 | 29 | 335 | e570 |
| 7 | 104 | 127 | e2520 | e931 | 415 | 115 | 57 | 24 | 26 | 28 | 270 | |
| 8 | 131 | 174 | e2520 | e776 | 373 | 111 | 52 | 23 | 24 | 27 | 225 | |
| 9 | 202 | 172 | e2410 | e656 | 407 | 111 | 49 | e10 | 22 | 26 | 182 | |
| 10 | 294 | 165 | e2400 | e574 | 455 | 106 | 44 | 36 | 25 | 26 | 156 | |
| 11 | 346 | 201 | e2330 | e531 | 445 | 102 | 42 | 21 | 24 | 28 | 139 | |
| 12 | e675 | e539 | e2200 | 476 | 397 | 100 | 45 | 20 | 22 | 28 | 124 | |
| 13 | e886 | e1060 | e2010 | 423 | 351 | 107 | 47 | 26 | 21 | 31 | 116 | |
| 14 | e894 | e1560 | e1790 | 385 | 311 | 116 | 46 | 34 | 17 | 33 | 112 | |
| 15 | e773 | e1830 | e1590 | 365 | 285 | 106 | 46 | 35 | 20 | 54 | 108 | |
| 16 | e599 | e2030 | e1430 | 342 | 264 | 105 | 40 | 40 | 20 | 93 | 100 | |
| 17 | e500 | e2220 | e1350 | 353 | 249 | 100 | 39 | 39 | 21 | 93 | 93 | |
| 18 | 423 | e2460 | e1230 | 394 | 236 | 97 | 36 | 37 | 24 | 63 | 88 | |
| 19 | 357 | e2580 | e1020 | 345 | 238 | 95 | 39 | 29 | 25 | 56 | 84 | |
| 20 | 307 | e2490 | e865 | 310 | 222 | 88 | 38 | 26 | 27 | 55 | 86 | |
| 21 | 268 | e2330 | e766 | 288 | 200 | 76 | 39 | 26 | 25 | 69 | 96 | |
| 22 | 238 | e2190 | e661 | 311 | 190 | 79 | 41 | 25 | 24 | 130 | 161 | |
| 23 | 215 | e2040 | e580 | 374 | 184 | 75 | 46 | 24 | 25 | 248 | 344 | |
| 24 | 197 | e1840 | e531 | e750 | 181 | 73 | 54 | 22 | 49 | 244 | 443 | |
| 25 | 184 | e1640 | 524 | e1000 | 175 | 70 | 55 | 24 | 71 | 165 | 431 | |
| 26 | 174 | e1460 | e633 | e1100 | 171 | 93 | 49 | 20 | 66 | 170 | 361 | |
| 27 | 170 | e1310 | e849 | e1050 | 168 | 124 | 44 | 20 | 58 | 216 | 315 | |
| 28 | 169 | e1180 | e1070 | e1050 | 162 | 134 | 44 | 22 | 57 | 163 | 299 | |
| 29 | 194 | — | e1480 | e950 | 162 | 107 | 38 | 23 | 45 | 146 | e450 | |
| 30 | 226 | — | e1880 | e775 | 155 | 93 | 33 | 30 | 37 | 169 | | |
| 31 | 203 | — | e2010 | — | 150 | — | 31 | 30 | — | 260 | — | |
| TOTAL | 9383 | 32567 | 44999 | 23299 | 10106 | 3202 | 1504 | 835 | 951 | 2812 | 6680 | |
| MEAN | 302.7 | 1163.1 | 1451.6 | 776.6 | 326.0 | 106.7 | 48.5 | 26.9 | 31.7 | 90.7 | 230.3 | |
| MAX | 894 | 2580 | 2520 | 1930 | 650 | 147 | 82 | 40 | 71 | 260 | 450 | |
| MIN | 0 | 126 | 524 | 288 | 150 | 70 | 31 | 10 | 17 | 26 | 0 | |
| AC-FT | 18610 | 64600 | 89260 | 46220 | 20050 | 6350 | 2980 | 1660 | 1890 | 5580 | 13250 | |

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

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



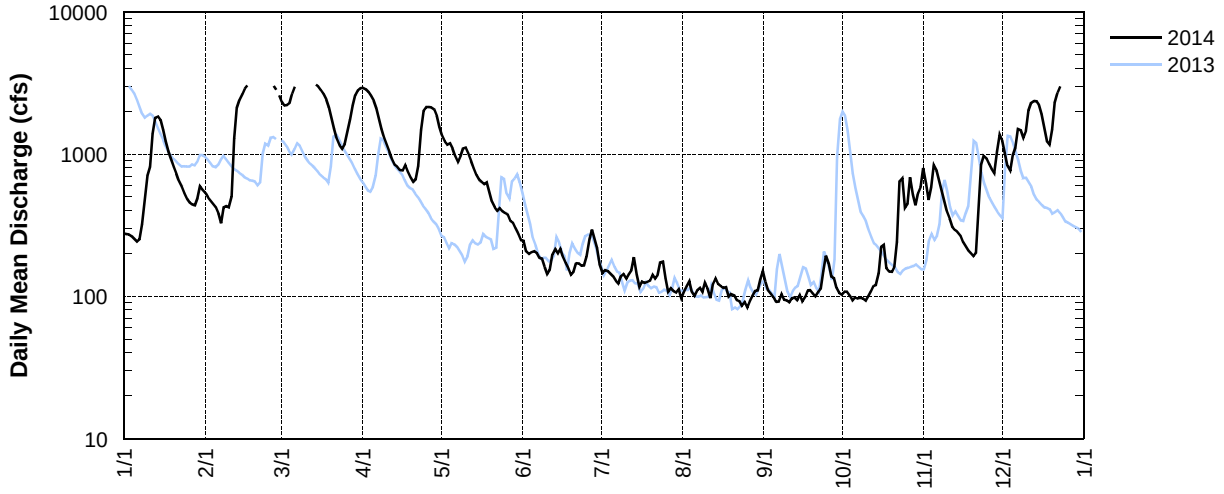
## TRJB – 14206241 – TUALATIN RIVER AT HWY 219 BRIDGE [RM 44.4]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB* | MAR* | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC* |
| **1** | 276 | 533 | 2586 | 2908 | 1553 | 248 | 168 | 97 | 150 | 103 | 801 | 1243 |
| **2** | 273 | 495 | 2333 | 2925 | 1359 | 245 | 146 | 107 | 126 | 107 | 624 | 1011 |
| **3** | 273 | 471 | 2196 | 2862 | 1231 | 207 | 153 | 118 | 111 | 108 | 476 | 828 |
| **4** | 266 | 448 | 2212 | 2745 | 1167 | 198 | 151 | 128 | 104 | 102 | 582 | 761 |
| **5** | 253 | 426 | 2283 | 2580 | 1189 | 205 | 145 | 107 | 98 | 94 | 834 | 983 |
| **6** | 243 | 382 | 2672 | 2371 | 1096 | 208 | 138 | 101 | 91 | 98 | 762 | 1109 |
| **7** | 251 | 327 | 2980 | 2111 | 976 | 201 | 129 | 111 | 92 | 96 | 647 | 1502 |
| **8** | 321 | 423 | | 1780 | 883 | 186 | 123 | 114 | 104 | 98 | 544 | 1473 |
| **9** | 477 | 432 | | 1501 | 966 | 183 | 138 | 107 | 95 | 97 | 463 | 1304 |
| **10** | 704 | 423 | | 1308 | 1099 | 161 | 143 | 125 | 94 | 93 | 394 | 1461 |
| **11** | 813 | 504 | | 1153 | 1115 | 144 | 133 | 113 | 91 | 100 | 350 | 2028 |
| **12** | 1394 | 1292 | | 1037 | 1015 | 153 | 143 | 97 | 97 | 108 | 309 | 2287 |
| **13** | 1799 | 2120 | | 921 | 897 | 196 | 152 | 123 | 98 | 118 | 293 | 2363 |
| **14** | 1845 | 2398 | | 843 | 796 | 214 | 188 | 134 | 94 | 120 | 283 | 2344 |
| **15** | 1738 | 2635 | 3077 | 813 | 718 | 201 | 141 | 122 | 102 | 145 | 268 | 2207 |
| **16** | 1478 | 2891 | 2977 | 769 | 668 | 215 | 117 | 117 | 92 | 223 | 241 | 1910 |
| **17** | 1231 | 3048 | 2813 | 767 | 636 | 190 | 127 | 114 | 99 | 230 | 225 | 1516 |
| **18** | 1051 | | 2642 | 836 | 614 | 170 | 124 | 116 | 110 | 158 | 211 | 1229 |
| **19** | 916 | | 2412 | 756 | 633 | 157 | 126 | 100 | 110 | 149 | 202 | 1166 |
| **20** | 811 | | 2130 | 685 | 546 | 141 | 129 | 104 | 105 | 148 | 193 | 1485 |
| **21** | 730 | | 1798 | 635 | 463 | 149 | 142 | 102 | 100 | 162 | 203 | 2303 |
| **22** | 645 | | 1508 | 664 | 422 | 171 | 133 | 94 | 108 | 242 | 443 | 2720 |
| **23** | 589 | | 1288 | 827 | 400 | 170 | 141 | 93 | 113 | 643 | 841 | 2994 |
| **24** | 532 | | 1152 | 1483 | 416 | 163 | 172 | 86 | 151 | 676 | 970 | |
| **25** | 486 | | 1092 | 2020 | 397 | 165 | 176 | 91 | 194 | 419 | 930 | |
| **26** | 458 | | 1173 | 2143 | 384 | 191 | 134 | 84 | 169 | 447 | 849 | |
| **27** | 442 | 3015 | 1411 | 2135 | 374 | 251 | 108 | 93 | 138 | 689 | 784 | 3056 |
| **28** | 435 | 2832 | 1748 | 2130 | 338 | 294 | 114 | 100 | 134 | 517 | 732 | 2969 |
| **29** | 488 | — | 2188 | 2062 | 328 | 253 | 109 | 109 | 115 | 436 | 1051 | 2830 |
| **30** | 595 | — | 2595 | 1862 | 300 | 218 | 107 | 110 | 106 | 534 | 1370 | 2665 |
| **31** | 562 | — | 2799 | — | 273 | — | 112 | 131 | — | 590 | — | 2462 |
| TOTAL | 22372 | | | 47632 | 23252 | 5850 | 4262 | 3346 | 3390 | 7850 | 16874 | 52207 |
| MEAN | 722 | | | 1588 | 750 | 195 | 137 | 108 | 113 | 253 | 562 | 1865 |
| MAX | 1845 | | | 2925 | 1553 | 294 | 188 | 134 | 194 | 689 | 1370 | 3056 |
| MIN | 243 | | | 635 | 273 | 141 | 107 | 84 | 91 | 93 | 193 | 761 |
| AC-FT | 44375 | | | 94476 | 46120 | 11603 | 8453 | 6637 | 6723 | 15570 | 33470 | 103551 |

*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]**



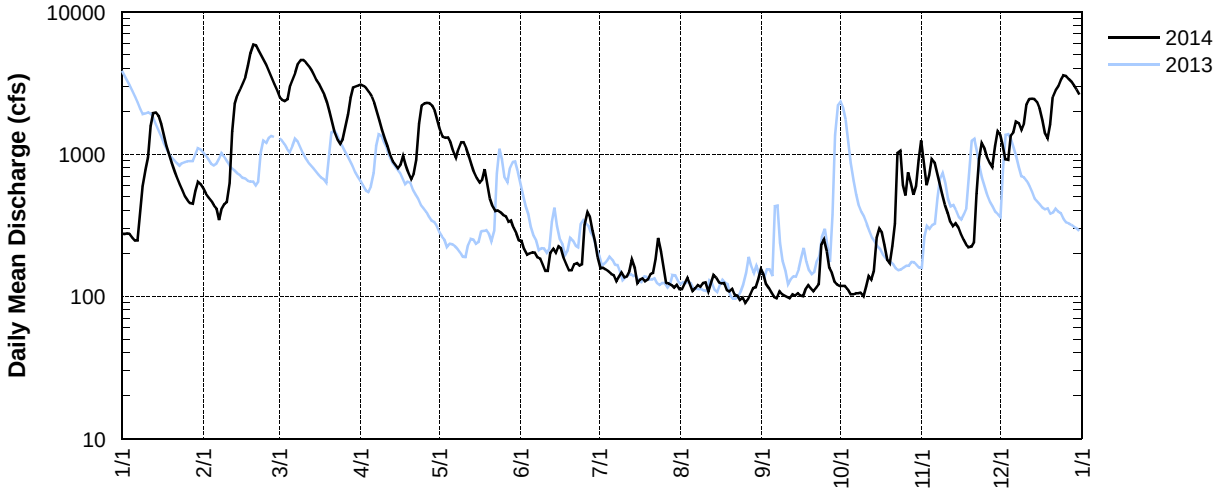
## ROOD – 14206295 – TUALATIN RIVER AT ROOD BRIDGE ROAD NEAR HILLSBORO, OREGON [RM 38.4]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second† | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 277 | 571 | 2810 | 3040 | 1720 | 246 | 188 | 112 | 155 | 118 | 1250 | 1370 |
| 2 | 273 | 525 | 2530 | 3080 | 1480 | 245 | 157 | 112 | 142 | 118 | 838 | 1140 |
| 3 | 276 | 495 | 2410 | 3010 | 1330 | 214 | 159 | 124 | 122 | 118 | 604 | 920 |
| 4 | 275 | 471 | 2360 | 2900 | 1300 | 196 | 155 | 135 | 114 | 112 | 711 | 908 |
| 5 | 258 | 439 | 2440 | 2740 | 1310 | 200 | 150 | 121 | 106 | 103 | 923 | 1350 |
| 6 | 246 | 413 | 3040 | 2540 | 1210 | 204 | 144 | 109 | 99 | 103 | 871 | 1420 |
| 7 | 247 | 344 | 3370 | 2290 | 1050 | 202 | 141 | 114 | 97 | 105 | 740 | 1690 |
| 8 | 392 | 413 | 3740 | 1980 | 940 | 188 | 128 | 120 | 109 | 105 | 620 | 1650 |
| 9 | 594 | 446 | 4300 | 1720 | 1090 | 184 | 137 | 117 | 104 | 106 | 517 | 1480 |
| 10 | 774 | 459 | 4580 | 1480 | 1210 | 167 | 147 | 124 | 101 | 100 | 441 | 1640 |
| 11 | 948 | 625 | 4580 | 1280 | 1210 | 151 | 136 | 125 | 99 | 117 | 384 | 2240 |
| 12 | 1570 | 1440 | 4420 | 1140 | 1100 | 151 | 138 | 108 | 97 | 139 | 333 | 2430 |
| 13 | 1940 | 2260 | 4190 | 996 | 959 | 202 | 150 | 124 | 103 | 131 | 312 | 2450 |
| 14 | 1960 | 2600 | 3910 | 894 | 836 | 216 | 182 | 141 | 101 | 150 | 326 | 2430 |
| 15 | 1860 | 2870 | 3610 | 840 | 739 | 202 | 159 | 135 | 105 | 258 | 305 | 2330 |
| 16 | 1630 | 3160 | 3300 | 797 | 676 | 225 | 124 | 125 | 101 | 298 | 274 | 2090 |
| 17 | 1360 | 3490 | 3110 | 844 | 631 | 218 | 131 | 123 | 100 | 281 | 250 | 1720 |
| 18 | 1150 | 4180 | 2860 | 967 | 661 | 184 | 134 | 124 | 113 | 230 | 232 | 1390 |
| 19 | 990 | 5140 | 2600 | 837 | 782 | 167 | 128 | 111 | 120 | 181 | 221 | 1290 |
| 20 | 867 | 5870 | 2320 | 733 | 616 | 152 | 132 | 108 | 114 | 171 | 223 | 1620 |
| 21 | 771 | 5810 | 1990 | 666 | 488 | 152 | 144 | 113 | 109 | 226 | 240 | 2520 |
| 22 | 683 | 5360 | 1680 | 729 | 428 | 168 | 146 | 102 | 115 | 325 | 526 | 2820 |
| 23 | 610 | 4950 | 1420 | 911 | 398 | 172 | 183 | 101 | 122 | 1020 | 928 | 2990 |
| 24 | 556 | 4540 | 1260 | 1640 | 401 | 165 | 257 | 94 | 232 | 1060 | 1190 | 3330 |
| 25 | 505 | 4190 | 1180 | 2200 | 392 | 168 | 207 | 98 | 252 | 604 | 1090 | 3580 |
| 26 | 473 | 3810 | 1270 | 2270 | 374 | 316 | 162 | 90 | 208 | 512 | 942 | 3530 |
| 27 | 453 | 3440 | 1530 | 2290 | 366 | 389 | 124 | 95 | 158 | 742 | 866 | 3380 |
| 28 | 448 | 3120 | 1900 | 2280 | 335 | 360 | 123 | 104 | 145 | 620 | 806 | 3230 |
| 29 | 551 | — | 2490 | 2180 | 342 | 290 | 120 | 114 | 127 | 516 | 1140 | 3040 |
| 30 | 638 | — | 2950 | 2010 | 303 | 242 | 115 | 116 | 121 | 596 | 1450 | 2840 |
| 31 | 613 | — | 2990 | — | 276 | — | 120 | 132 | — | 903 | — | 2620 |
| TOTAL | 24188 | 71431 | 87140 | 51284 | 24953 | 6336 | 4621 | 3571 | 3791 | 10168 | 19553 | 67438 |
| MEAN | 780.3 | 2551.1 | 2811.0 | 1709.5 | 804.9 | 211.2 | 149.1 | 115.2 | 126.4 | 328.0 | 651.8 | 2175.4 |
| MAX | 1960 | 5870 | 4580 | 3080 | 1720 | 389 | 257 | 141 | 252 | 1060 | 1450 | 3580 |
| MIN | 0 | 344 | 1180 | 666 | 276 | 151 | 115 | 90 | 97 | 100 | 221 | 908 |
| AC-FT | 47980 | 141700 | 172860 | 101730 | 49500 | 12570 | 9170 | 7080 | 7520 | 20170 | 38790 | 133780 |

† Provisional data–subject to revision

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

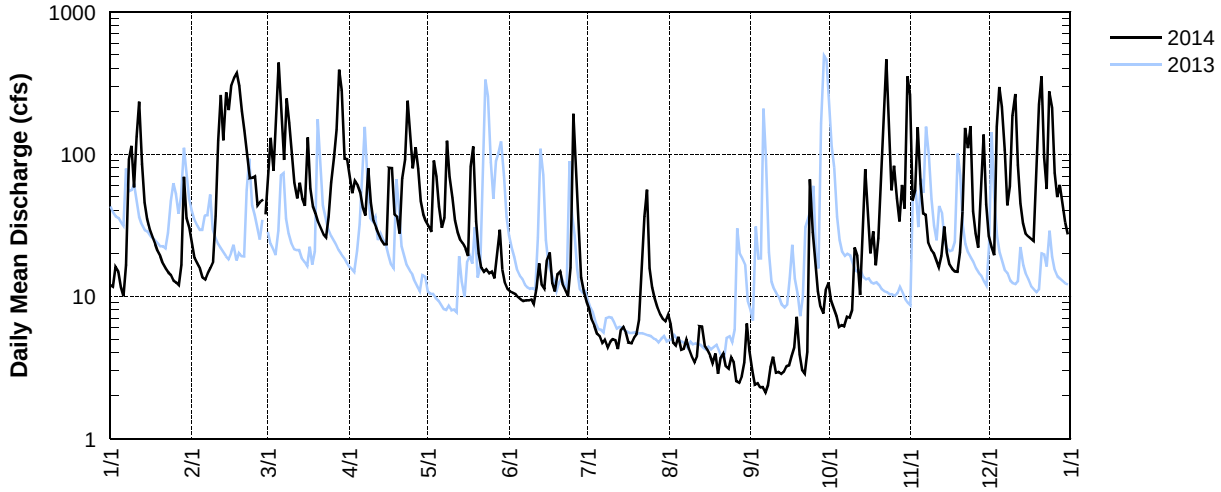


## BVTS – 14206435 – BEAVERTON CREEK AT NE GUSTON COURT NEAR ORENCO, OREGON [RM 1.2]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| **1** | 12 | 24 | 38 | 92 | 33 | 11 | 9.2 | 7.5 | 4.1 | 13 | 262 | 27 |
| **2** | 12 | 18 | 66 | 70 | 31 | 11 | 8.2 | 6.3 | 3.0 | 9.3 | 47 | 22 |
| **3** | 16 | 17 | 130 | 53 | 28 | 11 | 6.8 | 4.7 | 2.4 | 8.3 | 56 | 19 |
| **4** | 15 | 16 | 76 | 65 | 90 | 10 | 6.3 | 4.5 | 2.4 | 7.3 | 154 | 156 |
| **5** | 12 | 13 | 170 | 60 | 70 | 9.9 | 5.4 | 5.2 | 2.3 | 6.1 | 62 | 296 |
| **6** | 10 | 13 | 439 | 53 | 43 | 9.5 | 5.3 | 4.2 | 2.3 | 6.3 | 38 | 215 |
| **7** | 17 | 15 | 190 | 42 | 30 | 9.3 | 4.7 | 4.3 | 2.1 | 6.2 | 38 | 107 |
| **8** | 92 | 16 | 91 | 37 | 36 | 9.4 | 5.0 | 4.9 | 2.4 | 7.2 | 24 | 44 |
| **9** | 114 | 18 | 246 | 80 | 124 | 9.3 | 4.4 | 4.3 | 3.2 | 7.1 | 21 | 60 |
| **10** | 58 | 37 | 166 | 46 | 69 | 9.5 | 4.8 | 3.7 | 3.7 | 8.0 | 20 | 187 |
| **11** | 132 | 124 | 97 | 34 | 49 | 8.8 | 5.0 | 3.4 | 2.9 | 22 | 18 | 265 |
| **12** | 233 | 259 | 63 | 31 | 34 | 12 | 4.9 | 3.8 | 2.9 | 19 | 16 | 84 |
| **13** | 86 | 125 | 49 | 27 | 28 | 17 | 4.2 | 6.2 | 2.8 | 10 | 19 | 45 |
| **14** | 46 | 271 | 63 | 25 | 25 | 12 | 5.8 | 6.1 | 2.9 | 26 | 31 | 33 |
| **15** | 35 | 204 | 49 | 23 | 24 | 11 | 6.1 | 4.4 | 3.2 | 78 | 20 | 28 |
| **16** | 30 | 308 | 43 | 23 | 22 | 18 | 5.5 | 4.2 | 3.3 | 40 | 17 | 26 |
| **17** | 26 | 342 | 131 | 80 | 19 | 20 | 4.7 | 3.8 | 3.8 | 20 | 16 | 25 |
| **18** | 23 | 372 | 57 | 79 | 82 | 12 | 4.7 | 3.4 | 4.3 | 29 | 15 | 24 |
| **19** | 21 | 301 | 43 | 38 | 113 | 11 | 5.1 | 3.9 | 7.2 | 16 | 15 | 81 |
| **20** | 19 | 201 | 38 | 36 | 34 | 14 | 5.4 | 2.8 | 3.9 | 26 | 20 | 224 |
| **21** | 17 | 146 | 33 | 28 | 20 | 15 | 6.8 | 3.7 | 3.0 | 50 | 39 | 352 |
| **22** | 16 | 100 | 30 | 67 | 16 | 12 | 14 | 3.9 | 2.9 | 133 | 153 | 95 |
| **23** | 15 | 68 | 27 | 92 | 15 | 11 | 37 | 3.2 | 4.1 | 463 | 110 | 57 |
| **24** | 14 | 68 | 26 | 237 | 15 | 10 | 56 | 3.1 | 66 | 131 | 157 | 276 |
| **25** | 13 | 70 | 36 | 141 | 14 | 16 | 16 | 3.7 | 28 | 56 | 40 | 212 |
| **26** | 12 | 44 | 63 | 80 | 15 | 192 | 12 | 3.4 | 17 | 83 | 28 | 74 |
| **27** | 12 | 47 | 95 | 112 | 13 | 90 | 9.7 | 2.5 | 11 | 49 | 22 | 50 |
| **28** | 17 | 48 | 149 | 79 | 19 | 33 | 8.3 | 2.5 | 8.4 | 34 | 62 | 61 |
| **29** | 69 | — | 392 | 47 | 29 | 14 | 7.4 | 2.7 | 7.6 | 61 | 137 | 44 |
| **30** | 35 | — | 281 | 38 | 15 | 11 | 6.9 | 3.4 | 11 | 41 | 44 | 33 |
| **31** | 30 | — | 93 | — | 12 | — | 6.7 | 6.4 | — | 351 | — | 27 |
| TOTAL | 1259 | 3285 | 3470 | 1915 | 1167 | 639.7 | 292.3 | 130.1 | 224.1 | 1816.8 | 1701 | 3249 |
| MEAN | 40.5 | 117.3 | 111.9 | 63.8 | 37.7 | 21.3 | 9.4 | 4.2 | 7.5 | 58.6 | 56.6 | 104.8 |
| MAX | 233 | 372 | 439 | 237 | 124 | 192 | 56 | 7.5 | 66 | 463 | 262 | 352 |
| MIN | 10 | 13 | 26 | 23 | 12 | 8.8 | 4.2 | 2.5 | 2.1 | 6.1 | 15 | 19 |
| AC-FT | 2497 | 6516 | 6883 | 3798 | 2315 | 1269 | 580 | 258 | 444 | 3604 | 3374 | 6444 |

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



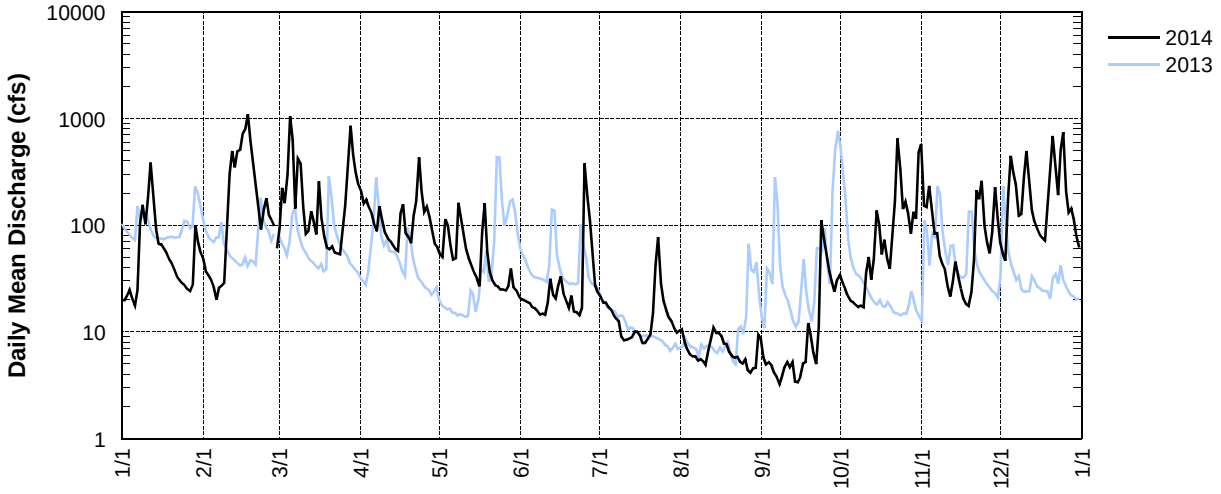
## RCTV – 14206451** – ROCK CREEK AT HWY 8 NEAR HILLSBORO, OREGON [RM 1.2]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 20 | 48 | 61 | 240 | e63 | 22 | 24 | 10 | 8.5 | 34 | 573 | 69 |
| 2 | 20 | 36 | 93 | 207 | 54 | 20 | 21 | 11 | 5.8 | 29 | 152 | 55 |
| 3 | 22 | 34 | 225 | 160 | 51 | 20 | 19 | 8.0 | 4.9 | 25 | 148 | 46 |
| 4 | 25 | 30 | 161 | 174 | 114 | 19 | 19 | 6.8 | 5.2 | 22 | 234 | 189 |
| 5 | 20 | 26 | 299 | 147 | 100 | 19 | 17 | 6.2 | 4.9 | 20 | 149 | 447 |
| 6 | 18 | 20 | 1050 | 128 | 65 | 17 | 16 | 5.9 | 4.1 | 19 | 83 | 310 |
| 7 | 25 | 26 | 631 | 101 | 48 | 17 | 14 | 5.9 | 3.8 | 18 | 84 | 239 |
| 8 | 104 | 27 | 143 | 88 | 49 | 16 | 13 | 5.4 | 3.2 | 17 | 52 | 123 |
| 9 | 156 | 29 | 417 | 150 | 162 | 14 | 13 | 5.5 | 3.8 | 18 | 43 | 127 |
| 10 | 102 | e76 | 374 | 113 | 117 | 15 | 9.0 | 5.3 | 4.7 | 17 | 38 | 279 |
| 11 | 183 | e305 | 148 | 85 | 83 | 14 | 8.3 | 4.9 | 5.2 | 36 | 27 | 496 |
| 12 | 388 | e497 | 83 | 76 | 60 | 19 | 8.4 | e6.7 | 4.7 | 50 | 21e | 255 |
| 13 | 190 | 348 | 88 | 72 | 48 | 32 | 8.7 | e8.5 | 5.2 | 31 | 30e | 137 |
| 14 | 93 | 494 | 135 | 66 | 41 | 22 | 8.9 | e11 | 3.4 | 48 | 45e | 108 |
| 15 | 67 | 512 | 107 | 60 | 36 | 20 | 10 | 9.7 | 3.4 | 137 | 33 | 94 |
| 16 | 66 | 726 | 82 | 57 | 32 | 27 | 10 | 9.7 | 3.8 | 101 | 25 | 82 |
| 17 | 60 | 797 | 258 | 128 | 27 | 33 | 9.3 | 9.1 | 5.0 | 53 | 20 | 76 |
| 18 | 55 | 1100 | 116 | 157 | 85 | 22 | 7.8 | 7.7 | 5.2 | 73 | 18 | 72 |
| 19 | 48 | e619 | 78 | 84 | 161 | 19 | 7.9 | 7.7 | 12 | 48 | 17 | 145 |
| 20 | 44 | e377 | 62 | 77 | 57 | 17 | 8.7 | 6.5 | 9.2 | 39 | 23 | 300 |
| 21 | 38 | e232 | 59 | 68 | 36 | 22 | 9.5 | 5.9 | 6.4 | 82 | 47 | 689 |
| 22 | 33 | e149 | 64 | 123 | 30 | 15 | 15 | 5.7 | 5.0 | 167 | 212 | 340 |
| 23 | 30 | 91 | 55 | 168 | 27 | 15 | 42 | 5.9 | 11e | 649 | 175 | 191 |
| 24 | 28 | 141 | 54 | 432 | 27 | 14 | 78 | 5.3 | 112e | 333 | 262 | 506 |
| 25 | 27 | 179 | e53 | e207 | 25 | 17 | 28 | 5.1 | 76 | 142 | 99 | 746e |
| 26 | 25 | 123 | e88 | e134 | 25 | e378 | 20 | 5.5 | 52 | 166 | 69 | 206e |
| 27 | 24 | 111 | e151 | e149 | 24 | e186 | 16 | 4.4 | 37 | 130 | 55 | 132 |
| 28 | 28 | 98 | e405 | e121 | 27 | e111 | 14 | 4.1 | 29 | 84 | 87 | 143 |
| 29 | 100 | — | e854 | e88 | 39 | e53 | 12 | 4.5 | 24 | 134 | 227 | 113 |
| 30 | 70 | — | e458 | e67 | 26 | 27 | 11 | 4.6 | 31 | 115 | 118 | 79 |
| 31 | 55 | — | 311 | — | 24 | — | 9.8 | 9.4 | — | 478 | — | 62 |
| TOTAL | 2164 | 7251 | 7163 | 3927 | 1763 | 1242 | 508.3 | 211.9 | 489.4 | 3315 | 3166 | 6856 |
| MEAN | 69.8 | 259.0 | 231.2 | 130.9 | 56.8 | 41.5 | 16.4 | 6.8 | 16.3 | 107.0 | 105.6 | 221.0 |
| MAX | 388 | 1100 | 1050 | 432 | 162 | 378 | 78 | 11 | 112 | 649 | 573 | 746 |
| MIN | 18 | 20 | 53 | 57 | 24 | 14 | 7.8 | 4.1 | 3.2 | 17 | 17 | 46 |
| AC-FT | 4292 | 14380 | 14210 | 7789 | 3497 | 2463 | 1008 | 420 | 971 | 6575 | 6280 | 13600 |

**Site moved 120 feet downstream in 2012, previous ID was 14205450; e=estimated value

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



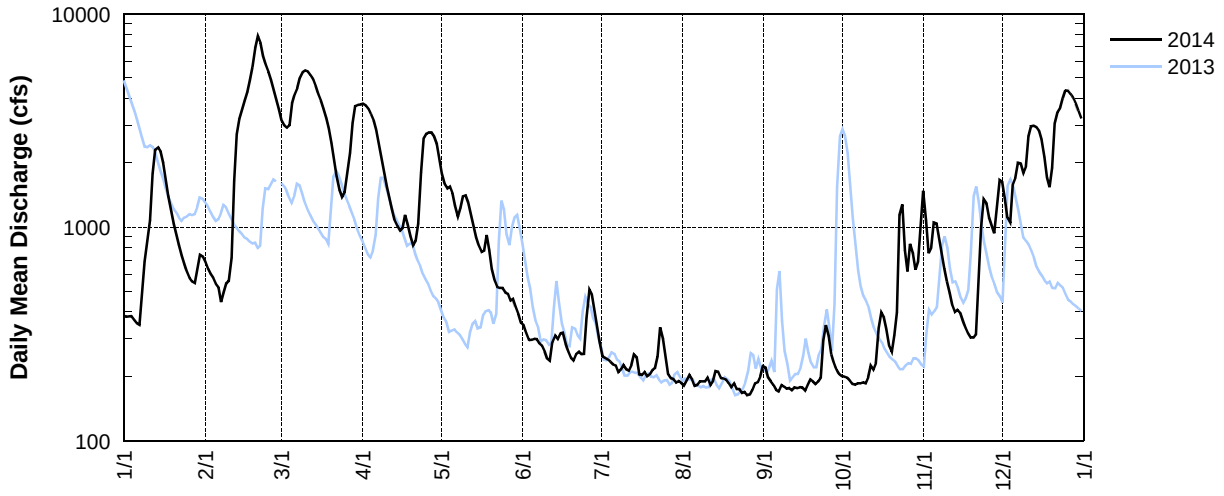
## FRMO – 14206500 – TUALATIN RIVER AT FARMINGTON, OREGON [RM 33.3]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second[†] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| **1** | 386 | 685 | 3550 | 3760 | 2100 | 356 | 289 | 186 | 223 | 200 | 1480 | 1630 |
| **2** | 380 | 639 | 3160 | 3790 | 1780 | 347 | 248 | 181 | 220 | 199 | 1080 | 1370 |
| **3** | 382 | 604 | 3000 | 3730 | 1590 | 320 | 244 | 192 | 198 | 197 | 757 | 1110 |
| **4** | 383 | 579 | 2930 | 3600 | 1520 | 295 | 240 | 203 | 189 | 192 | 801 | 1050 |
| **5** | 367 | 545 | 3010 | 3400 | 1550 | 296 | 234 | 194 | 182 | 184 | 1050 | 1590 |
| **6** | 355 | 522 | 3820 | 3160 | 1440 | 300 | 227 | 180 | 173 | 183 | 1040 | 1710 |
| **7** | 349 | 446 | 4210 | 2850 | 1260 | 298 | 225 | 182 | 170 | 185 | 893 | 2000 |
| **8** | 479 | 494 | 4500 | 2460 | 1120 | 285 | 209 | 189 | 182 | 185 | 761 | 1990 |
| **9** | 690 | 544 | 5010 | 2110 | 1230 | 278 | 215 | 189 | 179 | 187 | 641 | 1800 |
| **10** | 885 | 559 | 5340 | 1820 | 1400 | 262 | 226 | 189 | 175 | 185 | 557 | 1930 |
| **11** | 1080 | 719 | 5440 | 1550 | 1410 | 242 | 216 | 197 | 176 | 198 | 490 | 2670 |
| **12** | 1780 | 1650 | 5370 | 1370 | 1310 | 236 | 213 | 182 | 172 | 224 | 430 | 2970 |
| **13** | 2310 | 2730 | 5180 | 1210 | 1140 | 289 | 226 | 190 | 177 | 215 | 400 | 2990 |
| **14** | 2360 | 3210 | 4910 | 1080 | 1010 | 311 | 253 | 211 | 176 | 230 | 410 | 2950 |
| **15** | 2260 | 3560 | 4570 | 1010 | 896 | 300 | 245 | 210 | 178 | 337 | 396 | 2840 |
| **16** | 2000 | 3920 | 4190 | 963 | 821 | 318 | 204 | 196 | 177 | 397 | 365 | 2580 |
| **17** | 1660 | 4290 | 3910 | 988 | 766 | 320 | 203 | 195 | 172 | 378 | 338 | 2130 |
| **18** | 1400 | 4880 | 3590 | 1140 | 778 | 283 | 209 | 193 | 183 | 332 | 318 | 1710 |
| **19** | 1190 | 5620 | 3240 | 1030 | 920 | 261 | 200 | 186 | 193 | 277 | 304 | 1540 |
| **20** | 1040 | 6950 | 2890 | 904 | 783 | 244 | 205 | 178 | 189 | 260 | 304 | 1900 |
| **21** | 926 | 7870 | 2480 | 824 | 635 | 238 | 214 | 185 | 184 | 312 | 314 | 3060 |
| **22** | 826 | 7310 | 2060 | 864 | 561 | 254 | 219 | 174 | 189 | 399 | 562 | 3470 |
| **23** | 734 | 6350 | 1730 | 1040 | 525 | 261 | 248 | 174 | 197 | 1140 | 997 | 3630 |
| **24** | 673 | 5740 | 1500 | 1810 | 519 | 254 | 339 | 167 | 295 | 1280 | 1350 | 4020 |
| **25** | 618 | 5340 | 1390 | 2610 | 518 | 255 | 300 | 169 | 348 | 781 | 1290 | 4370 |
| **26** | 580 | 4900 | 1460 | 2740 | 495 | 376 | 248 | 163 | 308 | 621 | 1110 | 4360 |
| **27** | 557 | 4430 | 1760 | 2780 | 487 | 508 | 204 | 164 | 253 | 835 | 1020 | 4210 |
| **28** | 549 | 3980 | 2230 | 2780 | 454 | 480 | 196 | 173 | 230 | 753 | 936 | 4020 |
| **29** | 636 | — | 3080 | 2660 | 462 | 411 | 194 | 185 | 214 | 631 | 1260 | 3790 |
| **30** | 742 | — | 3700 | 2460 | 425 | 348 | 187 | 188 | 205 | 689 | 1660 | 3520 |
| **31** | 731 | — | 3740 | — | 391 | — | 190 | 200 | — | 1030 | — | 3240 |
| TOTAL | 29308 | 89066 | 106950 | 62493 | 30296 | 9226 | 7070 | 5765 | 6107 | 13216 | 23314 | 82150 |
| MEAN | 945.4 | 3180.9 | 3450.0 | 2083.1 | 977.3 | 307.5 | 228.1 | 186.0 | 203.6 | 426.3 | 777.1 | 2650.0 |
| MAX | 2360 | 7870 | 5440 | 3790 | 2100 | 508 | 339 | 211 | 348 | 1280 | 1660 | 4370 |
| MIN | 0 | 446 | 1390 | 824 | 391 | 236 | 187 | 163 | 170 | 183 | 304 | 1050 |
| AC-FT | 58140 | 176680 | 212160 | 123970 | 60100 | 18300 | 14020 | 11440 | 12110 | 26220 | 46250 | 162960 |

[†] Provisional data–subject to revision

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

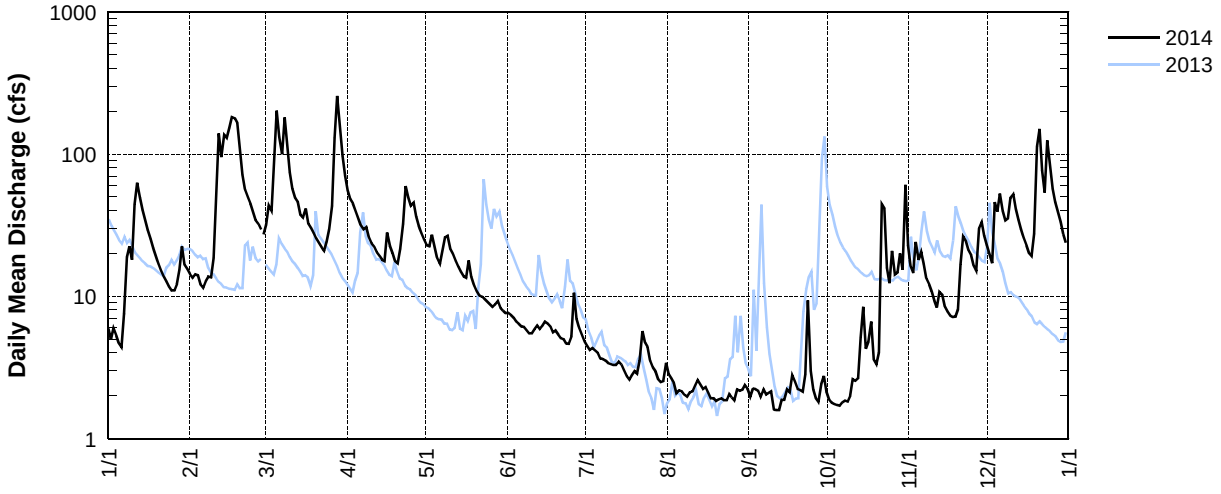


## CCSR – 14206750 – CHICKEN CREEK AT ROY ROGERS ROAD NEAR SHERWOOD, OREGON [RM 2.3]

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

| Day | 2014 Daily Mean Discharge in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 5.9 | 14 | 27 | 70 | 25 | 7.6 | 4.8 | 3.4 | 2.2 | 2.1 | 23 | 23 |
| 2 | 5.0 | 14 | 32 | 55 | 23 | 7.6 | 4.5 | 2.8 | 2.0 | 1.9 | 16 | 20 |
| 3 | 6.0 | 14 | 43 | 48 | 22 | 7.4 | 4.2 | 2.6 | 2.2 | 1.8 | 15 | 17 |
| 4 | 5.3 | 14 | 40 | 45 | 27 | 7.1 | 4.3 | 2.5 | 2.2 | 1.8 | 24 | 46 |
| 5 | 4.6 | 12 | 100 | 39 | 23 | 6.7 | 4.1 | 2.1 | 2.2 | 1.7 | 18 | 39 |
| 6 | 4.4 | 11 | 202 | 35 | 19 | 6.4 | 4.0 | 2.2 | 2.0 | 1.7 | 21 | 53 |
| 7 | 7.6 | 13 | 132 | 31 | 17 | 6.1 | 3.7 | 2.2 | 2.2 | 1.8 | 17 | 40 |
| 8 | 19 | 14 | 100 | 30 | 21 | 6.1 | 3.6 | 2.0 | 2.0 | 1.8 | 13 | 34 |
| 9 | 22 | 14 | 181 | 31 | 26 | 5.8 | 3.5 | 2.0 | 2.1 | 1.8 | 12 | 35 |
| 10 | 18 | 19 | 118 | 26 | 27 | 5.5 | 3.4 | 2.1 | 2.2 | 2.0 | 11 | 49 |
| 11 | 44 | 59 | 74 | 24 | 21 | 5.5 | 3.3 | 2.1 | 1.6 | 2.6 | 9.4 | 52 |
| 12 | 63 | 140 | 57 | 22 | 20 | 5.9 | 3.3 | 2.4 | 1.6 | 2.5 | 8.3 | 41 |
| 13 | 49 | 95 | 49 | 21 | 18 | 6.3 | 3.3 | 2.6 | 1.6 | 2.7 | 11 | 34 |
| 14 | 40 | 137 | 46 | 19 | 16 | 5.9 | 3.5 | 2.4 | 1.9 | 5.2 | 10 | 30 |
| 15 | 34 | 130 | 38 | 18 | 15 | 6.2 | 3.3 | 2.2 | 1.9 | 8.4 | 8.5 | 26 |
| 16 | 29 | 153 | 36 | 18 | 14 | 6.6 | 3.0 | 2.3 | 2.2 | 4.3 | 7.8 | 23 |
| 17 | 25 | 182 | 41 | 28 | 13 | 6.4 | 2.8 | 2.1 | 2.1 | 4.8 | 7.3 | 20 |
| 18 | 22 | 178 | 32 | 23 | 18 | 6.1 | 2.6 | 1.9 | 2.8 | 6.6 | 7.1 | 19 |
| 19 | 19 | 165 | 30 | 20 | 14 | 5.6 | 2.8 | 1.9 | 2.5 | 3.6 | 7.2 | 27 |
| 20 | 17 | 108 | 28 | 18 | 12 | 5.8 | 3.0 | 1.8 | 2.2 | 3.3 | 8.1 | 113 |
| 21 | 15 | 72 | 26 | 17 | 11 | 5.4 | 2.9 | 1.9 | 2.2 | 4.0 | 17 | 150 |
| 22 | 14 | 56 | 24 | 22 | 10 | 5.1 | 3.5 | 1.9 | 2.1 | 44 | 26 | 77 |
| 23 | 13 | 50 | 22 | 32 | 10.0 | 5.0 | 5.7 | 1.9 | 2.8 | 41 | 24 | 54 |
| 24 | 12 | 45 | 21 | 59 | 9.6 | 4.7 | 4.7 | 1.9 | 9.4 | 16 | 21 | 125 |
| 25 | 11 | 39 | 24 | 50 | 9.2 | 4.6 | 4.4 | 2.1 | 3.0 | 12 | 19 | 81 |
| 26 | 11 | 34 | 30 | 43 | 8.8 | 5.2 | 3.5 | 1.9 | 2.2 | 21 | 16 | 57 |
| 27 | 12 | 32 | 43 | 46 | 8.4 | 11 | 3.2 | 1.9 | 1.9 | 14 | 15 | 46 |
| 28 | 15 | 30 | 130 | 36 | 8.7 | 6.9 | 3.0 | 2.2 | 1.8 | 15 | 30 | 40 |
| 29 | 22 | — | 257 | 31 | 9.3 | 6.0 | 2.6 | 2.2 | 2.4 | 20 | 33 | 33 |
| 30 | 17 | — | 164 | 28 | 8.3 | 5.3 | 2.5 | 2.2 | 2.8 | 15 | 27 | 27 |
| 31 | 15 | — | 97 | — | 7.9 | — | 2.5 | 2.4 | — | 61 | — | 24 |
| TOTAL | 596.8 | 1844 | 2244 | 985 | 492.2 | 185.8 | 109.5 | 68.1 | 72.3 | 325.4 | 482.7 | 1455 |
| MEAN | 19.3 | 65.8 | 72.3 | 32.8 | 15.8 | 6.2 | 3.5 | 2.2 | 2.4 | 10.5 | 16.1 | 46.9 |
| MAX | 63 | 182 | 257 | 70 | 27 | 11 | 5.7 | 3.4 | 9.4 | 61 | 33 | 150 |
| MIN | 4.4 | 11 | 21 | 17 | 7.9 | 4.6 | 2.5 | 1.8 | 1.6 | 1.7 | 7.1 | 17 |
| AC-FT | 1184 | 3658 | 4451 | 1954 | 976 | 369 | 217 | 135 | 143 | 645 | 957 | 2886 |

**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**

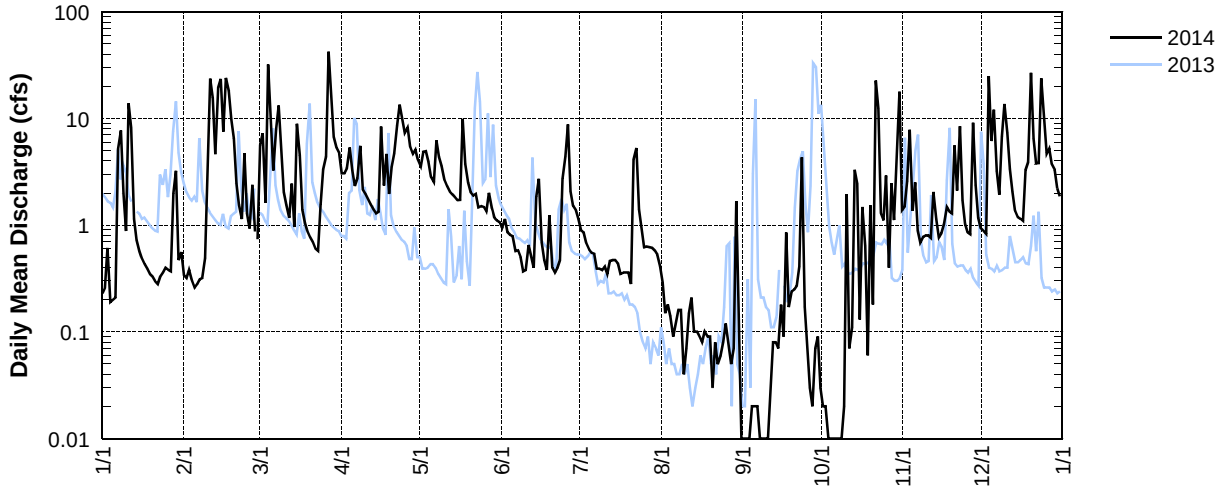
LATITUDE: 452917 LONGITUDE: 1224401 DRAINAGE AREA: 2.37

**Discharge, Cubic Feet per Second, Calendar Year January to December 2014 Daily Mean Values**

| Day | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT† | NOV† | DEC† |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 0.22 | 0.34 | 0.74 | 4.7 | 4.1 | 1.1 | 1.1 | 0.41 | 0.01 | 0.03 | 1.4 | 0.93 |
| **2** | 0.25 | 0.32 | 5.6 | 3.1 | 3.5 | 0.94 | 0.89 | 0.29 | 0.01 | 0.02 | 1.5 | 0.88 |
| **3** | 0.61 | 0.37 | 7.3 | 3.0 | 4.8 | 1.1 | 0.85 | 0.15 | 0.01 | 0.02 | 2.6 | 0.83 |
| **4** | 0.19 | 0.30 | 1.6 | 3.4 | 5.0 | 0.86 | 0.68 | 0.18 | 0.01 | 0.02 | 7.9 | 25 |
| **5** | 0.20 | 0.26 | 32 | 5.4 | 3.9 | 0.81 | 0.59 | 0.14 | 0.02 | 0.01 | 1.4 | 6.2 |
| **6** | 0.21 | 0.28 | 12 | 3.3 | 2.8 | 0.79 | 0.55 | 0.08 | 0.02 | 0.01 | 2.5 | 12 |
| **7** | 5.1 | 0.31 | 3.3 | 2.3 | 2.5 | 0.57 | 0.54 | 0.12 | 0.02 | 0.01 | 0.89 | 3.3 |
| **8** | 7.8 | 0.32 | 7.8 | 2.6 | 6.2 | 0.58 | 0.38 | 0.16 | 0.01 | 0.01 | 0.69 | 1.9 |
| **9** | 2.0 | 0.49 | 14 | 5.7 | 4.4 | 0.50 | 0.38 | 0.16 | 0.01 | 0.01 | 0.78 | 6.7 |
| **10** | 0.89 | 2.4 | 4.6 | 2.1 | 3.6 | 0.37 | 0.38 | 0.04 | 0.01 | 0.02 | 0.80 | 14 |
| **11** | 14 | 23 | 2.0 | 1.9 | 2.6 | 0.38 | 0.41 | 0.07 | 0.01 | 1.9 | 0.80 | 7.4 |
| **12** | 8.4 | 16 | 1.6 | 1.8 | 2.3 | 0.65 | 0.35 | 0.14 | 0.03 | 0.06 | 0.76 | 3.4 |
| **13** | 1.2 | 4.6 | 1.2 | 1.6 | 2.1 | 0.51 | 0.46 | 0.21 | 0.07 | 0.08 | 2.0 | 2.1 |
| **14** | 0.72 | 20 | 2.5 | 1.4 | 1.9 | 0.39 | 0.47 | 0.10 | 0.08 | 3.3 | 1.1 | 1.4 |
| **15** | 0.58 | 23 | 0.96 | 1.3 | 1.9 | 1.8 | 0.47 | 0.10 | 0.06 | 2.5 | 0.77 | 1.2 |
| **16** | 0.49 | 7.6 | 8.7 | 1.3 | 1.7 | 2.7 | 0.44 | 0.09 | 0.18 | 0.13 | 0.84 | 1.2 |
| **17** | 0.43 | 24 | 4.7 | 8.4 | 1.7 | 0.69 | 0.35 | 0.08 | 0.09 | 1.5 | 1.0 | 1.1 |
| **18** | 0.38 | 18 | 1.4 | 2.4 | 9.9 | 0.47 | 0.35 | 0.10 | 0.85 | 0.66 | 1.5 | 3.2 |
| **19** | 0.35 | 9.9 | 1.1 | 4.7 | 3.8 | 0.38 | 0.36 | 0.09 | 0.17 | 0.06 | 1.3 | 4.0 |
| **20** | 0.32 | 6.5 | 0.87 | 2.0 | 2.5 | 1.2 | 0.36 | 0.09 | 0.24 | 1.5 | 1.3 | 27 |
| **21** | 0.30 | 2.5 | 0.77 | 3.5 | 2.0 | 0.39 | 0.28 | 0.03 | 0.25 | 0.18 | 5.6 | 6.6 |
| **22** | 0.28 | 1.5 | 0.69 | 4.7 | 1.9 | 0.35 | 4.1 | 0.08 | 0.27 | 23 | 2.1 | 3.8 |
| **23** | 0.33 | 1.1 | 0.60 | 8.6 | 2.0 | 0.40 | 5.3 | 0.05 | 0.40 | 12 | 8.5 | 3.6 |
| **24** | 0.35 | 4.7 | 0.57 | 14 | 1.5 | 0.47 | 1.4 | 0.06 | 4.3 | 1.3 | 1.7 | 24 |
| **25** | 0.39 | 1.3 | 1.6 | 10 | 1.5 | 2.7 | 0.92 | 0.08 | 0.17 | 1.1 | 1.0 | 9.3 |
| **26** | 0.37 | 0.93 | 3.3 | 7.3 | 1.5 | 4.4 | 0.62 | 0.12 | 0.07 | 2.9 | 0.85 | 4.7 |
| **27** | 0.37 | 2.4 | 4.4 | 8.3 | 1.4 | 8.8 | 0.63 | 0.08 | 0.02 | 0.40 | 0.82 | 5.2 |
| **28** | 2.0 | 0.87 | 42 | 5.4 | 2.0 | 2.1 | 0.62 | 0.05 | 0.02 | 2.5 | 9.1 | 3.7 |
| **29** | 3.2 | — | 17 | 4.7 | 1.5 | 1.5 | 0.61 | 0.06 | 0.07 | 1.1 | 2.4 | 3.3 |
| **30** | 0.47 | — | 6.8 | 5.1 | 1.2 | 1.4 | 0.58 | 1.7 | 0.09 | 4.6 | 1.2 | 2.2 |
| **31** | 0.56 | — | 5.3 | — | 1.1 | — | 0.53 | 0.06 | — | 18 | — | 1.9 |
| TOTAL | 52.96 | 173.29 | 197.00 | 134.0 | 88.8 | 39.30 | 25.95 | 5.17 | 7.57 | 78.93 | 65.10 | 192.04 |
| MEAN | 1.71 | 6.19 | 6.35 | 4.47 | 2.86 | 1.31 | 0.84 | 0.17 | 0.25 | 2.55 | 2.17 | 6.19 |
| MAX | 14 | 24 | 42 | 14 | 9.9 | 8.8 | 5.3 | 1.7 | 4.3 | 23 | 9.1 | 27 |
| MIN | 0.19 | 0.26 | 0.57 | 1.3 | 1.1 | 0.35 | 0.28 | 0.03 | 0.01 | 0.01 | 0.69 | 0.83 |
| AC-FT | 105 | 344 | 391 | 266 | 176 | 78 | 51 | 10 | 15 | 157 | 129 | 381 |

†Provisional data (10/30–12/31)–subject to revision

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



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

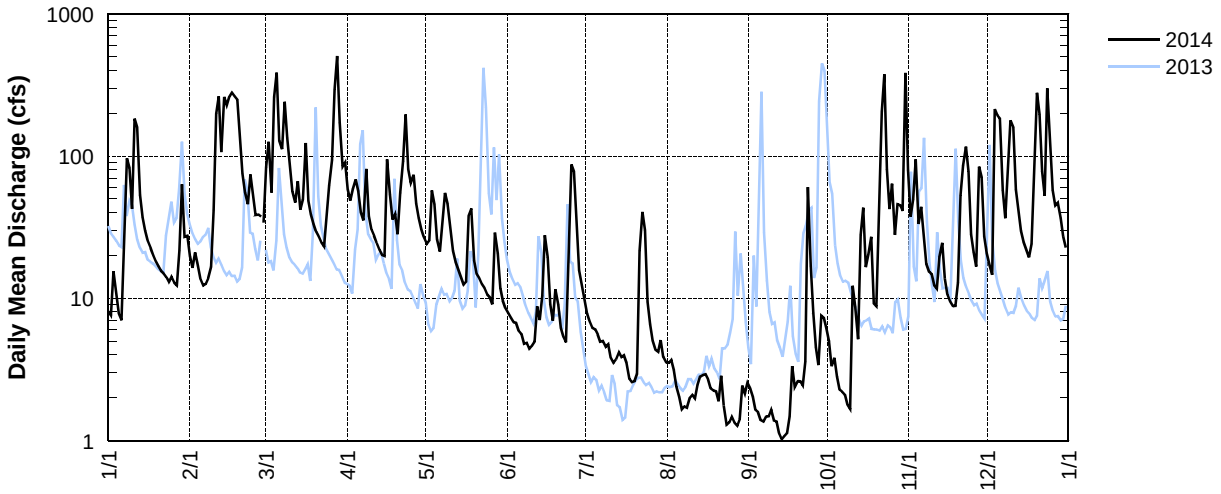
**STATION NUMBER 14206950 FANNO CREEK AT DURHAM**

LATITUDE: 452413 LONGITUDE: 1224513 DRAINAGE AREA: 31.50

| Day | Discharge, Cubic Feet per Second, Calendar Year January to December 2014 Daily Mean Values | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT† | NOV† | DEC† |
| **1** | 8.1 | 20 | 34 | 91 | 27 | 8.5 | 9.9 | 3.5 | 2.5 | 6.1 | 84 | 21 |
| **2** | 7.6 | 16 | 82 | 59 | 24 | 7.9 | 7.9 | 3.5 | 2.3 | 5.0 | 37 | 17 |
| **3** | 15 | 21 | 127 | 48 | 25 | 7.3 | 6.9 | 3.7 | 2.0 | 3.3 | 50 | 15 |
| **4** | 11 | 17 | 56 | 59 | 58 | 6.8 | 6.2 | 3.2 | 1.6 | 3.8 | 95 | 205 |
| **5** | 7.8 | 14 | 251 | 68 | 47 | 6.7 | 6.0 | 2.4 | 1.6 | 2.8 | 34 | 201 |
| **6** | 7.0 | 12 | 392 | 57 | 26 | 6.0 | 5.6 | 2.0 | 1.4 | 2.3 | 43 | 184 |
| **7** | 28 | 13 | 131 | 40 | 21 | 5.6 | 4.9 | 1.7 | 1.4 | 2.2 | 28 | 58 |
| **8** | 95 | 14 | 108 | 35 | 34 | 4.8 | 5.0 | 1.7 | 1.5 | 2.1 | 18 | 37 |
| **9** | 84 | 17 | 244 | 81 | 55 | 4.9 | 4.5 | 1.7 | 1.5 | 1.8 | 15 | 73 |
| **10** | 43 | 40 | 134 | 38 | 46 | 4.4 | 4.7 | 2.0 | 1.7 | 1.7 | 15 | 175 |
| **11** | 178 | 194 | 87 | 31 | 31 | 4.6 | 3.8 | 2.1 | 1.4 | 12 | 12 | 164 |
| **12** | 162 | 267 | 57 | 28 | 22 | 4.8 | 3.5 | 2.0 | 1.4 | 8.9 | 12 | 59 |
| **13** | 54 | 108 | 47 | 25 | 18 | 8.8 | 3.7 | 2.4 | 1.1 | 5.0 | 19 | 42 |
| **14** | 37 | 260 | 67 | 22 | 16 | 7.0 | 4.2 | 2.8 | 1.0 | 28 | 25 | 30 |
| **15** | 30 | 221 | 42 | 20 | 14 | 11 | 3.9 | 2.9 | 1.1 | 43 | 14 | 25 |
| **28** | 25 | 269 | 47 | 20 | 13 | 27 | 4.0 | 2.9 | 1.1 | 17 | 11 | 22 |
| **17** | 23 | 277 | 125 | 93 | 13 | 20 | 3.5 | 2.7 | 1.5 | 20 | 9.5 | 19 |
| **18** | 20 | 262 | 49 | 55 | 37 | 9.1 | 2.7 | 2.3 | 3.3 | 28 | 8.8 | 23 |
| **19** | 18 | 253 | 39 | 35 | 44 | 7.0 | 2.6 | 2.3 | 2.4 | 9.4 | 8.8 | 74 |
| **20** | 17 | 143 | 33 | 40 | 19 | 11 | 2.6 | 2.2 | 2.6 | 7.9 | 13 | 271 |
| **21** | 16 | 76 | 29 | 28 | 15 | 9.1 | 2.9 | 1.9 | 2.6 | 27 | 50 | 204 |
| **22** | 15 | 56 | 27 | 55 | 14 | 6.2 | 21 | 2.8 | 2.4 | 196 | 89 | 79 |
| **23** | 14 | 46 | 25 | 90 | 13 | 5.3 | 40 | 1.8 | 3.3 | 381 | 112 | 53 |
| **24** | 13 | 73 | 23 | 198 | 12 | 4.9 | 31 | 1.3 | 61 | 85 | 82 | 297 |
| **25** | 14 | 53 | 37 | 82 | 11 | 13 | 9.5 | 1.3 | 17 | 43 | 28 | 123 |
| **26** | 13 | 39 | 62 | 65 | 10 | 88 | 6.7 | 1.5 | 8.0 | 64 | 21 | 58 |
| **27** | 12 | 38 | 94 | 74 | 9.0 | 77 | 5.0 | 1.3 | 4.6 | 29 | 17 | 45 |
| **28** | 21 | 38 | 278 | 47 | 29 | 34 | 4.3 | 1.3 | 3.4 | 45 | 81 | 48 |
| **29** | 64 | — | 517 | 37 | 21 | 16 | 4.2 | 1.4 | 7.3 | 46 | 73 | 37 |
| **30** | 27 | — | 177 | 31 | 12 | 12 | 5.1 | 2.4 | 7.4 | 39 | 28 | 27 |
| **31** | 28 | — | 85 | — | 9.6 | — | 3.9 | 2.2 | — | 383 | — | 23 |
| TOTAL | 1107.5 | 2857 | 3506 | 1652 | 745.6 | 438.7 | 229.7 | 69.2 | 151.4 | 1548.3 | 1133.1 | 2709 |
| MEAN | 35.7 | 102 | 113 | 55.1 | 24.1 | 14.6 | 7.41 | 2.23 | 5.05 | 49.9 | 37.8 | 87.4 |
| MAX | 178 | 277 | 517 | 198 | 58 | 88 | 40 | 3.7 | 61 | 383 | 112 | 297 |
| MIN | 7.0 | 12 | 23 | 20 | 9.0 | 4.4 | 2.6 | 1.3 | 1.0 | 1.7 | 8.8 | 15 |
| AC-FT | 2200 | 5670 | 6950 | 3280 | 1480 | 870 | 456 | 137 | 300 | 3070 | 2250 | 5370 |

†Provisional data (10/20–12/31)–subject to revision

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



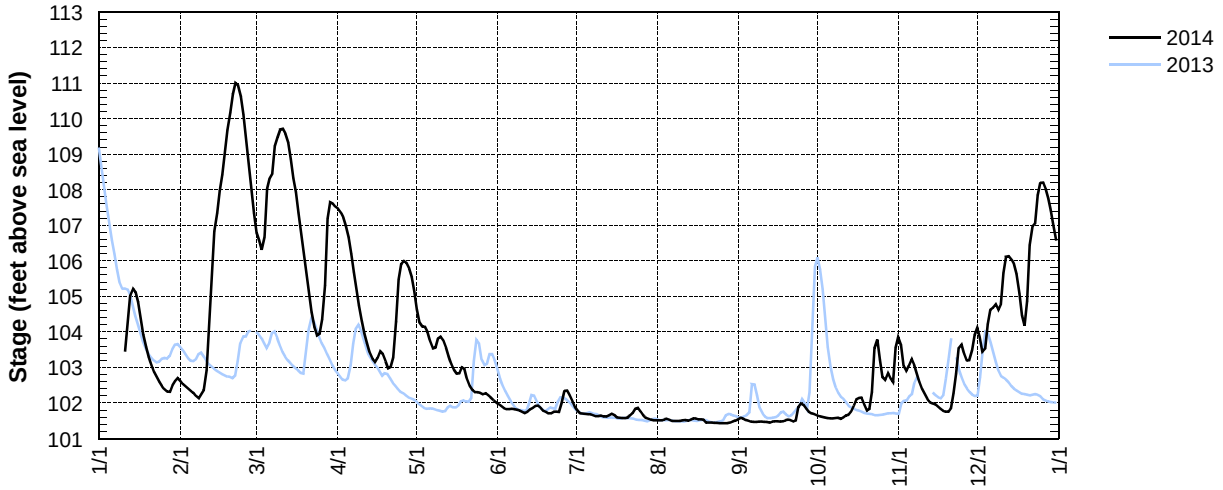
## TRT – 14206956 (formerly 14206960) – TUALATIN RIVER AT TUALATIN, OREGON [RM 8.9]

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

| Day | Daily Elevation in Feet above Mean Sea Level for 2014† | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN* | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 101.97 | 102.62 | 107.34 | 107.52 | 105.14 | 102.01 | 101.90 | 101.51 | 101.54 | 101.65 | 103.85 | 104.11 |
| 2 | 101.95 | 102.53 | 106.79 | 107.46 | 104.62 | 101.97 | 101.78 | 101.51 | 101.58 | 101.63 | 103.62 | 103.84 |
| 3 | 101.97 | 102.46 | 106.58 | 107.36 | 104.26 | 101.91 | 101.71 | 101.51 | 101.56 | 101.61 | 103.04 | 103.44 |
| 4 | 101.96 | 102.40 | 106.31 | 107.22 | 104.15 | 101.85 | 101.70 | 101.54 | 101.52 | 101.59 | 102.90 | 103.53 |
| 5 | 101.94 | 102.34 | 106.67 | 106.98 | 104.14 | 101.82 | 101.69 | 101.55 | 101.50 | 101.57 | 103.05 | 104.22 |
| 6 | | 102.28 | 108.03 | 106.65 | 103.99 | 101.82 | 101.68 | 101.53 | 101.47 | 101.56 | 103.24 | 104.62 |
| 7 | | 102.19 | 108.32 | 106.20 | 103.74 | 101.83 | 101.68 | 101.49 | 101.46 | 101.56 | 103.07 | 104.68 |
| 8 | | 102.13 | 108.45 | 105.69 | 103.53 | 101.82 | 101.65 | 101.49 | 101.46 | 101.57 | 102.82 | 104.78 |
| 9 | | 102.25 | 109.22 | 105.24 | 103.55 | 101.81 | 101.63 | 101.49 | 101.47 | 101.58 | 102.59 | 104.62 |
| 10 | | 102.36 | 109.48 | 104.74 | 103.81 | 101.79 | 101.63 | 101.49 | 101.47 | 101.55 | 102.40 | 104.79 |
| 11 | 103.44 | 102.92 | 109.69 | 104.30 | 103.87 | 101.75 | 101.64 | 101.51 | 101.46 | 101.59 | 102.25 | 105.66 |
| 12 | 104.29 | 104.31 | 109.71 | 103.95 | 103.77 | 101.72 | 101.62 | 101.52 | 101.46 | 101.64 | 102.11 | 106.11 |
| 13 | 105.03 | 105.70 | 109.57 | 103.68 | 103.55 | 101.75 | 101.62 | 101.50 | 101.45 | 101.66 | 102.02 | 106.13 |
| 14 | 105.22 | 106.83 | 109.32 | 103.43 | 103.31 | 101.82 | 101.65 | 101.53 | 101.47 | 101.75 | 101.99 | 106.04 |
| 15 | 105.12 | 107.34 | 108.86 | 103.25 | 103.10 | 101.86 | 101.70 | 101.56 | 101.48 | 101.92 | 101.96 | 105.90 |
| 16 | 104.83 | 107.97 | 108.32 | 103.16 | 102.94 | 101.91 | 101.66 | 101.56 | 101.48 | 102.10 | 101.90 | 105.62 |
| 17 | 104.37 | 108.42 | 107.94 | 103.27 | 102.82 | 101.92 | 101.59 | 101.54 | 101.47 | 102.14 | 101.83 | 105.08 |
| 18 | 103.92 | 109.01 | 107.35 | 103.45 | 102.83 | 101.86 | 101.58 | 101.54 | 101.48 | 102.15 | 101.78 | 104.46 |
| 19 | 103.57 | 109.68 | 106.80 | 103.38 | 103.00 | 101.78 | 101.57 | 101.53 | 101.51 | 101.95 | 101.75 | 104.17 |
| 20 | 103.29 | 110.17 | 106.28 | 103.17 | 102.97 | 101.75 | 101.57 | 101.45 | 101.53 | 101.79 | 101.75 | 104.87 |
| 21 | 103.07 | 110.68 | 105.72 | 102.98 | 102.68 | 101.71 | 101.58 | 101.45 | 101.52 | 101.83 | 101.85 | 106.44 |
| 22 | 102.88 | 111.00 | 105.10 | 103.01 | 102.47 | 101.71 | 101.65 | 101.45 | 101.48 | 102.31 | 102.27 | 106.97 |
| 23 | 102.72 | 110.93 | 104.55 | 103.27 | 102.36 | 101.75 | 101.72 | 101.44 | 101.51 | 103.54 | 102.82 | 107.05 |
| 24 | 102.59 | 110.62 | 104.13 | 104.30 | 102.30 | 101.75 | 101.83 | 101.44 | 101.89 | 103.79 | 103.54 | 107.84 |
| 25 | 102.47 | 110.11 | 103.90 | 105.48 | 102.30 | 101.74 | 101.86 | 101.43 | 101.99 | 103.22 | 103.64 | 108.19 |
| 26 | 102.38 | 109.47 | 103.95 | 105.91 | 102.28 | 101.99 | 101.76 | 101.43 | 101.94 | 102.72 | 103.38 | 108.20 |
| 27 | 102.32 | 108.78 | 104.35 | 105.99 | 102.25 | 102.34 | 101.65 | 101.43 | 101.84 | 102.65 | 103.19 | 108.02 |
| 28 | 102.31 | 108.06 | 105.31 | 105.94 | 102.27 | 102.35 | 101.58 | 101.43 | 101.75 | 102.84 | 103.20 | 107.76 |
| 29 | 102.50 | — | 107.19 | 105.78 | 102.22 | 102.22 | 101.55 | 101.45 | 101.71 | 102.69 | 103.48 | 107.41 |
| 30 | 102.62 | — | 107.65 | 105.54 | 102.16 | 102.07 | 101.53 | 101.48 | 101.69 | 102.58 | 103.91 | 107.00 |
| 31 | 102.70 | — | 107.61 | — | 102.08 | — | 101.51 | 101.50 | — | 103.55 | — | 106.57 |
| MEAN | 103.13 | 106.27 | 107.11 | 104.94 | 103.18 | 101.88 | 101.66 | 101.49 | 101.57 | 102.14 | 102.71 | 105.32 |
| MAX | 105.22 | 111.00 | 109.71 | 107.52 | 105.14 | 102.35 | 101.90 | 101.56 | 101.99 | 103.79 | 103.91 | 108.20 |
| MIN | 101.94 | 102.13 | 103.90 | 102.98 | 102.08 | 101.71 | 101.51 | 101.43 | 101.45 | 101.55 | 101.75 | 102.00 |

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

**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.**

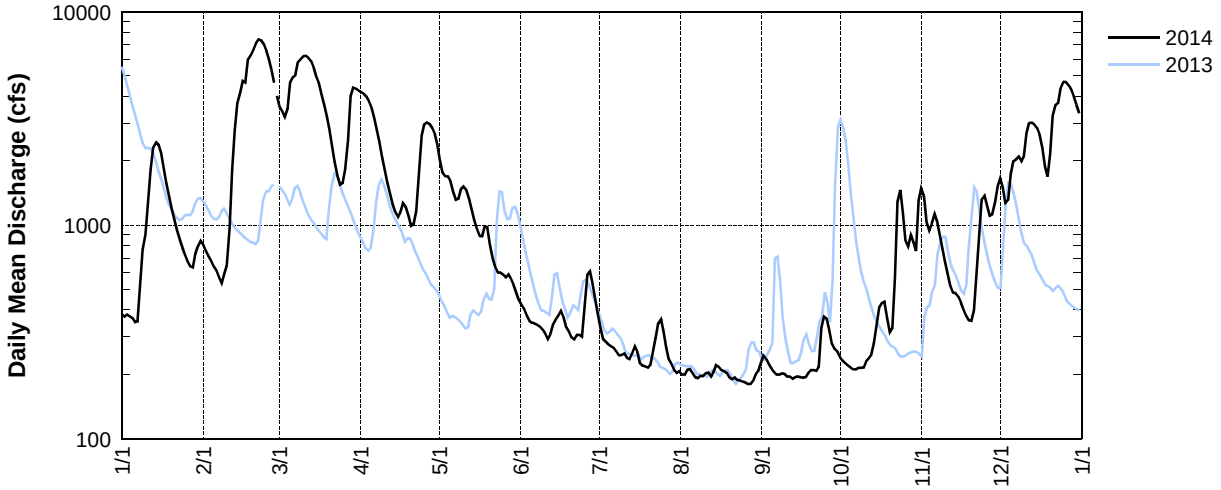
LATITUDE: 452103 LONGITUDE: 1224030 DRAINAGE AREA: 706.00 DATUM: 85.61

**Discharge, Cubic Feet per Second, Calendar Year January to December 2014 Daily Mean Values**

| Day | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV† | DEC† |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 382 | 804 | 4040 | 4290 | 2390 | 444 | 387 | 207 | 225 | 241 | 1490 | 1660 |
| 2 | 372 | 753 | 3580 | 4210 | 2020 | 422 | 329 | 199 | 245 | 232 | 1370 | 1510 |
| 3 | 382 | 713 | 3420 | 4120 | 1770 | 405 | 293 | 199 | 237 | 225 | 1040 | 1270 |
| 4 | 375 | 679 | 3210 | 4010 | 1700 | 376 | 284 | 209 | 223 | 220 | 945 | 1310 |
| 5 | 368 | 641 | 3510 | 3800 | 1690 | 355 | 277 | 211 | 213 | 215 | 1020 | 1730 |
| 6 | 351 | 611 | 4680 | 3530 | 1600 | 348 | 270 | 203 | 206 | 211 | 1130 | 1990 |
| 7 | 352 | 569 | 4930 | 3180 | 1440 | 346 | 266 | 193 | 199 | 210 | 1040 | 2030 |
| 8 | 524 | 534 | 5030 | 2790 | 1320 | 342 | 256 | 192 | 199 | 215 | 903 | 2100 |
| 9 | 766 | 588 | 5790 | 2460 | 1330 | 335 | 245 | 196 | 202 | 214 | 780 | 1990 |
| 10 | 907 | 645 | 6010 | 2100 | 1480 | 324 | 246 | 196 | 200 | 215 | 680 | 2100 |
| 11 | 1270 | 967 | 6200 | 1810 | 1520 | 310 | 250 | 202 | 195 | 230 | 592 | 2690 |
| 12 | 1810 | 1820 | 6210 | 1580 | 1470 | 292 | 240 | 203 | 195 | 238 | 519 | 3010 |
| 13 | 2310 | 2790 | 6090 | 1410 | 1330 | 308 | 236 | 195 | 191 | 246 | 483 | 3020 |
| 14 | 2450 | 3720 | 5860 | 1260 | 1180 | 343 | 250 | 205 | 193 | 279 | 482 | 2960 |
| 15 | 2380 | 4170 | 5450 | 1150 | 1060 | 363 | 271 | 221 | 195 | 342 | 464 | 2860 |
| 16 | 2180 | 4750 | 4950 | 1090 | 966 | 377 | 255 | 216 | 194 | 412 | 435 | 2660 |
| 17 | 1870 | e5000 | 4630 | 1150 | 890 | 397 | 226 | 209 | 193 | 431 | 401 | 2300 |
| 18 | 1580 | e5500 | 4110 | 1270 | 886 | 368 | 219 | 207 | 194 | 439 | 376 | 1890 |
| 19 | 1360 | 6220 | 3640 | 1220 | 985 | 331 | 218 | 204 | 203 | 366 | 358 | 1690 |
| 20 | 1200 | 6650 | 3230 | 1110 | 982 | 316 | 215 | 194 | 209 | 316 | 356 | 2140 |
| 21 | 1070 | 7130 | 2800 | 992 | 816 | 298 | 222 | 190 | 209 | 329 | 397 | 3250 |
| 22 | 956 | 7430 | 2360 | 1010 | 699 | 292 | 257 | 193 | 208 | 555 | 617 | 3670 |
| 23 | 859 | 7360 | 1980 | 1150 | 636 | 305 | 295 | 188 | 217 | 1280 | 891 | 3730 |
| 24 | 791 | 7060 | 1710 | 1790 | 601 | 305 | 346 | 187 | 328 | 1460 | 1320 | 4410 |
| 25 | 727 | 6560 | 1550 | 2620 | 600 | 299 | 363 | 185 | 373 | 1150 | 1380 | 4700 |
| 26 | 676 | 5970 | 1580 | 2960 | 588 | 402 | 318 | 183 | 364 | 845 | 1230 | 4690 |
| 27 | 642 | 5320 | 1830 | 3030 | 570 | 584 | 269 | 180 | 321 | 794 | 1110 | 4530 |
| 28 | 633 | 4660 | 2480 | 2990 | 586 | 609 | 236 | 180 | 278 | 896 | 1120 | 4310 |
| 29 | 736 | — | 4020 | 2860 | 560 | 535 | 223 | 186 | 263 | 835 | 1280 | 4020 |
| 30 | 798 | — | 4410 | 2680 | 527 | 455 | 210 | 200 | 257 | 755 | 1520 | 3690 |
| 31 | 843 | — | 4370 | — | 481 | — | 204 | 208 | — | 1300 | — | 3360 |
| TOTAL | 31920 | 99614 | 123660 | 69622 | 34673 | 11186 | 8176 | 6141 | 6929 | 15696 | 25729 | 87270 |
| MEAN | 1030 | 3558 | 3989 | 2321 | 1118 | 373 | 264 | 198 | 231 | 506 | 858 | 2815 |
| MAX | 2450 | 7430 | 6210 | 4290 | 2390 | 609 | 387 | 221 | 373 | 1460 | 1520 | 4700 |
| MIN | 351 | 534 | 1550 | 992 | 481 | 292 | 204 | 180 | 191 | 210 | 356 | 1270 |
| AC-FT | 63310 | 197600 | 245300 | 138100 | 68770 | 22190 | 16220 | 12180 | 13740 | 31130 | 51030 | 173100 |

†Provisional data (11/19–12/31)–subject to revision; e=estimated value

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

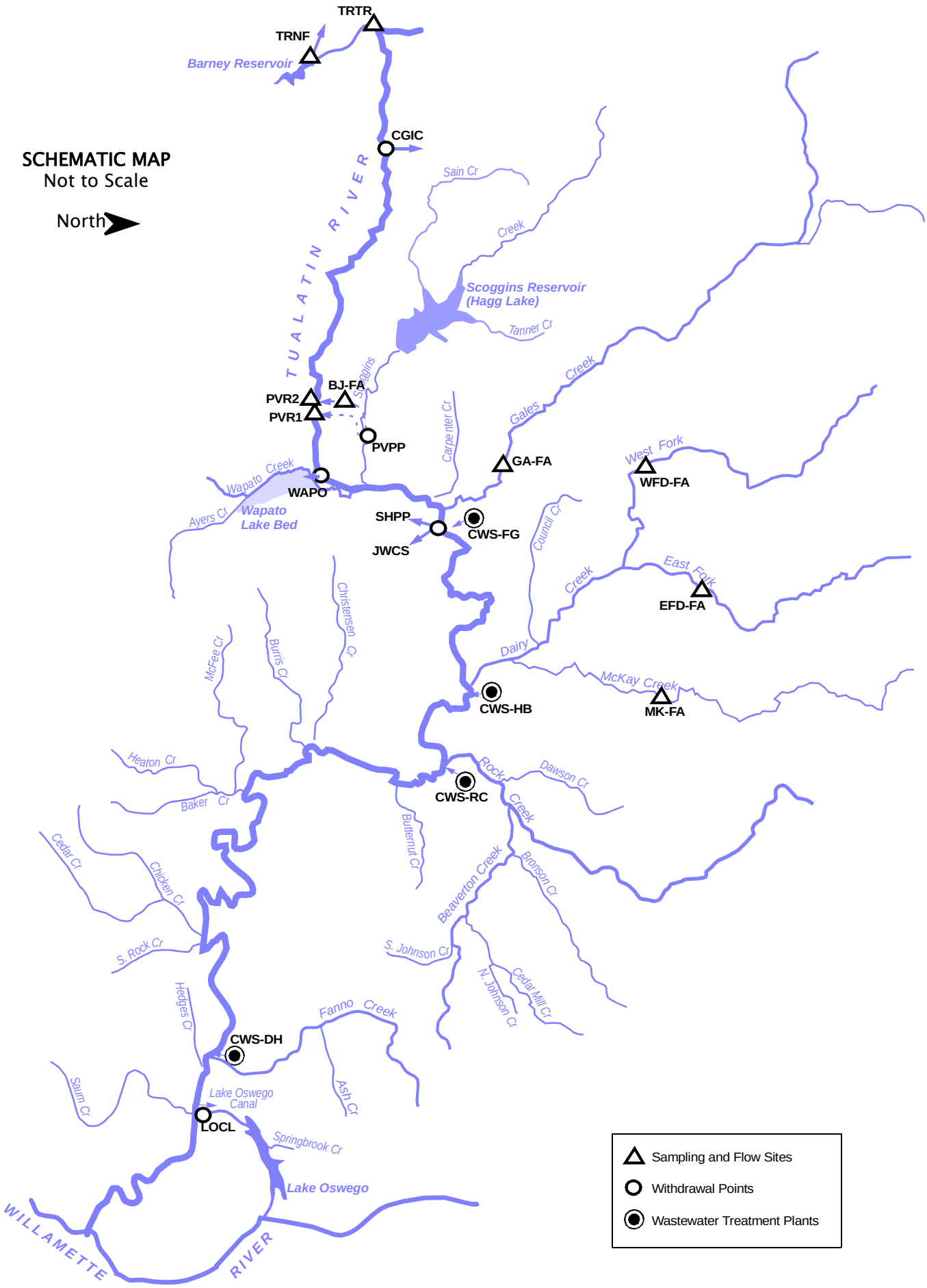


# Appendix B

# Selected Releases and Withdrawals

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

# SELECTED RELEASES AND WITHDRAWALS — LOCATIONS



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

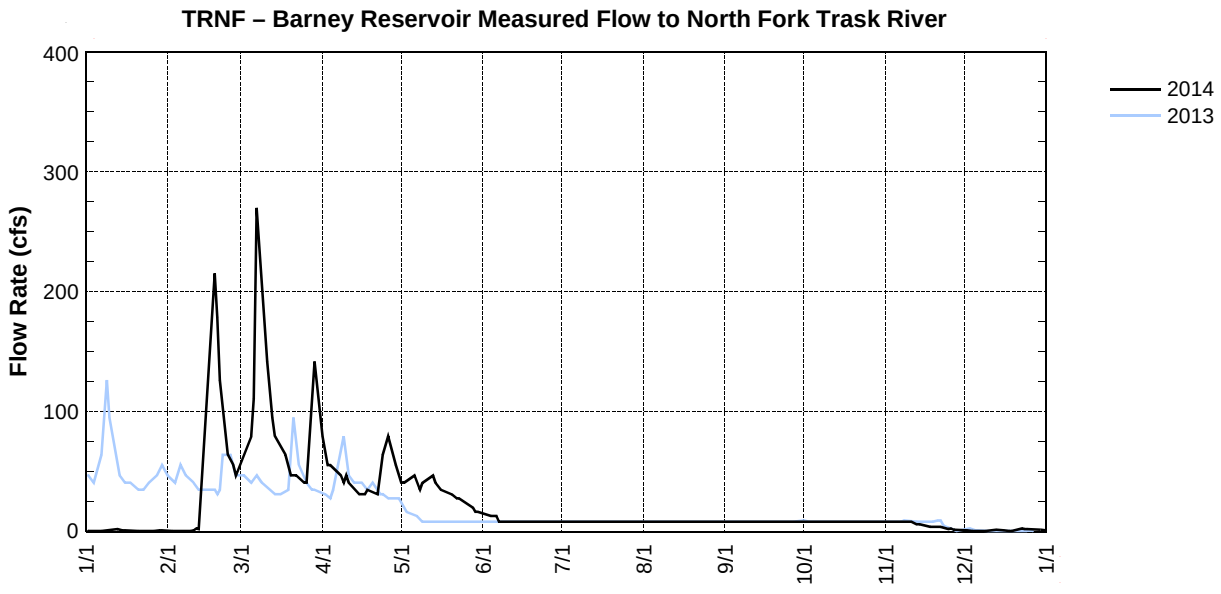
| SITE CODE | SITE NAME | RIVER MILE | PAGE |
|---|---|---|---|
| BJ-FA | CWS Black Jack Creek Flow Augmentation with TVID | — | B-13 |
| CGIC | City of Hillsboro Withdrawal at Cherry Grove | 73.3 | B-6 |
| CWS-DH | CWS Durham WWTF Release | 9.33 | B-12 |
| CWS-FG | CWS Forest Grove WWTF Release | 55.2 | B-9 |
| CWS-HB | CWS Hillsboro WWTF Release | 43.8 | B-10 |
| CWS-RC | CWS Rock Creek WWTF Release | 38.08 | B-11 |
| EFD-FA | CWS East Fork Dairy Flow Augmentation with TVID | 4.9 | B-13 |
| GA-FA | CWS Gales Creek Flow Augmentation with TVID | 5.0 | B-13 |
| JWCS | Joint Water Commission Withdrawal at Spring Hill Pump Plant | 56.1 | B-8 |
| LOCL | Lake Oswego Corp. Canal Diversion | 6.7 | * |
| MK-FA1 | CWS McKay Creek Flow Augmentation with TVID | 7.0 | 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-FA | CWS West Fork Dairy Flow Augmentation with TVID | 5.2 | B-13 |

*Monitoring of the Lake Oswego Canal Diversion was discontinued 8/23/2012.
**Withdrawals and releases at Patton Valley Pump Plant, Patton Valley River turnouts and Wapato Canal Diversion were not measured in 2014.

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

Source Agency: Barney Reservoir Joint Ownership Commission

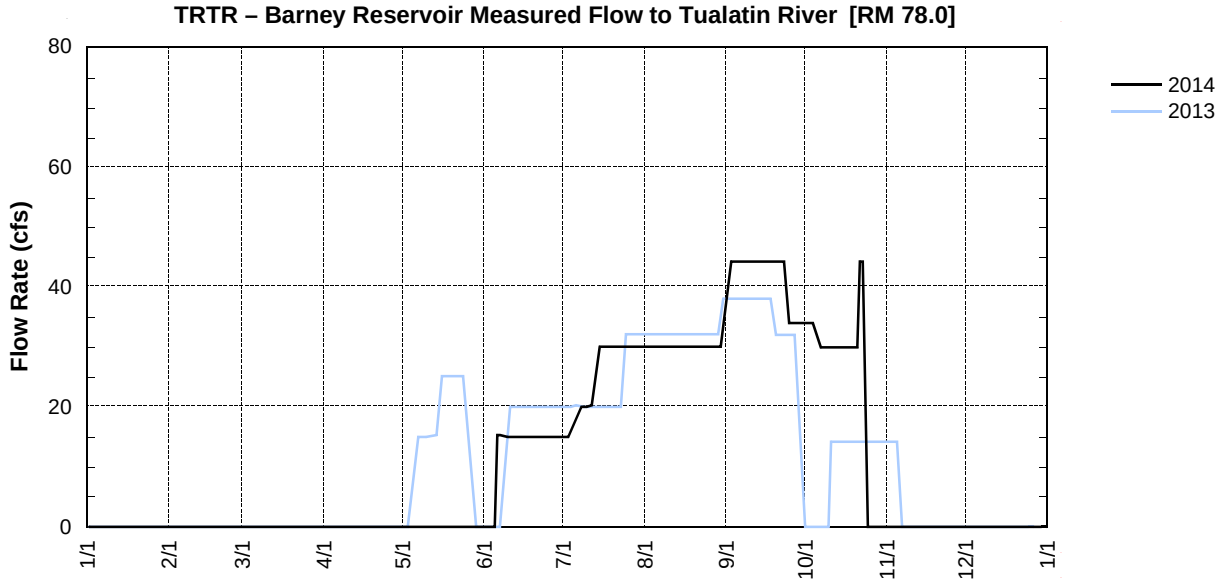
| Day | 2014 — Instantaneous Measured Flow Rate in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | | | | | 41.0 | | 8.4 | | | 8.4 | | 1.1 |
| 2 | 0.5 | | | 55.5 | | | 8.4 | | 8.4 | | | |
| 3 | | 0.5 | | 55.5 | | 13.0 | | | 8.4 | 8.4 | 8.4 | 0.5 |
| 4 | | | 79.6 | | | 13.0 | | 8.4 | 8.4 | | | 0.5 |
| 5 | | 0.5 | 110.8 | | 47.0 | 13.0 | | | | | | |
| 6 | 0.5 | 0.5 | 270.0 | | | 8.4 | | 8.4 | | 8.4 | 8.4 | |
| 7 | 0.5 | | | 47.0 | 35.0 | | 8.4 | 8.4 | | | | |
| 8 | | | | 41.0 | 41.0 | | 8.4 | | | 8.4 | | 0.5 |
| 9 | 1.1 | | | 47.0 | | 8.4 | 8.4 | | 8.4 | | | |
| 10 | | 0.5 | 142.0 | 41.0 | | | | | 8.4 | 8.4 | 8.4 | 1.1 |
| 11 | | 1.1 | | | | 8.4 | 8.4 | | 8.4 | | | |
| 12 | | 2.8 | 95.2 | | 47.0 | 8.4 | | 8.4 | | | 6.2 | 1.7 |
| 13 | 2.3 | 2.3 | 79.6 | | 41.0 | | | 8.4 | | 8.4 | 6.2 | |
| 14 | | | | 31.3 | | | 8.4 | | | | | |
| 15 | 1.1 | | | | 35.0 | | | 8.4 | 8.4 | 8.4 | | 1.1 |
| 16 | 1.1 | | | 31.3 | | 8.4 | 8.4 | | | | | |
| 17 | | | 64.0 | 35.0 | | | 8.4 | | 8.4 | 8.4 | 4.0 | 0.5 |
| 18 | | | | | | 8.4 | | 8.4 | 8.4 | | | 0.5 |
| 19 | | 215.1 | 47.0 | | 31.3 | | | | | | 4.0 | |
| 20 | | 178.6 | 47.0 | | | 8.4 | | 8.4 | | 8.4 | | |
| 21 | 0.5 | 126.4 | 47.0 | 31.3 | 27.6 | | 8.4 | | | 8.4 | 4.0 | |
| 22 | | | | | 27.6 | | | 8.4 | 8.4 | 8.4 | | 2.8 |
| 23 | 0.5 | | | 64.0 | | 8.4 | 8.4 | | | 8.4 | | 2.3 |
| 24 | 0.5 | 64.0 | 41.0 | | | | 8.4 | | 8.4 | 8.4 | 2.3 | 2.3 |
| 25 | | | 41.0 | 79.6 | | 8.4 | | 8.4 | 8.4 | | 2.8 | |
| 26 | | 55.5 | | | | 8.4 | | | | | 1.7 | |
| 27 | 0.5 | 47.0 | | | 20.2 | | | 8.4 | | 8.4 | | |
| 28 | | | 142.0 | 55.5 | 16.5 | | 8.4 | | | | | |
| 29 | 1.1 | — | | | 16.5 | | | 8.4 | 8.4 | 8.4 | | 1.7 |
| 30 | 1.1 | — | | 41.0 | | 8.4 | 8.4 | | | 8.4 | | |
| 31 | | — | 79.6 | — | | — | 8.4 | | — | | — | 1.1 |



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

Source Agency: Barney Reservoir Joint Ownership Commission

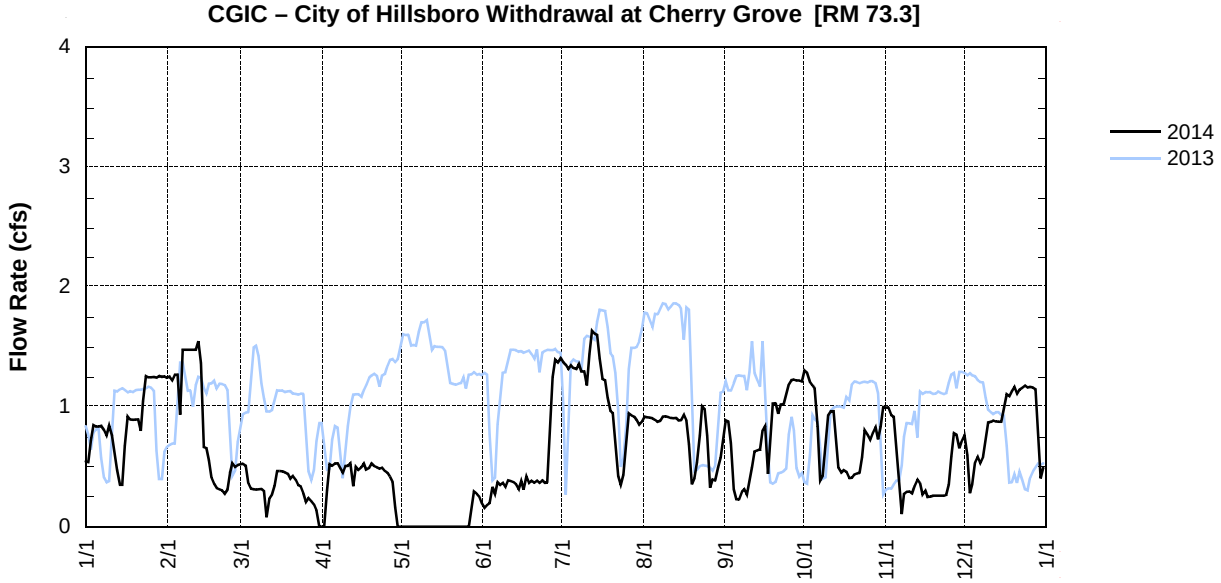
| Day | 2014 — Instantaneous Measured Flow Rate in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | | | | | 0.0 | | 15.0 | | | 34.0 | | 0.0 |
| 2 | 0.0 | | | 0.0 | | | 15.0 | | 44.2 | | | |
| 3 | | 0.0 | | 0.0 | | 0.0 | | | 44.2 | 34.0 | 0.0 | 0.0 |
| 4 | | | 0.0 | | | 0.0 | | 30.0 | 44.2 | | | 0.0 |
| 5 | | 0.0 | 0.0 | | 0.0 | 15.3 | | | | | | |
| 6 | 0.0 | 0.0 | 0.0 | | | 15.3 | | 30.0 | | 29.9 | 0.0 | |
| 7 | 0.0 | | | 0.0 | 0.0 | | 20.0 | 30.0 | | | | |
| 8 | | | | 0.0 | 0.0 | | 20.0 | | | 29.9 | | 0.0 |
| 9 | 0.0 | | | 0.0 | | 15.0 | 20.0 | | 44.2 | | | |
| 10 | | 0.0 | 0.0 | 0.0 | | | | | 44.2 | 29.9 | 0.0 | 0.0 |
| 11 | | 0.0 | | | | 15.0 | 20.3 | | 44.2 | | | |
| 12 | | 0.0 | 0.0 | | 0.0 | 15.0 | | 30.0 | | | 0.0 | 0.0 |
| 13 | 0.0 | 0.0 | 0.0 | | 0.0 | | | 30.0 | | 29.9 | 0.0 | |
| 14 | | | | 0.0 | | | 30.0 | | | | | |
| 15 | 0.0 | | | | 0.0 | | | 30.0 | 44.2 | 29.9 | | 0.0 |
| 16 | 0.0 | | | 0.0 | | 15.0 | 30.0 | | | | | |
| 17 | | | 0.0 | 0.0 | | | 30.0 | | 44.2 | 29.9 | 0.0 | 0.0 |
| 18 | | | | | | 15.0 | | 30.0 | 44.2 | | | 0.0 |
| 19 | | 0.0 | 0.0 | | 0.0 | | | | | | 0.0 | |
| 20 | | 0.0 | 0.0 | | | 15.0 | | 30.0 | | 29.9 | | |
| 21 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 30.0 | | | 44.2 | 0.0 | |
| 22 | | | | | 0.0 | | | 30.0 | 44.2 | 44.2 | | 0.0 |
| 23 | 0.0 | | | 0.0 | | 15.0 | 30.0 | | | 22.0 | | 0.0 |
| 24 | 0.0 | 0.0 | 0.0 | | | | 30.0 | | 34.0 | 0.0 | 0.0 | 0.0 |
| 25 | | | 0.0 | 0.0 | | 15.0 | | 30.0 | 34.0 | | 0.0 | |
| 26 | | 0.0 | | | | 15.0 | | | | | 0.0 | |
| 27 | 0.0 | 0.0 | | | 0.0 | | | 30.0 | | 0.0 | | |
| 28 | | | 0.0 | 0.0 | 0.0 | | 30.0 | | | | | |
| 29 | 0.0 | — | | | 0.0 | | | 30.0 | 34.0 | 0.0 | | 0.0 |
| 30 | 0.0 | — | | 0.0 | | 15.0 | 30.0 | | | 0.0 | | |
| 31 | | — | 0.0 | — | | — | 30.0 | | — | | — | 0.0 |



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

Source Agency: Barney Reservoir Joint Ownership Commission

| Day | 2014 — Calculated Average Flow Rate in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 0.55 | 1.24 | 0.53 | 0.00 | 0.00 | 0.16 | 1.37 | 0.92 | 0.89 | 1.30 | 0.99 | 0.76 |
| 2 | 0.54 | 1.25 | 0.51 | 0.30 | 0.00 | 0.18 | 1.35 | 0.91 | 0.88 | 1.28 | 1.00 | 0.60 |
| 3 | 0.72 | 1.22 | 0.36 | 0.52 | 0.00 | 0.20 | 1.32 | 0.91 | 0.70 | 1.21 | 0.93 | 0.28 |
| 4 | 0.85 | 1.27 | 0.32 | 0.51 | 0.00 | 0.33 | 1.35 | 0.91 | 0.31 | 1.18 | 0.92 | 0.35 |
| 5 | 0.83 | 1.27 | 0.32 | 0.53 | 0.00 | 0.28 | 1.32 | 0.89 | 0.23 | 1.15 | 0.63 | 0.54 |
| 6 | 0.83 | 0.93 | 0.31 | 0.53 | 0.00 | 0.37 | 1.32 | 0.87 | 0.23 | 0.84 | 0.34 | 0.59 |
| 7 | 0.84 | 1.47 | 0.31 | 0.49 | 0.00 | 0.35 | 1.36 | 0.88 | 0.29 | 0.39 | 0.11 | 0.53 |
| 8 | 0.81 | 1.47 | 0.32 | 0.45 | 0.00 | 0.37 | 1.30 | 0.92 | 0.31 | 0.43 | 0.28 | 0.58 |
| 9 | 0.76 | 1.47 | 0.30 | 0.51 | 0.00 | 0.33 | 1.29 | 0.92 | 0.27 | 0.72 | 0.29 | 0.73 |
| 10 | 0.84 | 1.47 | 0.08 | 0.51 | 0.00 | 0.39 | 1.18 | 0.91 | 0.39 | 0.93 | 0.29 | 0.87 |
| 11 | 0.76 | 1.47 | 0.24 | 0.53 | 0.00 | 0.38 | 1.44 | 0.91 | 0.50 | 0.97 | 0.28 | 0.87 |
| 12 | 0.62 | 1.47 | 0.27 | 0.34 | 0.00 | 0.37 | 1.64 | 0.91 | 0.63 | 0.97 | 0.34 | 0.89 |
| 13 | 0.47 | 1.55 | 0.34 | 0.50 | 0.00 | 0.36 | 1.61 | 0.91 | 0.64 | 0.74 | 0.40 | 0.88 |
| 14 | 0.35 | 1.36 | 0.46 | 0.48 | 0.00 | 0.31 | 1.60 | 0.89 | 0.64 | 0.49 | 0.37 | 0.88 |
| 15 | 0.35 | 0.67 | 0.46 | 0.50 | 0.00 | 0.38 | 1.40 | 0.89 | 0.80 | 0.45 | 0.27 | 0.87 |
| 16 | 0.67 | 0.66 | 0.46 | 0.53 | 0.00 | 0.31 | 1.23 | 0.93 | 0.84 | 0.48 | 0.30 | 0.98 |
| 17 | 0.92 | 0.55 | 0.45 | 0.48 | 0.00 | 0.42 | 1.22 | 0.89 | 0.44 | 0.46 | 0.25 | 1.10 |
| 18 | 0.89 | 0.41 | 0.44 | 0.49 | 0.00 | 0.37 | 1.08 | 0.69 | 0.75 | 0.41 | 0.25 | 1.09 |
| 19 | 0.89 | 0.36 | 0.40 | 0.53 | 0.00 | 0.39 | 0.96 | 0.36 | 1.03 | 0.41 | 0.26 | 1.13 |
| 20 | 0.89 | 0.32 | 0.42 | 0.51 | 0.00 | 0.37 | 0.95 | 0.41 | 1.03 | 0.44 | 0.26 | 1.17 |
| 21 | 0.90 | 0.31 | 0.39 | 0.50 | 0.00 | 0.38 | 0.69 | 0.54 | 0.94 | 0.45 | 0.26 | 1.11 |
| 22 | 0.80 | 0.30 | 0.35 | 0.49 | 0.00 | 0.37 | 0.42 | 0.76 | 1.02 | 0.45 | 0.26 | 1.15 |
| 23 | 1.05 | 0.28 | 0.34 | 0.49 | 0.00 | 0.39 | 0.35 | 1.01 | 1.02 | 0.58 | 0.26 | 1.16 |
| 24 | 1.26 | 0.32 | 0.28 | 0.46 | 0.00 | 0.37 | 0.43 | 0.98 | 1.10 | 0.80 | 0.27 | 1.18 |
| 25 | 1.25 | 0.45 | 0.21 | 0.45 | 0.00 | 0.37 | 0.68 | 0.76 | 1.19 | 0.77 | 0.35 | 1.16 |
| 26 | 1.25 | 0.53 | 0.24 | 0.42 | 0.00 | 0.72 | 0.94 | 0.33 | 1.22 | 0.72 | 0.59 | 1.17 |
| 27 | 1.25 | 0.50 | 0.22 | 0.37 | 0.14 | 1.25 | 0.93 | 0.40 | 1.23 | 0.78 | 0.78 | 1.16 |
| 28 | 1.24 | 0.52 | 0.19 | 0.17 | 0.29 | 1.39 | 0.92 | 0.39 | 1.22 | 0.83 | 0.77 | 1.15 |
| 29 | 1.25 | — | 0.14 | 0.00 | 0.28 | 1.37 | 0.89 | 0.49 | 1.22 | 0.73 | 0.65 | 0.82 |
| 30 | 1.25 | — | 0.00 | 0.00 | 0.26 | 1.40 | 0.85 | 0.58 | 1.21 | 0.84 | 0.72 | 0.40 |
| 31 | 1.25 | — | 0.00 | — | 0.20 | — | 0.88 | 0.72 | — | 1.00 | — | 0.49 |

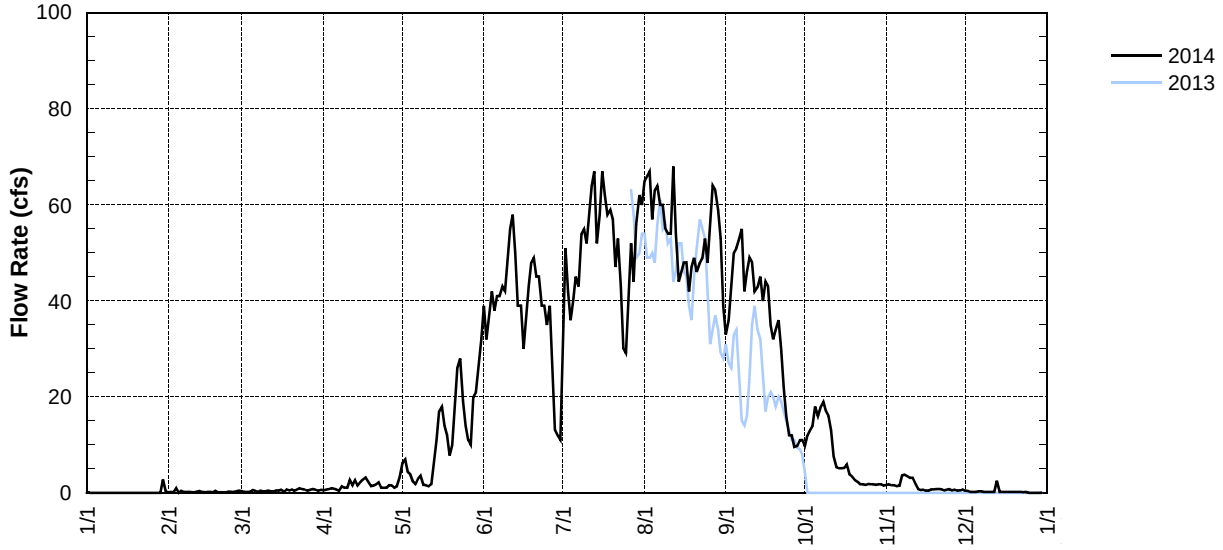


## SHPP – TVID WITHDRAWAL AT SPRING HILL PUMP PLANT [RM 56.1]

Source Agency: US Geological Survey, Oregon Water Science Center

| Day | 2014 — Mean Daily Water Withdrawal in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 0.0 | 0.2 | 0.2 | 0.7 | 7.0 | 32.0 | 51.0 | 66.0 | 36.0 | 12.0 | 1.8 | 0.4 |
| 2 | 0.0 | 0.2 | 0.2 | 0.8 | 4.4 | 37.0 | 42.0 | 67.0 | 43.0 | 13.0 | 1.6 | 0.2 |
| 3 | 0.0 | 0.2 | 0.2 | 1.0 | 3.9 | 42.0 | 36.0 | 57.0 | 50.0 | 14.0 | 1.6 | 0.2 |
| 4 | 0.0 | 1.0 | 0.6 | 0.9 | 2.4 | 38.0 | 40.0 | 63.0 | 51.0 | 18.0 | 1.4 | 0.2 |
| 5 | 0.0 | 0.0 | 0.4 | 0.7 | 1.9 | 41.0 | 45.0 | 64.0 | 53.0 | 16.0 | 1.5 | 0.3 |
| 6 | 0.0 | 0.5 | 0.2 | 0.4 | 3.0 | 41.0 | 43.0 | 60.0 | 55.0 | 18.0 | 3.7 | 0.4 |
| 7 | 0.0 | 0.2 | 0.4 | 1.4 | 3.6 | 43.0 | 54.0 | 60.0 | 42.0 | 19.0 | 3.8 | 0.2 |
| 8 | 0.0 | 0.2 | 0.4 | 1.1 | 1.7 | 42.0 | 55.0 | 55.0 | 46.0 | 17.0 | 3.5 | 0.2 |
| 9 | 0.0 | 0.2 | 0.3 | 1.1 | 1.6 | 49.0 | 52.0 | 54.0 | 49.0 | 16.0 | 3.1 | 0.2 |
| 10 | 0.0 | 0.2 | 0.4 | 2.6 | 1.4 | 55.0 | 58.0 | 54.0 | 48.0 | 13.0 | 3.1 | 0.2 |
| 11 | 0.0 | 0.2 | 0.4 | 1.6 | 1.9 | 58.0 | 64.0 | 68.0 | 42.0 | 7.6 | 1.8 | 0.2 |
| 12 | 0.0 | 0.3 | 0.3 | 2.6 | 6.4 | 50.0 | 67.0 | 54.0 | 43.0 | 5.3 | 0.8 | 2.5 |
| 13 | 0.0 | 0.4 | 0.5 | 1.5 | 11.0 | 39.0 | 52.0 | 44.0 | 45.0 | 5.1 | 0.6 | 0.2 |
| 14 | 0.0 | 0.2 | 0.4 | 2.2 | 17.0 | 39.0 | 58.0 | 46.0 | 40.0 | 5.1 | 0.6 | 0.2 |
| 15 | 0.0 | 0.2 | 0.6 | 2.8 | 18.0 | 30.0 | 67.0 | 48.0 | 44.0 | 5.2 | 0.4 | 0.2 |
| 16 | 0.0 | 0.2 | 0.2 | 3.2 | 14.0 | 36.0 | 62.0 | 48.0 | 43.0 | 5.9 | 0.4 | 0.2 |
| 17 | 0.0 | 0.2 | 0.7 | 2.3 | 12.0 | 43.0 | 58.0 | 42.0 | 35.0 | 3.8 | 0.7 | 0.2 |
| 18 | 0.0 | 0.2 | 0.5 | 1.4 | 7.8 | 48.0 | 59.0 | 47.0 | 32.0 | 3.4 | 0.7 | 0.2 |
| 19 | 0.0 | 0.5 | 0.7 | 1.5 | 9.9 | 49.0 | 57.0 | 49.0 | 34.0 | 2.6 | 0.8 | 0.2 |
| 20 | 0.0 | 0.2 | 0.4 | 1.8 | 18.0 | 45.0 | 47.0 | 46.0 | 36.0 | 2.3 | 0.8 | 0.2 |
| 21 | 0.0 | 0.2 | 0.7 | 2.2 | 26.0 | 45.0 | 53.0 | 48.0 | 30.0 | 1.8 | 0.7 | 0.2 |
| 22 | 0.0 | 0.2 | 1.0 | 1.1 | 28.0 | 39.0 | 43.0 | 49.0 | 22.0 | 1.8 | 0.5 | 0.2 |
| 23 | 0.0 | 0.2 | 0.8 | 1.1 | 19.0 | 39.0 | 30.0 | 53.0 | 16.0 | 1.7 | 0.6 | 0.2 |
| 24 | 0.0 | 0.3 | 0.7 | 1.1 | 14.0 | 35.0 | 29.0 | 48.0 | 12.0 | 1.9 | 0.8 | 0.0 |
| 25 | 0.0 | 0.2 | 0.4 | 1.6 | 11.0 | 39.0 | 39.0 | 56.0 | 12.0 | 1.8 | 0.5 | 0.0 |
| 26 | 0.0 | 0.2 | 0.7 | 1.5 | 10.0 | 27.0 | 52.0 | 64.0 | 9.6 | 1.8 | 0.7 | 0.0 |
| 27 | 0.0 | 0.3 | 0.8 | 1.1 | 20.0 | 13.0 | 44.0 | 63.0 | 9.8 | 1.7 | 0.4 | 0.0 |
| 28 | 0.0 | 0.4 | 0.7 | 1.4 | 21.0 | 12.0 | 56.0 | 59.0 | 11.0 | 1.8 | 0.5 | 0.0 |
| 29 | 0.0 | — | 0.4 | 3.3 | 26.0 | 11.0 | 62.0 | 53.0 | 11.0 | 1.8 | 0.7 | 0.0 |
| 30 | 2.8 | — | 0.7 | 6.3 | 32.0 | 31.0 | 60.0 | 39.0 | 9.7 | 1.5 | 0.5 | 0.0 |
| 31 | 0.3 | — | 0.5 | — | 39.0 | — | 65.0 | 33.0 | — | 1.7 | — | 0.0 |

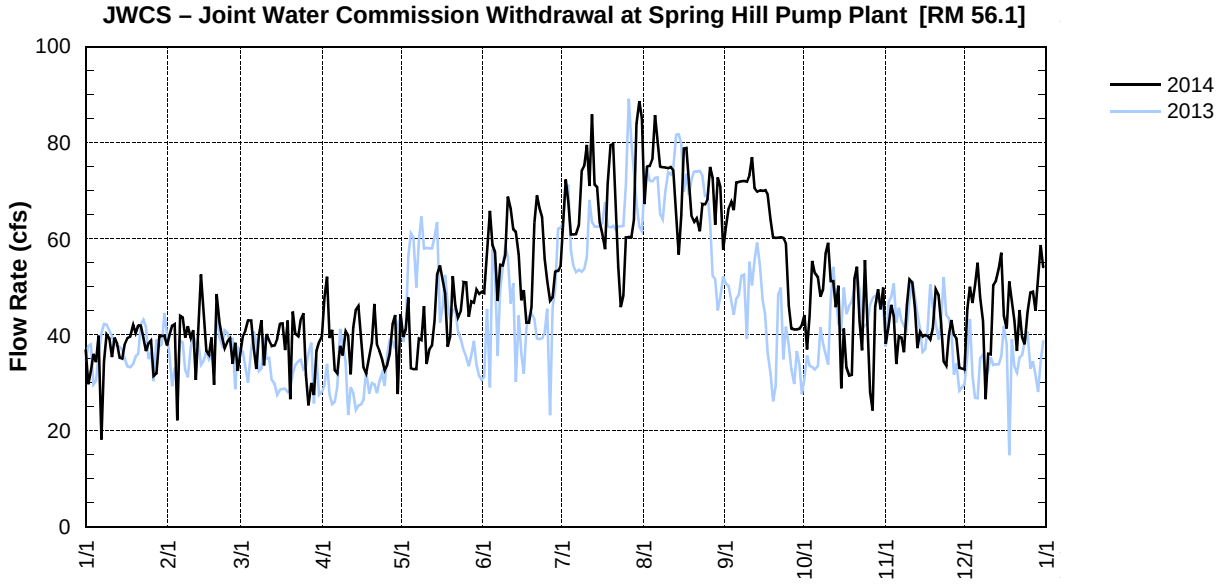
**SHPP – Tualatin Valley Irrigation District Withdrawal at Spring Hill Pump Plant [RM 56.1]**



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

Source Agency: Joint Water Commission

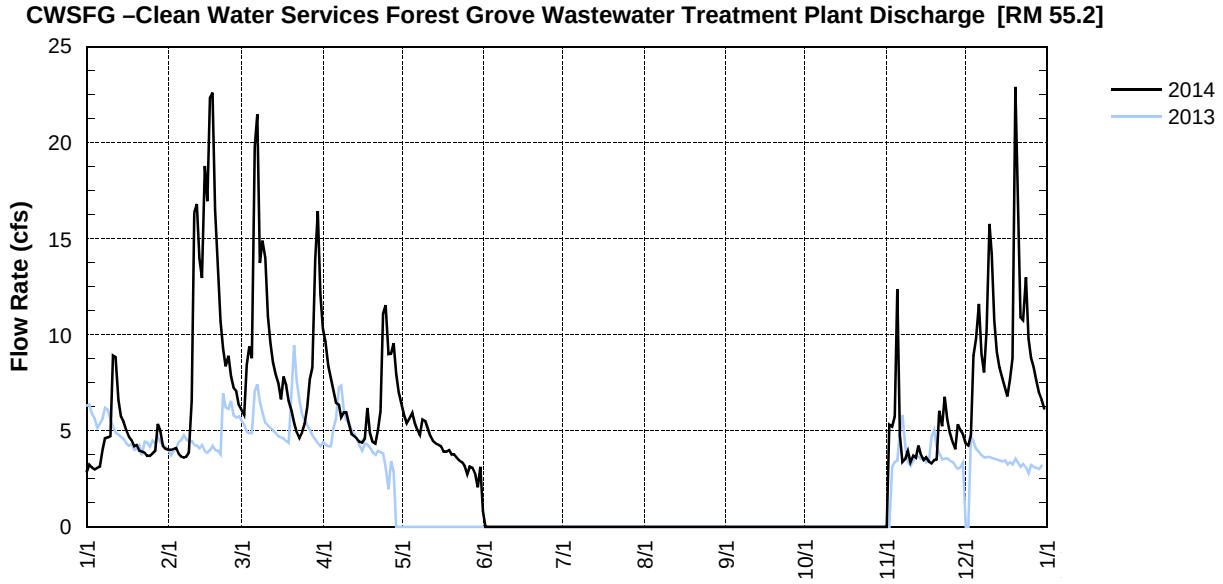
| Day | 2014 — Calculated Average Flow Rate in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 36.8 | 37.8 | 39.8 | 47.8 | 39.6 | 48.7 | 63.1 | 67.2 | 62.3 | 44.1 | 38.1 | 32.8 |
| 2 | 29.7 | 40.1 | 41.0 | 52.2 | 41.2 | 57.3 | 72.4 | 75.1 | 66.4 | 37.0 | 41.9 | 45.5 |
| 3 | 32.5 | 41.9 | 43.0 | 39.3 | 47.8 | 65.8 | 67.7 | 75.2 | 67.8 | 43.9 | 46.3 | 50.0 |
| 4 | 36.0 | 42.3 | 42.9 | 41.0 | 33.1 | 58.7 | 60.9 | 76.7 | 66.0 | 55.4 | 43.9 | 46.6 |
| 5 | 34.3 | 22.1 | 37.2 | 32.6 | 32.8 | 57.2 | 60.9 | 85.8 | 71.7 | 52.9 | 34.0 | 50.4 |
| 6 | 39.8 | 43.9 | 32.9 | 32.0 | 32.8 | 47.1 | 61.0 | 80.7 | 71.9 | 52.0 | 39.8 | 55.0 |
| 7 | 18.2 | 43.7 | 39.8 | 37.7 | 39.3 | 54.5 | 62.8 | 75.0 | 72.0 | 48.0 | 39.4 | 47.8 |
| 8 | 34.4 | 39.5 | 43.0 | 35.7 | 38.9 | 54.4 | 74.2 | 74.9 | 72.0 | 49.5 | 36.4 | 42.8 |
| 9 | 40.1 | 41.8 | 33.7 | 40.7 | 45.9 | 56.7 | 75.3 | 74.8 | 71.9 | 56.9 | 46.2 | 26.6 |
| 10 | 39.2 | 39.3 | 40.2 | 39.8 | 33.9 | 68.8 | 79.6 | 74.7 | 73.3 | 59.2 | 51.6 | 36.1 |
| 11 | 35.4 | 41.0 | 38.8 | 31.8 | 37.1 | 66.2 | 71.0 | 75.0 | 77.0 | 51.2 | 51.0 | 35.9 |
| 12 | 39.5 | 30.6 | 37.7 | 41.6 | 37.9 | 62.0 | 85.9 | 74.3 | 70.6 | 51.2 | 45.7 | 50.4 |
| 13 | 38.1 | 42.8 | 37.8 | 45.3 | 43.0 | 61.5 | 71.3 | 65.8 | 69.9 | 45.8 | 37.3 | 51.2 |
| 14 | 35.2 | 52.5 | 39.2 | 46.0 | 52.5 | 56.7 | 70.8 | 56.7 | 70.1 | 50.2 | 40.6 | 53.8 |
| 15 | 35.0 | 44.8 | 42.3 | 39.2 | 54.5 | 47.2 | 63.5 | 65.0 | 70.0 | 28.8 | 39.7 | 57.1 |
| 16 | 38.2 | 36.6 | 42.4 | 33.2 | 51.5 | 49.3 | 61.1 | 78.7 | 70.2 | 41.3 | 40.0 | 44.0 |
| 17 | 39.4 | 35.8 | 36.9 | 32.0 | 48.7 | 42.6 | 57.9 | 78.9 | 69.2 | 33.2 | 39.8 | 41.4 |
| 18 | 39.7 | 39.5 | 42.9 | 35.4 | 37.5 | 42.5 | 71.5 | 72.0 | 64.0 | 31.5 | 39.1 | 51.1 |
| 19 | 42.0 | 29.6 | 26.6 | 38.3 | 39.7 | 45.8 | 79.6 | 64.7 | 60.3 | 31.6 | 41.3 | 47.0 |
| 20 | 40.4 | 48.5 | 44.8 | 46.5 | 52.3 | 63.4 | 79.8 | 63.5 | 60.2 | 51.6 | 49.4 | 42.9 |
| 21 | 42.0 | 42.6 | 40.2 | 37.9 | 46.0 | 69.1 | 67.1 | 64.4 | 60.3 | 54.2 | 48.3 | 36.7 |
| 22 | 41.9 | 39.6 | 39.7 | 36.6 | 43.7 | 66.4 | 54.3 | 61.6 | 60.4 | 42.8 | 42.5 | 45.2 |
| 23 | 39.4 | 37.2 | 43.3 | 35.0 | 45.0 | 64.5 | 45.7 | 67.3 | 60.1 | 36.8 | 34.4 | 39.6 |
| 24 | 36.7 | 38.8 | 44.5 | 32.6 | 51.0 | 55.9 | 48.2 | 67.2 | 58.9 | 55.6 | 33.5 | 38.0 |
| 25 | 38.2 | 39.3 | 31.7 | 33.7 | 50.9 | 51.3 | 60.3 | 68.3 | 46.1 | 42.5 | 39.9 | 44.7 |
| 26 | 38.9 | 34.0 | 25.3 | 36.1 | 43.8 | 47.1 | 60.4 | 75.0 | 41.3 | 28.1 | 43.1 | 48.9 |
| 27 | 31.5 | 38.4 | 30.0 | 42.3 | 46.9 | 47.8 | 60.3 | 72.7 | 41.1 | 24.3 | 40.0 | 49.1 |
| 28 | 32.0 | 32.5 | 27.5 | 44.1 | 46.7 | 53.2 | 64.0 | 62.9 | 41.1 | 45.9 | 39.2 | 45.0 |
| 29 | 39.6 | — | 36.7 | 27.7 | 49.4 | 53.3 | 84.0 | 72.8 | 41.3 | 49.5 | 33.1 | 51.4 |
| 30 | 39.8 | — | 38.5 | 44.3 | 48.5 | 54.4 | 88.8 | 70.8 | 42.1 | 45.4 | 33.0 | 58.7 |
| 31 | 39.8 | — | 39.7 | — | 49.0 | — | 85.0 | 57.7 | — | 49.9 | — | 54.1 |



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

Source Agency: Clean Water Services

| Day | 2014 — Mean Daily Water Discharge in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 2.9 | 4.0 | 5.8 | 9.6 | 5.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 |
| 2 | 3.2 | 4.0 | 8.5 | 8.4 | 5.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 4.2 |
| 3 | 3.1 | 4.1 | 9.4 | 7.8 | 5.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 4.8 |
| 4 | 3.0 | 4.1 | 8.8 | 7.1 | 6.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.8 | 8.9 |
| 5 | 3.1 | 3.8 | 19.8 | 6.5 | 5.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.4 | 9.8 |
| 6 | 3.1 | 3.7 | 21.5 | 6.4 | 5.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 11.6 |
| 7 | 4.0 | 3.6 | 13.8 | 5.7 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 9.0 |
| 8 | 4.6 | 3.7 | 14.9 | 6.0 | 5.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 8.0 |
| 9 | 4.7 | 3.9 | 14.0 | 6.0 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.9 | 10.2 |
| 10 | 4.7 | 6.6 | 11.0 | 5.4 | 5.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 15.8 |
| 11 | 8.9 | 16.4 | 9.6 | 4.8 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 14.2 |
| 12 | 8.8 | 16.8 | 8.6 | 4.7 | 4.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 10.7 |
| 13 | 6.6 | 14.0 | 8.0 | 4.6 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 9.1 |
| 14 | 5.7 | 13.0 | 7.5 | 4.4 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.7 | 8.3 |
| 15 | 5.5 | 18.8 | 6.7 | 4.4 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 7.7 |
| 16 | 5.0 | 17.0 | 7.8 | 4.6 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.6 | 7.3 |
| 17 | 4.7 | 22.4 | 7.4 | 6.2 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.4 | 6.8 |
| 18 | 4.5 | 22.6 | 6.5 | 4.9 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.3 | 7.7 |
| 19 | 4.2 | 16.5 | 6.0 | 4.4 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 8.8 |
| 20 | 4.3 | 13.6 | 5.4 | 4.3 | 3.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.5 | 22.9 |
| 21 | 4.0 | 10.7 | 4.9 | 5.0 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.0 | 15.9 |
| 22 | 3.9 | 9.3 | 4.6 | 6.0 | 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 10.9 |
| 23 | 3.9 | 8.4 | 5.0 | 11.1 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.8 | 10.8 |
| 24 | 3.7 | 8.9 | 5.4 | 11.6 | 3.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.6 | 13.0 |
| 25 | 3.7 | 7.8 | 6.2 | 9.0 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 | 9.8 |
| 26 | 3.8 | 7.2 | 7.7 | 9.0 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 8.8 |
| 27 | 4.0 | 7.1 | 8.3 | 9.6 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.1 | 8.3 |
| 28 | 5.4 | 6.4 | 13.9 | 8.0 | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 7.6 |
| 29 | 5.0 | — | 16.4 | 7.0 | 2.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 7.0 |
| 30 | 4.2 | — | 12.1 | 6.4 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.8 | 6.6 |
| 31 | 4.1 | — | 10.3 | — | 0.8 | — | 0.0 | 0.0 | — | 0.0 | — | 6.2 |

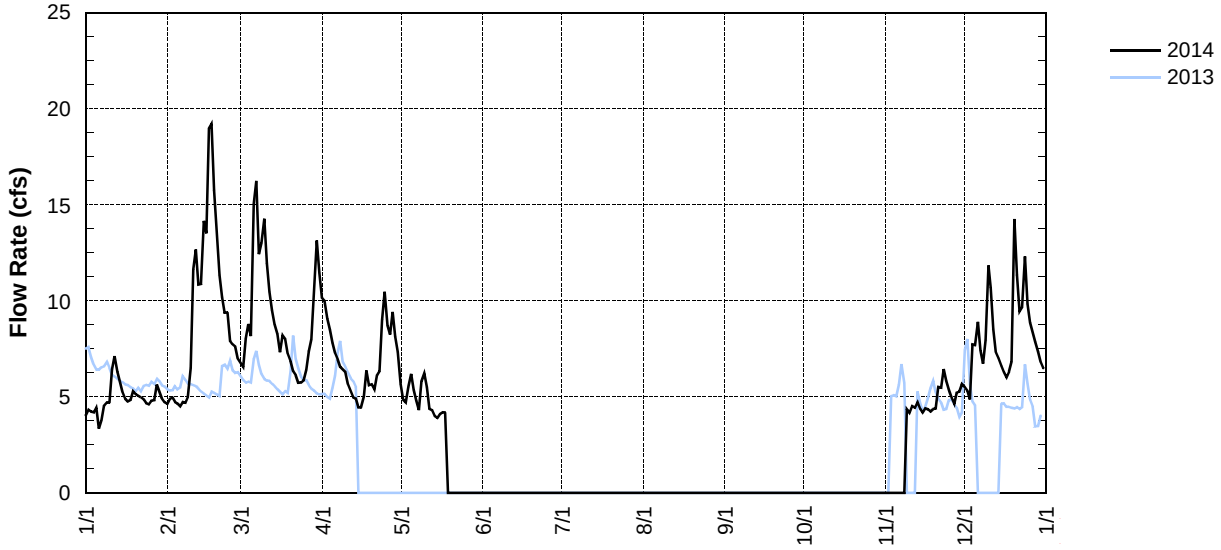


## CWSHB – CLEAN WATER SERVICES HILLSBORO WASTEWATER TREATMENT FACILITY DISCHARGE [RM 43.8]

Source Agency: Clean Water Services

| Day | 2014 — Mean Daily Water Discharge in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 4.1 | 4.6 | 6.5 | 10.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.5 |
| 2 | 4.3 | 4.9 | 8.0 | 9.1 | 4.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 |
| 3 | 4.2 | 5.0 | 8.8 | 8.5 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.9 |
| 4 | 4.2 | 4.7 | 8.2 | 7.8 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 |
| 5 | 4.4 | 4.7 | 15.1 | 7.3 | 5.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.7 |
| 6 | 3.4 | 4.5 | 16.3 | 7.0 | 4.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 8.9 |
| 7 | 3.8 | 4.7 | 12.4 | 6.6 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 7.4 |
| 8 | 4.5 | 4.7 | 13.0 | 6.4 | 5.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.7 |
| 9 | 4.7 | 5.0 | 14.3 | 6.3 | 6.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 8.0 |
| 10 | 4.7 | 6.5 | 12.0 | 5.7 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 11.9 |
| 11 | 6.4 | 11.6 | 10.5 | 5.3 | 4.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.5 | 10.7 |
| 12 | 7.1 | 12.7 | 9.5 | 5.0 | 4.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 8.5 |
| 13 | 6.3 | 10.9 | 8.8 | 4.9 | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.7 | 7.3 |
| 14 | 5.8 | 10.9 | 8.3 | 4.4 | 3.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 7.0 |
| 15 | 5.2 | 14.2 | 7.3 | 4.5 | 4.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 6.6 |
| 16 | 4.9 | 13.5 | 8.2 | 5.0 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 6.3 |
| 17 | 4.8 | 19.0 | 8.0 | 6.4 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.3 | 6.0 |
| 18 | 4.8 | 19.2 | 7.2 | 5.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.2 | 6.3 |
| 19 | 5.3 | 15.8 | 6.9 | 5.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 6.8 |
| 20 | 5.1 | 13.6 | 6.3 | 5.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.4 | 14.3 |
| 21 | 5.1 | 11.4 | 6.1 | 6.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.5 | 11.4 |
| 22 | 5.0 | 10.2 | 5.7 | 6.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.5 | 9.5 |
| 23 | 4.9 | 9.4 | 5.7 | 9.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.5 | 9.7 |
| 24 | 4.7 | 9.4 | 5.9 | 10.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.8 | 12.3 |
| 25 | 4.6 | 7.9 | 6.4 | 8.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.4 | 9.8 |
| 26 | 4.8 | 7.7 | 7.4 | 8.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 8.9 |
| 27 | 4.8 | 7.6 | 8.0 | 9.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 4.6 | 8.4 |
| 28 | 5.6 | 7.0 | 10.5 | 8.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.2 | 7.9 |
| 29 | 5.3 | — | 13.1 | 7.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.3 | 7.3 |
| 30 | 4.9 | — | 11.5 | 5.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.7 | 6.8 |
| 31 | 4.7 | — | 10.2 | — | 0.0 | — | 0.0 | 0.0 | — | 0.0 | — | 6.5 |

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

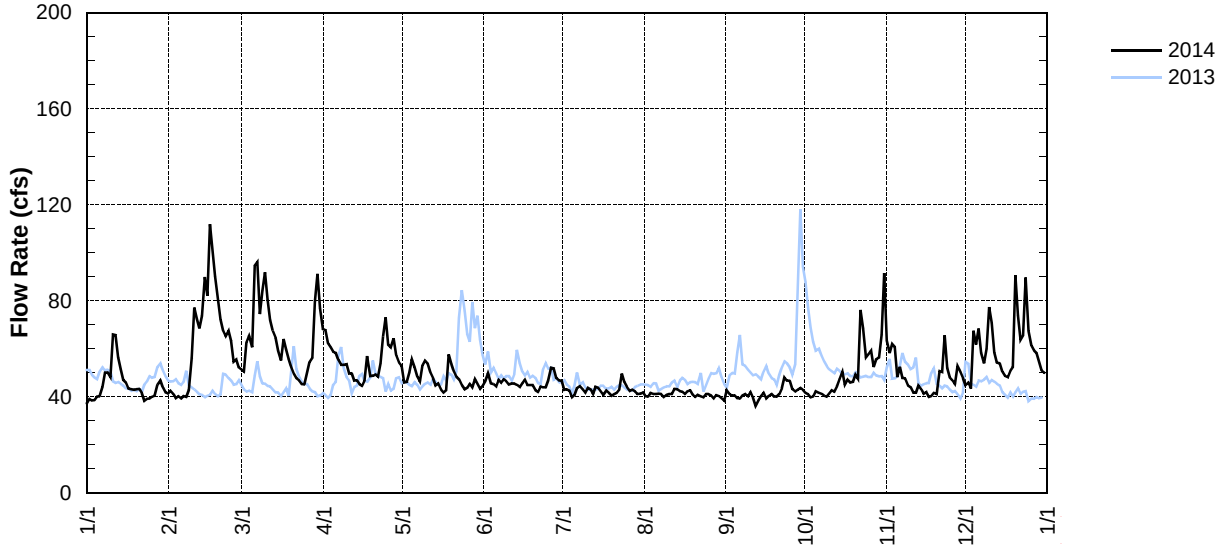


## CWSRC – CLEAN WATER SERVICES ROCK CREEK WASTEWATER TREATMENT FACILITY DISCHARGE [RM 38.08]

Source Agency: Clean Water Services

| Day | 2014 — Mean Daily Water Discharge in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 37.3 | 41.5 | 50.4 | 67.9 | 46.0 | 46.5 | 42.9 | 40.2 | 42.8 | 41.8 | 63.3 | 44.9 |
| 2 | 39.2 | 42.5 | 62.9 | 62.3 | 46.3 | 49.9 | 43.2 | 40.2 | 41.3 | 41.2 | 58.3 | 46.0 |
| 3 | 38.6 | 41.4 | 65.5 | 60.7 | 50.0 | 45.6 | 42.6 | 41.8 | 40.5 | 39.9 | 62.2 | 43.5 |
| 4 | 38.6 | 39.5 | 60.7 | 58.8 | 55.6 | 45.4 | 39.9 | 41.2 | 40.6 | 40.3 | 60.9 | 67.7 |
| 5 | 40.1 | 40.2 | 94.7 | 58.4 | 52.6 | 44.4 | 40.7 | 41.3 | 39.5 | 42.4 | 48.2 | 61.8 |
| 6 | 40.2 | 39.2 | 96.3 | 55.4 | 48.4 | 47.3 | 43.8 | 41.3 | 39.4 | 41.7 | 52.5 | 68.5 |
| 7 | 44.1 | 40.3 | 74.5 | 53.3 | 46.3 | 46.0 | 44.5 | 41.1 | 40.6 | 41.4 | 47.9 | 58.4 |
| 8 | 50.0 | 40.0 | 84.4 | 53.3 | 53.2 | 47.4 | 43.3 | 40.0 | 41.3 | 40.5 | 47.8 | 54.0 |
| 9 | 50.1 | 42.8 | 91.9 | 53.5 | 55.1 | 46.4 | 41.8 | 40.8 | 40.2 | 40.2 | 44.7 | 60.1 |
| 10 | 48.1 | 56.3 | 80.6 | 49.7 | 53.9 | 45.2 | 43.8 | 41.1 | 41.9 | 41.5 | 44.2 | 77.5 |
| 11 | 66.0 | 77.2 | 72.1 | 49.9 | 50.0 | 45.7 | 43.3 | 41.2 | 39.6 | 42.7 | 41.8 | 70.9 |
| 12 | 65.8 | 72.5 | 67.6 | 46.8 | 47.8 | 45.7 | 41.2 | 43.3 | 36.3 | 42.3 | 41.8 | 58.6 |
| 13 | 56.6 | 68.5 | 64.6 | 47.0 | 44.8 | 45.1 | 44.3 | 43.2 | 38.6 | 44.4 | 44.7 | 54.2 |
| 14 | 51.6 | 73.8 | 59.1 | 45.4 | 45.6 | 44.1 | 43.8 | 42.3 | 40.4 | 47.5 | 43.3 | 54.0 |
| 15 | 47.1 | 89.9 | 55.1 | 44.6 | 43.1 | 45.7 | 42.4 | 42.2 | 41.8 | 50.6 | 41.3 | 50.5 |
| 16 | 45.9 | 82.1 | 64.2 | 46.9 | 41.9 | 47.2 | 40.9 | 41.2 | 39.4 | 45.2 | 42.0 | 48.7 |
| 17 | 43.5 | 111.9 | 59.7 | 57.0 | 42.7 | 45.0 | 42.7 | 42.3 | 40.4 | 47.2 | 40.0 | 48.2 |
| 18 | 43.2 | 101.5 | 55.7 | 48.5 | 57.7 | 44.8 | 41.7 | 42.7 | 41.3 | 45.9 | 40.4 | 51.0 |
| 19 | 42.8 | 90.3 | 52.2 | 48.7 | 53.8 | 44.8 | 40.4 | 40.9 | 40.1 | 46.3 | 41.7 | 52.4 |
| 20 | 43.2 | 81.8 | 49.5 | 49.3 | 50.5 | 42.8 | 41.3 | 40.0 | 40.1 | 49.2 | 41.3 | 90.7 |
| 21 | 43.3 | 72.3 | 47.7 | 48.4 | 48.4 | 42.1 | 41.8 | 40.9 | 41.2 | 47.4 | 50.9 | 73.9 |
| 22 | 41.6 | 67.7 | 46.9 | 53.9 | 47.2 | 44.4 | 43.1 | 40.3 | 43.6 | 76.2 | 50.3 | 63.8 |
| 23 | 38.3 | 65.3 | 45.4 | 65.2 | 45.0 | 44.0 | 49.8 | 39.9 | 48.1 | 68.7 | 65.7 | 65.7 |
| 24 | 39.1 | 67.7 | 45.2 | 73.2 | 43.2 | 44.0 | 46.1 | 41.2 | 46.8 | 56.6 | 51.9 | 89.7 |
| 25 | 39.4 | 63.3 | 49.8 | 61.7 | 43.8 | 47.0 | 44.2 | 41.2 | 46.6 | 57.8 | 48.0 | 67.4 |
| 26 | 40.1 | 54.7 | 54.5 | 60.6 | 45.4 | 52.1 | 42.5 | 40.6 | 43.3 | 59.4 | 46.9 | 61.3 |
| 27 | 40.5 | 55.6 | 56.4 | 64.4 | 44.0 | 51.8 | 43.0 | 39.6 | 42.2 | 52.5 | 45.4 | 59.3 |
| 28 | 45.2 | 52.3 | 79.9 | 57.3 | 47.4 | 47.8 | 42.4 | 40.7 | 43.1 | 55.7 | 52.9 | 58.3 |
| 29 | 46.9 | — | 91.2 | 54.5 | 45.3 | 46.7 | 41.2 | 40.3 | 43.7 | 56.6 | 50.3 | 54.7 |
| 30 | 43.8 | — | 76.9 | 53.0 | 43.3 | 46.8 | 41.4 | 39.5 | 42.9 | 66.0 | 47.9 | 50.9 |
| 31 | 41.8 | — | 68.3 | — | 44.6 | — | 41.9 | 38.4 | — | 91.5 | — | 50.0 |

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

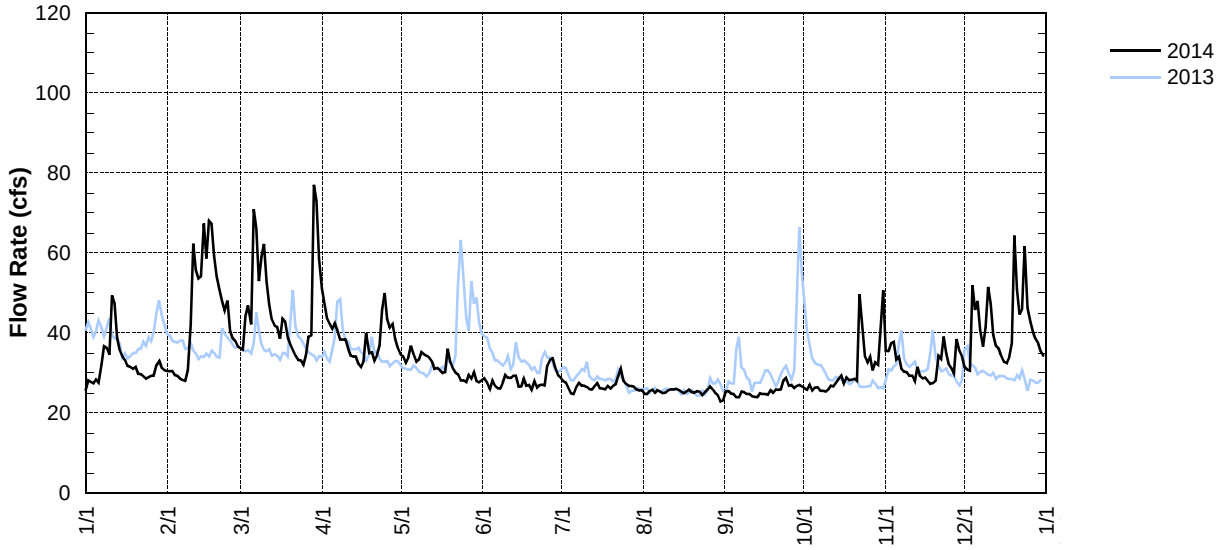


## CWSDH – CLEAN WATER SERVICES DURHAM WASTEWATER TREATMENT FACILITY DISCHARGE [RM 9.33]

Source Agency: Clean Water Services

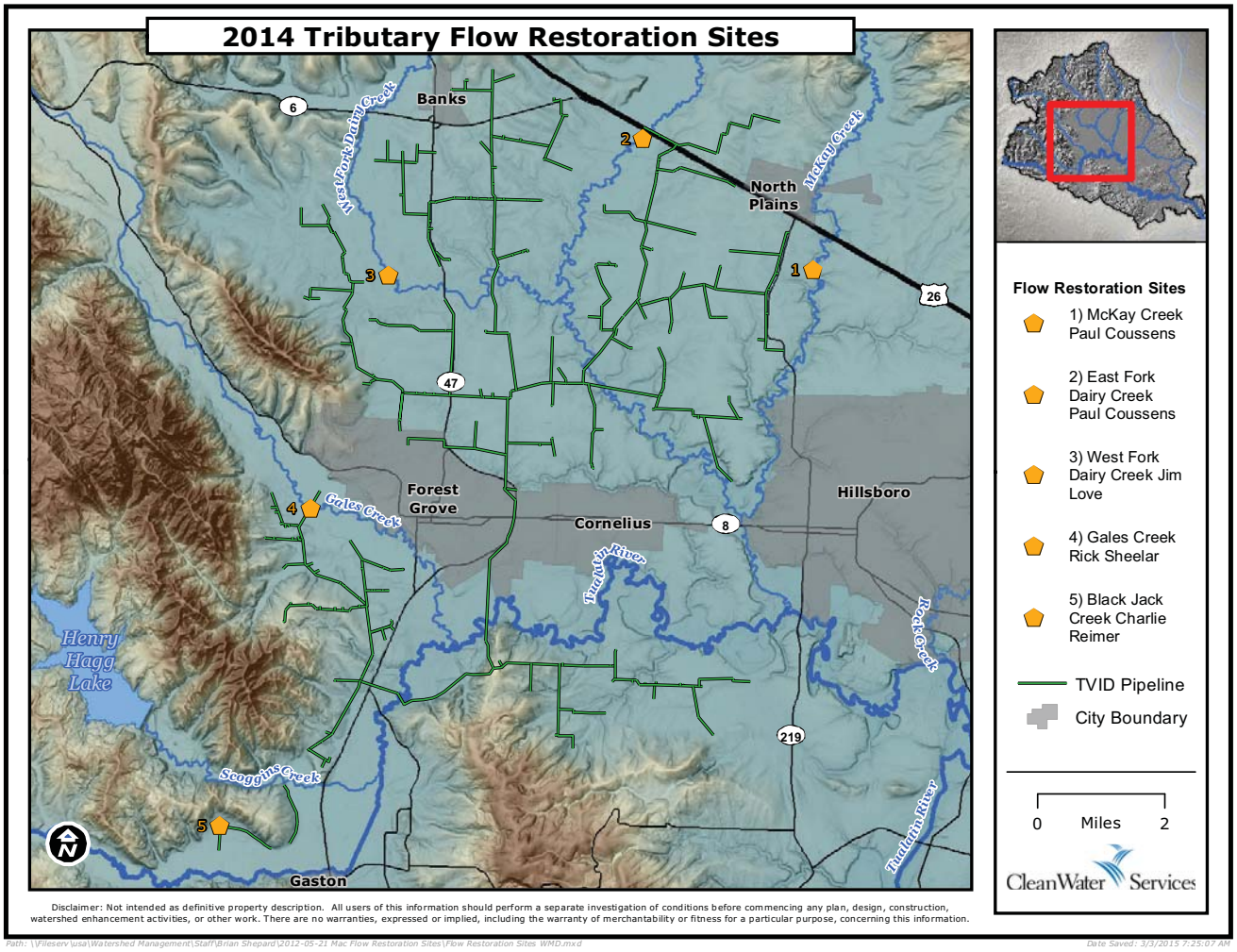
| Day | 2014 — Mean Daily Water Discharge in Cubic Feet per Second | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 25.7 | 30.5 | 35.8 | 47.5 | 34.0 | 28.7 | 28.0 | 24.8 | 25.4 | 26.2 | 35.5 | 31.6 |
| 2 | 28.2 | 30.4 | 44.2 | 43.6 | 32.5 | 27.5 | 27.6 | 24.7 | 25.4 | 25.9 | 35.5 | 30.8 |
| 3 | 27.8 | 30.5 | 46.9 | 42.2 | 33.9 | 25.9 | 26.2 | 25.5 | 24.8 | 27.1 | 37.4 | 30.6 |
| 4 | 27.5 | 29.5 | 42.2 | 41.0 | 36.8 | 28.1 | 24.9 | 25.9 | 24.7 | 25.6 | 37.7 | 51.9 |
| 5 | 28.4 | 29.2 | 70.9 | 42.5 | 34.7 | 26.7 | 24.7 | 25.0 | 23.9 | 26.3 | 33.4 | 45.8 |
| 6 | 27.6 | 28.6 | 66.2 | 40.7 | 32.8 | 26.1 | 26.4 | 25.6 | 23.9 | 26.4 | 34.1 | 48.0 |
| 7 | 32.0 | 28.3 | 52.9 | 38.3 | 33.4 | 26.1 | 27.5 | 25.3 | 25.3 | 25.5 | 31.0 | 40.7 |
| 8 | 36.7 | 27.9 | 58.9 | 38.4 | 35.2 | 27.6 | 26.8 | 25.0 | 25.2 | 25.5 | 30.3 | 36.6 |
| 9 | 36.3 | 30.7 | 62.3 | 38.4 | 34.6 | 29.6 | 26.7 | 25.1 | 24.7 | 25.4 | 30.1 | 41.4 |
| 10 | 34.5 | 42.1 | 52.9 | 36.1 | 34.3 | 28.8 | 26.4 | 25.6 | 24.7 | 25.8 | 29.3 | 51.5 |
| 11 | 49.3 | 62.3 | 47.2 | 34.3 | 33.7 | 28.7 | 26.0 | 26.0 | 24.2 | 26.8 | 29.3 | 47.2 |
| 12 | 47.4 | 55.6 | 43.4 | 34.1 | 32.9 | 29.2 | 25.9 | 25.9 | 24.0 | 26.6 | 27.9 | 39.4 |
| 13 | 38.8 | 53.6 | 41.9 | 34.0 | 31.0 | 29.2 | 26.7 | 26.0 | 23.9 | 27.5 | 31.5 | 36.8 |
| 14 | 35.7 | 54.1 | 41.5 | 32.3 | 31.3 | 26.5 | 27.4 | 25.7 | 25.0 | 28.4 | 29.2 | 36.1 |
| 15 | 34.2 | 67.3 | 38.6 | 31.6 | 30.6 | 26.6 | 26.2 | 25.3 | 24.8 | 29.4 | 28.6 | 34.2 |
| 16 | 33.3 | 58.6 | 43.6 | 32.9 | 30.0 | 28.5 | 26.1 | 24.9 | 24.7 | 27.4 | 28.9 | 32.8 |
| 17 | 31.8 | 68.1 | 42.9 | 40.0 | 30.2 | 26.7 | 26.0 | 25.3 | 24.5 | 28.9 | 28.0 | 32.4 |
| 18 | 31.6 | 67.4 | 39.0 | 34.9 | 36.1 | 27.0 | 26.7 | 25.8 | 25.7 | 28.2 | 27.3 | 34.1 |
| 19 | 31.0 | 59.3 | 37.1 | 35.2 | 32.7 | 25.7 | 26.1 | 25.2 | 25.1 | 28.4 | 27.4 | 37.4 |
| 20 | 31.6 | 54.1 | 35.6 | 33.1 | 31.1 | 27.9 | 26.7 | 25.0 | 25.9 | 28.6 | 28.0 | 64.4 |
| 21 | 29.7 | 50.7 | 34.3 | 34.4 | 30.0 | 26.3 | 27.2 | 25.4 | 25.7 | 27.9 | 34.3 | 51.0 |
| 22 | 29.7 | 47.9 | 33.2 | 36.8 | 29.7 | 27.0 | 29.2 | 25.2 | 25.8 | 49.7 | 33.5 | 44.6 |
| 23 | 29.1 | 45.6 | 33.1 | 45.8 | 28.1 | 27.0 | 31.0 | 24.5 | 28.0 | 42.6 | 39.1 | 46.0 |
| 24 | 28.5 | 48.0 | 32.0 | 50.0 | 28.2 | 26.8 | 28.0 | 25.2 | 28.7 | 34.1 | 34.9 | 61.6 |
| 25 | 28.9 | 40.5 | 34.4 | 43.3 | 27.8 | 31.8 | 27.3 | 25.8 | 26.8 | 32.7 | 32.1 | 46.2 |
| 26 | 29.3 | 38.6 | 39.1 | 41.4 | 29.5 | 33.4 | 26.7 | 26.6 | 27.0 | 34.2 | 31.1 | 42.7 |
| 27 | 29.3 | 37.9 | 39.4 | 42.2 | 28.6 | 33.7 | 26.7 | 26.0 | 26.3 | 30.6 | 29.8 | 40.2 |
| 28 | 32.0 | 36.6 | 77.0 | 38.5 | 30.2 | 31.3 | 26.5 | 24.9 | 26.8 | 32.7 | 38.5 | 38.5 |
| 29 | 33.0 | — | 73.0 | 36.2 | 28.0 | 29.4 | 25.9 | 24.4 | 27.0 | 32.0 | 35.5 | 37.5 |
| 30 | 31.2 | — | 58.5 | 34.5 | 27.7 | 28.8 | 25.6 | 22.9 | 26.6 | 40.4 | 34.2 | 35.4 |
| 31 | 30.6 | — | 51.1 | — | 28.2 | — | 25.6 | 23.2 | — | 50.6 | — | 34.3 |

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



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

| Map # | Site Name | River Mile | Start Date | End Date | Average Flow (cfs) | Total Release (ac-ft) |
|---|---|---|---|---|---|---|
| 1 | McKay Creek | 7.0 | 7/11/2014 | 10/21/2014 | 1.6 | 319 |
| 2 | East Fork Dairy Creek | 4.9 | 7/11/2014 | 10/21/2014 | 1.0 | 205 |
| 3 | West Fork Dairy Creek | 5.2 | 7/11/2014 | 10/21/2014 | 0.7 | 151 |
| 4 | Gales Creek | 5.0 | 7/11/2014 | 10/21/2014 | 1.9 | 384 |
| 5 | Black Jack Creek | — | 7/11/2014 | 10/21/2014 | 0.8 | 168 |



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# Appendix C

# Scoggins Reservoir Operations Monthly Records

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

# SCOGGINS DAM -- RESERVOIR OPERATIONS

January 2014

[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 | 26 | 3 | 39 | 283.39 | 32888 | 19 | 10 | 47 | 57 | 59 | 117 | 175 | 269 | 389 | 380 | 0.00 | 46 | 36 | 0 | 0 | 0 | 0 | 0 |
| 2 | 10 | 26 | 3 | 39 | 283.39 | 32888 | 0 | 0 | 47 | 47 | 57 | 115 | 189 | 262 | 380 | 364 | 0.00 | 50 | 34 | 0 | 0 | 0 | 0 | 0 |
| 3 | 10 | 26 | 3 | 39 | 283.38 | 32878 | -10 | -5 | 47 | 42 | 57 | 113 | 187 | 266 | 383 | 376 | 0.03 | 41 | 35 | 0 | 0 | 0 | 0 | 0 |
| 4 | 9 | 24 | 3 | 36 | 283.38 | 32878 | 0 | 0 | 47 | 47 | 55 | 111 | 180 | 269 | 387 | 368 | 0.00 | 46 | 25 | 0 | 0 | 0 | 0 | 0 |
| 5 | 9 | 24 | 3 | 36 | 283.38 | 32878 | 0 | 0 | 47 | 47 | 53 | 107 | 175 | 250 | 371 | 364 | 0.01 | 47 | 23 | 0 | 0 | 0 | 0 | 0 |
| 6 | 9 | 24 | 3 | 36 | 283.34 | 32842 | -36 | -18 | 47 | 29 | 52 | 106 | 168 | 240 | 354 | 340 | 0.00 | 52 | 23 | 0 | 0 | 0 | 0 | 0 |
| 7 | 11 | 25 | 3 | 39 | 283.34 | 32842 | 0 | 0 | 47 | 47 | 55 | 110 | 174 | 228 | 337 | 329 | 0.09 | 43 | 33 | 0 | 0 | 0 | 0 | 0 |
| 8 | 16 | 32 | 4 | 52 | 283.39 | 32888 | 46 | 23 | 47 | 70 | 75 | 130 | 204 | 363 | 424 | 478 | 0.39 | 43 | 37 | 0 | 0 | 0 | 0 | 0 |
| 9 | 22 | 49 | 4 | 75 | 283.49 | 32980 | 92 | 46 | 47 | 93 | 137 | 206 | 293 | 539 | 704 | 737 | 0.46 | 50 | 36 | 0 | 0 | 0 | 0 | 0 |
| 10 | 24 | 55 | 4 | 83 | 283.53 | 33016 | 36 | 18 | 92 | 110 | 172 | 297 | 442 | 726 | 917 | 857 | 0.14 | 51 | 39 | 0 | 0 | 0 | 0 | 0 |
| 11 | 50 | 93 | 5 | 148 | 283.63 | 33108 | 92 | 46 | 93 | 139 | 191 | 304 | 457 | 825 | 1050 | 1100 | 0.50 | 53 | 45 | 0 | 0 | 0 | 0 | 0 |
| 12 | 86 | 167 | 7 | 260 | 284.16 | 33598 | 490 | 247 | 93 | 340 | 709 | 579 | 933 | 1440 | 1690 | 1700 | 0.90 | 49 | 41 | 0 | 0 | 0 | 0 | 0 |
| 13 | 64 | 147 | 6 | 217 | 284.73 | 34127 | 529 | 267 | 93 | 360 | 673 | 727 | 1210 | 1910 | 2330 | 2260 | 0.12 | 54 | 43 | 0 | 0 | 0 | 0 | 0 |
| 14 | 48 | 113 | 5 | 166 | 285.08 | 34454 | 327 | 165 | 93 | 258 | 420 | 691 | 1250 | 1950 | 2410 | 2460 | 0.00 | 54 | 36 | 0 | 0 | 0 | 0 | 0 |
| 15 | 38 | 91 | 4 | 133 | 285.32 | 34679 | 225 | 113 | 93 | 206 | 287 | 582 | 1110 | 1880 | 2340 | 2390 | 0.00 | 49 | 35 | 0 | 0 | 0 | 0 | 0 |
| 16 | 33 | 65 | 4 | 102 | 285.48 | 34829 | 150 | 76 | 93 | 169 | 218 | 479 | 850 | 1660 | 2100 | 2220 | 0.00 | 40 | 30 | 0 | 0 | 0 | 0 | 0 |
| 17 | 29 | 58 | 4 | 91 | 285.59 | 34932 | 103 | 52 | 93 | 145 | 183 | 397 | 697 | 1370 | 1770 | 1910 | 0.00 | 49 | 30 | 0 | 0 | 0 | 0 | 0 |
| 18 | 27 | 50 | 4 | 81 | 285.67 | 35007 | 75 | 38 | 93 | 131 | 160 | 344 | 582 | 1150 | 1500 | 1620 | 0.01 | 48 | 29 | 0 | 0 | 0 | 0 | 0 |
| 19 | 24 | 46 | 4 | 74 | 285.70 | 35035 | 28 | 14 | 93 | 107 | 142 | 306 | 506 | 981 | 1290 | 1380 | 0.00 | 42 | 30 | 0 | 0 | 0 | 0 | 0 |
| 20 | 23 | 41 | 4 | 68 | 285.75 | 35083 | 48 | 24 | 93 | 117 | 128 | 278 | 443 | 855 | 1130 | 1200 | 0.00 | 44 | 29 | 0 | 0 | 0 | 0 | 0 |
| 21 | 21 | 38 | 4 | 63 | 285.76 | 35092 | 9 | 5 | 93 | 98 | 118 | 255 | 398 | 756 | 1010 | 1060 | 0.00 | 53 | 28 | 0 | 0 | 0 | 0 | 0 |
| 22 | 20 | 36 | 4 | 60 | 285.84 | 35167 | 75 | 38 | 51 | 89 | 109 | 204 | 338 | 670 | 902 | 930 | 0.00 | 48 | 30 | 0 | 0 | 0 | 0 | 0 |
| 23 | 18 | 33 | 3 | 54 | 285.89 | 35214 | 47 | 24 | 51 | 75 | 102 | 191 | 321 | 590 | 801 | 834 | 0.00 | 52 | 35 | 0 | 0 | 0 | 0 | 0 |
| 24 | 17 | 31 | 3 | 51 | 285.98 | 35299 | 85 | 43 | 21 | 64 | 119 | 157 | 282 | 537 | 734 | 748 | 0.00 | 51 | 34 | 0 | 0 | 0 | 0 | 0 |
| 25 | 16 | 30 | 3 | 49 | 286.06 | 35375 | 76 | 38 | 21 | 59 | 114 | 148 | 259 | 481 | 665 | 689 | 0.00 | 55 | 27 | 0 | 0 | 0 | 0 | 0 |
| 26 | 16 | 28 | 3 | 47 | 286.14 | 35450 | 75 | 38 | 21 | 59 | 109 | 142 | 244 | 445 | 617 | 630 | 0.00 | 51 | 27 | 0 | 0 | 0 | 0 | 0 |
| 27 | 15 | 28 | 3 | 46 | 286.22 | 35526 | 76 | 38 | 21 | 59 | 105 | 137 | 241 | 426 | 590 | 595 | 0.00 | 52 | 28 | 0 | 0 | 0 | 0 | 0 |
| 28 | 16 | 27 | 3 | 46 | 286.31 | 35611 | 85 | 43 | 21 | 64 | 103 | 134 | 234 | 418 | 574 | 563 | 0.08 | 42 | 31 | 0 | 0 | 0 | 0 | 0 |
| 29 | 23 | 44 | 4 | 71 | 286.44 | 35734 | 123 | 62 | 21 | 83 | 139 | 163 | 260 | 501 | 646 | 683 | 0.49 | 42 | 38 | 0 | 0 | 0 | 0 | 0 |
| 30 | 20 | 36 | 4 | 60 | 286.60 | 35886 | 152 | 77 | 20 | 97 | 162 | 200 | 342 | 633 | 796 | 743 | 0.04 | 53 | 37 | 0 | 0 | 0 | 0 | 0 |
| 31 | 20 | 36 | 4 | 60 | 286.72 | 36000 | 114 | 57 | 20 | 77 | 156 | 187 | 309 | 616 | 799 | 805 | 0.02 | 49 | 36 | 0 | 0 | 0 | 0 | 0 |
| TOTALS | | | | | | | | | | | | | | | | | | | | | | | | |
| cfs | 754 | 1549 | 118 | 2421 | | | | 1579 | 1806 | 3385 | 5219 | 8017 | 13453 | 23506 | 30390 | 31113 | 3.28 inches | | | 0 | 0 | 0 | 0 | 0 |
| ac-ft | 1496 | 3072 | 234 | 4802 | | | 3131 | 3131 | 3582 | 6713 | 10352 | 15902 | 26684 | 46624 | 60279 | 61713 | MAX | 55 | 45 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | MIN | 40 | 23 | 0 | 0 | 0 | 0 | 0 |

**Water storage elevation ± to fill curve:** **-0.19**
**Water storage in ac-ft ± to fill curve:** **-184**
**Percentage of full reservoir:** **67.5%**

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

**SNOTEL Summary for Water Year 2014**
Updated: January 31, 2014
SECO W/Y pc: 15.1" sno depth/water content 0
SDMO W/Y pc: 27.6" sno depth/water content 0

| **RESERVOIR DELIVERY STATUS** | | USED | REMAINING |
|---|---|---|---|
| *These allocations, amounts used and* | TVID | 0 | |
| *remaining are provisional and subject* | CWS | 0 | 12615 |
| *to daily changes as the WS elevation* | LO | 0 | 500 |
| *rises and falls. These numbers are for* | MUNI | 0 | 13500 |
| *planning purposes only* | Other | 0 | |

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

## SCOGGINS DAM -- RESERVOIR OPERATIONS
February 2014

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 | 34 | 3 | 56 | 286.73 | 36009 | 9 | 5 | 15 | 20 | 148 | 177 | 307 | 570 | 746 | 765 | 0.00 | 48 | 35 | 0 | 0 | 0 | 0 | 0 |
| 2 | 18 | 33 | 3 | 54 | 286.84 | 36114 | 105 | 53 | 15 | 68 | 139 | 165 | 281 | 520 | 691 | 710 | 0.00 | 48 | 29 | 0 | 0 | 0 | 0 | 0 |
| 3 | 18 | 31 | 3 | 52 | 286.93 | 36200 | 86 | 43 | 15 | 58 | 129 | 154 | 265 | 490 | 644 | 662 | 0.00 | 48 | 33 | 0 | 0 | 0 | 0 | 0 |
| 4 | 17 | 30 | 3 | 50 | 287.03 | 36295 | 95 | 48 | 15 | 63 | 121 | 146 | 250 | 470 | 619 | 630 | 0.02 | 42 | 28 | 0 | 0 | 0 | 0 | 0 |
| 5 | 16 | 28 | 2 | 46 | 287.12 | 36381 | 86 | 43 | 15 | 58 | 114 | 135 | 234 | 434 | 572 | 600 | 0.00 | 37 | 23 | 0 | 0 | 0 | 0 | 0 |
| 6 | 15 | 27 | 2 | 44 | 287.20 | 36457 | 76 | 38 | 15 | 53 | 108 | 113 | 203 | 428 | 558 | 610 | 0.00 | 30 | 21 | 0 | 0 | 0 | 0 | 0 |
| 7 | 16 | 34 | 2 | 52 | 287.32 | 36572 | 115 | 58 | 15 | 73 | 152 | 170 | 188 | 325 | 456 | 584 | 0.38 | 23 | 19 | 0 | 0 | 0 | 0 | 0 |
| 8 | 16 | 29 | 2 | 47 | 287.44 | 36686 | 114 | 57 | 15 | 72 | 140 | 135 | 224 | 393 | 488 | 522 | 0.42 | 28 | 20 | 0 | 0 | 0 | 0 | 0 |
| 9 | 15 | 28 | 2 | 45 | 287.57 | 36811 | 125 | 63 | 15 | 78 | 123 | 131 | 226 | 433 | 561 | 584 | 0.53 | 30 | 26 | 0 | 0 | 0 | 0 | 0 |
| 10 | 17 | 28 | 2 | 47 | 287.65 | 36888 | 77 | 39 | 15 | 54 | 109 | 126 | 225 | 439 | 569 | 625 | 0.01 | 35 | 30 | 0 | 0 | 0 | 0 | 0 |
| 11 | 34 | 50 | 3 | 87 | 287.82 | 37051 | 163 | 82 | 15 | 97 | 196 | 191 | 278 | 551 | 689 | 893 | 0.24 | 40 | 33 | 0 | 0 | 0 | 0 | 0 |
| 12 | 145 | 247 | 15 | 407 | 288.43 | 37639 | 588 | 296 | 16 | 312 | NA | 571 | 780 | 1200 | 1470 | 1640 | 1.07 | 49 | 36 | 0 | 0 | 0 | 0 | 0 |
| 13 | 106 | 189 | 10 | 305 | 289.39 | 38571 | 932 | 470 | 63 | 533 | NA | 857 | 1510 | 2220 | 2690 | 2330 | 0.08 | 53 | 39 | 0 | 0 | 0 | 0 | 0 |
| 14 | 138 | 247 | 15 | 400 | 290.21 | 39374 | 803 | 405 | 150 | 555 | NA | 930 | 1850 | 2530 | 3130 | 3620 | 0.79 | 54 | 41 | 0 | 0 | 0 | 0 | 0 |
| 15 | 140 | 180 | 10 | 330 | 291.12 | 40272 | 898 | 453 | 49 | 502 | NA | 964 | 2190 | 2820 | 3500 | 3810 | 0.21 | 53 | 40 | 0 | 0 | 0 | 0 | 0 |
| 16 | 146 | 255 | 15 | 416 | 292.46 | 41610 | 1338 | 675 | 50 | 725 | NA | 1140 | 2430 | 3110 | 3880 | 4630 | 1.33 | 52 | 37 | 0 | 0 | 0 | 0 | 0 |
| 17 | 222 | 527 | 30 | 779 | 293.78 | 42945 | 1335 | 673 | 53 | 726 | NA | 1150 | 2650 | 3350 | 4140 | NA | 1.60 | 47 | 38 | 0 | 0 | 0 | 0 | 0 |
| 18 | 236 | 320 | 18 | 574 | 295.58 | 44794 | 1849 | 932 | 51 | 983 | NA | 1560 | 2940 | 4030 | 4750 | NA | 0.41 | 51 | 41 | 0 | 0 | 0 | 0 | 0 |
| 19 | 198 | 363 | 20 | 581 | 297.61 | 46919 | 2125 | 1071 | 51 | 1122 | NA | 1790 | 3100 | 4970 | 5450 | 5900 | 1.20 | 48 | 34 | 0 | 0 | 0 | 0 | 0 |
| 20 | 163 | 266 | 15 | 444 | 298.91 | 48302 | 1383 | 697 | 51 | 748 | NA | 1280 | 3020 | 5820 | 6580 | 6260 | 0.29 | 48 | 34 | 0 | 0 | 0 | 0 | 0 |
| 21 | 136 | 196 | 10 | 342 | 299.74 | 49194 | 892 | 450 | 157 | 607 | NA | 1110 | 2820 | 5880 | 7920 | 6850 | 0.02 | 49 | 35 | 0 | 0 | 0 | 0 | 0 |
| 22 | 100 | 155 | 9 | 264 | 300.05 | 49529 | 335 | 169 | 313 | 482 | 785 | 1000 | 2630 | 5430 | 7490 | 7250 | 0.00 | 52 | 31 | 0 | 0 | 0 | 0 | 0 |
| 23 | 81 | 129 | 8 | 218 | 300.17 | 49659 | 130 | 66 | 311 | 377 | 631 | 897 | 2460 | 5020 | 6450 | 7250 | 0.01 | 48 | 30 | 0 | 0 | 0 | 0 | 0 |
| 24 | 70 | 109 | 7 | 186 | 300.18 | 49670 | 11 | 6 | 309 | 315 | 512 | 833 | 2210 | 4600 | 5810 | 6900 | 0.06 | 46 | 31 | 0 | 0 | 0 | 0 | 0 |
| 25 | 60 | 95 | 6 | 161 | 300.03 | 49507 | -163 | -82 | 380 | 298 | 438 | 900 | 1960 | 4250 | 5400 | 6410 | 0.25 | 48 | 40 | 0 | 0 | 0 | 0 | 0 |
| 26 | 53 | 82 | 5 | 140 | 299.83 | 49291 | -216 | -109 | 376 | 267 | 365 | 854 | 1740 | 3880 | 4980 | 5820 | 0.01 | 52 | 36 | 0 | 0 | 0 | 0 | 0 |
| 27 | 48 | 71 | 5 | 124 | 299.53 | 48968 | -323 | -163 | 375 | 212 | 319 | 818 | 1560 | 3500 | 4500 | 5170 | 0.00 | 51 | 37 | 0 | 0 | 0 | 0 | 0 |
| 28 | 43 | 98 | 5 | 146 | 299.17 | 48581 | -387 | -195 | 373 | 178 | 285 | 787 | 1390 | 3180 | 4050 | 4560 | 0.03 | 44 | 39 | 0 | 0 | 0 | 0 | 0 |
| TOTALS | | | | | | | | | | | | | | | | | | | | | | | | |
| cfs | 2286 | 3881 | 230 | 6397 | | | | 6343 | 3293 | 9636 | 4814 | 19084 | 39921 | 70843 | 88783 | 85585 | 8.96 inches | | | 0 | 0 | 0 | 0 | 0 |
| ac-ft | 4534 | 7698 | 456 | 12688 | | | 12581 | 12581 | 6532 | 19113 | 9549 | 37853 | 79183 | 140517 | 176101 | 169758 | MAX | 54 | 41 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | MIN | 23 | 19 | 0 | 0 | 0 | 0 | 0 |

| | |
|---|---|
| **Water storage elevation ± to fill curve:** | **0.97** |
| **Water storage in ac-ft ± to fill curve:** | **1032** |
| **Percentage of full reservoir:** | **91.1%** |

**SNOTEL Summary for Water Year 2014**

Updated: February 28, 2014

| | | | |
|---|---|---|---|
| SECO W/Y pc: | 25.5" | sno depth/water content | 0 |
| SDMO W/Y pc: | 43.1" | sno depth/water content | 0 |

**Minimum Required Discharges**

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

| **RESERVOIR DELIVERY STATUS** | | USED | REMAINING |
|---|---|---|---|
| *These allocations, amounts used and* | TVID | 0 | |
| *remaining are provisional and subject* | CWS | 0 | 12615 |
| *to daily changes as the WS elevation* | LO | 0 | 500 |
| *rises and falls. These numbers are for* | MUNI | 0 | 13500 |
| *planning purposes only* | Other | 0 | |

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

# SCOGGINS DAM -- RESERVOIR OPERATIONS
March 2014

Source: Tualatin Valley Irrigation District

| | INFLOW | | | | HENRY HAGG LAKE | | | | | | TUALATIN RIVER | | | | | | WEATHER | | | WATER DELIVERIES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | SCHO (cfs) [1] | SCLO (cfs) [2] | TANO (cfs) [3] | TOT INFLO (cfs) [4] | W.S. ELEV (ft) [5] | STOR CONT (ac-ft) [6] | CHNG STOR (ac-ft) [7] | CHNG STOR (cfs) [8] | REL (cfs) [9] | COMP INFLO (cfs) [10] | GASO (cfs) [11] | DLLO (cfs) [12] | GOLF (cfs) [13] | ROOD (cfs) [14] | FRMO (cfs) [15] | WSLO (cfs) [16] | PRECIP (inches) [17] | TEMP MAX (°F) [18] | TEMP MIN (°F) [19] | TVID (cfs) [20] | CWS (cfs) [21] | LO (cfs) [22] | MUNI (cfs) [23] | OTHR (cfs) [24] |
| 1 | 39 | 90 | 5 | 134 | 298.33 | 47683 | -898 | -453 | 687 | 234 | 259 | 873 | 1260 | 2850 | 3610 | 3970 | 0.00 | 58 | 39 | 1 | 0 | 0 | 0 | 0 |
| 2 | 41 | 88 | 5 | 134 | 297.29 | 46581 | -1102 | -556 | 667 | 111 | 243 | 937 | 1260 | 2550 | 3210 | 3430 | 0.12 | 43 | 36 | 0 | 0 | 0 | 0 | 0 |
| 3 | 67 | 157 | 7 | 231 | 296.42 | 45668 | -913 | -460 | 656 | 196 | 394 | 995 | 1400 | 2410 | 3010 | 3300 | 0.89 | 53 | 37 | 1 | 0 | 0 | 0 | 0 |
| 4 | 61 | 145 | 6 | 212 | 296.20 | 45439 | -229 | -115 | 361 | 246 | 529 | 960 | 1630 | 2370 | 2950 | 3370 | 0.00 | 59 | 41 | 0 | 0 | 0 | 0 | 0 |
| 5 | 128 | 174 | 7 | 309 | 296.08 | 45314 | -125 | -63 | 363 | 300 | 492 | 892 | 1660 | 2370 | 2920 | 3420 | 0.63 | 59 | 45 | 1 | 0 | 0 | 0 | 0 |
| 6 | 227 | 434 | 15 | 676 | 297.33 | 46624 | 1310 | 660 | 107 | 767 | NA | 1380 | 2140 | 2950 | 3690 | 4640 | 2.06 | 57 | 49 | 0 | 0 | 0 | 0 | 0 |
| 7 | 165 | 379 | 13 | 557 | 299.14 | 48548 | 1924 | 970 | 47 | 1017 | NA | 1880 | 2840 | 3330 | 4180 | 4920 | 0.60 | 52 | 40 | 1 | 0 | 0 | 0 | 0 |
| 8 | 132 | 249 | 10 | 391 | 300.10 | 49583 | 1035 | 522 | 100 | 622 | NA | 1340 | 2880 | 3640 | 4400 | 4930 | 0.00 | 60 | 38 | 0 | 0 | 0 | 0 | 0 |
| 9 | 171 | 348 | 13 | 532 | 301.10 | 50671 | 1088 | 549 | 100 | 649 | NA | 1220 | 2720 | 4210 | 4920 | 5700 | 0.79 | 55 | 43 | 1 | 0 | 0 | 0 | 0 |
| 10 | 119 | 255 | 10 | 384 | 301.96 | 51614 | 943 | 475 | 100 | 575 | NA | 1290 | 2710 | 4570 | 5300 | 5860 | 0.12 | 58 | 43 | 0 | 0 | 0 | 0 | 0 |
| 11 | 94 | 199 | 8 | 301 | 302.05 | 51713 | 99 | 50 | 403 | 453 | NA | 1260 | 2630 | 4600 | 5440 | 6140 | 0.00 | 53 | 31 | 1 | 0 | 0 | 0 | 0 |
| 12 | 78 | 163 | 7 | 248 | 301.99 | 51647 | -66 | -33 | 402 | 369 | 626 | 1110 | 2490 | 4466 | 5410 | 6190 | 0.00 | 58 | 32 | 0 | 0 | 0 | 0 | 0 |
| 13 | 67 | 142 | 6 | 215 | 301.80 | 51438 | -209 | -105 | 398 | 293 | 516 | 975 | 2270 | 4240 | 5240 | 6080 | 0.00 | 66 | 33 | 1 | 0 | 0 | 0 | 0 |
| 14 | 89 | 130 | 6 | 225 | 301.59 | 51207 | -231 | -116 | 397 | 281 | 440 | 911 | 2200 | 3970 | 4970 | 5850 | 0.11 | 59 | 35 | 0 | 0 | 0 | 0 | 0 |
| 15 | 78 | 113 | 5 | 196 | 301.26 | 50846 | -361 | -182 | 395 | 213 | 375 | 875 | 1790 | 3670 | 4650 | 5470 | 0.02 | 59 | 37 | 1 | 0 | 0 | 0 | 0 |
| 16 | 74 | 104 | 5 | 183 | 300.94 | 50496 | -350 | -176 | 394 | 218 | 328 | 838 | 1590 | 3350 | 4270 | 5010 | 0.00 | 61 | 40 | 0 | 0 | 0 | 0 | 0 |
| 17 | 71 | 114 | 5 | 190 | 300.63 | 50158 | -338 | -170 | 394 | 224 | 429 | 849 | 1490 | 3140 | 3970 | 4740 | 0.36 | 55 | 35 | 1 | 0 | 0 | 0 | 0 |
| 18 | 63 | 103 | 5 | 171 | 300.74 | 50278 | 120 | 61 | 129 | 190 | 355 | 708 | 1380 | 2910 | 3670 | 4230 | 0.00 | 49 | 33 | 0 | 0 | 0 | 0 | 0 |
| 19 | 58 | 98 | 5 | 161 | 300.83 | 50376 | 98 | 49 | 129 | 178 | 306 | 626 | 1120 | 2650 | 3320 | 3780 | 0.00 | 54 | 35 | 1 | 0 | 0 | 0 | 0 |
| 20 | 53 | 91 | 5 | 149 | 300.90 | 50452 | 76 | 38 | 129 | 167 | 274 | 584 | 956 | 2380 | 2990 | 3280 | 0.01 | 54 | 30 | 0 | 0 | 0 | 0 | 0 |
| 21 | 47 | 87 | 5 | 139 | 300.96 | 50518 | 66 | 33 | 129 | 162 | 249 | 550 | 850 | 2060 | 2600 | 2870 | 0.01 | 49 | 30 | 1 | 0 | 0 | 0 | 0 |
| 22 | 43 | 82 | 5 | 130 | 301.06 | 50627 | 109 | 55 | 81 | 136 | 226 | 440 | 732 | 1720 | 2190 | 2420 | 0.00 | 55 | 29 | 1 | 0 | 0 | 0 | 0 |
| 23 | 40 | 78 | 5 | 123 | 301.15 | 50725 | 98 | 49 | 80 | 129 | 207 | 387 | 634 | 1450 | 1850 | 2020 | 0.00 | 62 | 30 | 1 | 0 | 0 | 0 | 0 |
| 24 | 38 | 74 | 4 | 116 | 301.23 | 50813 | 88 | 44 | 80 | 124 | 193 | 353 | 571 | 1270 | 1600 | 1730 | 0.00 | 62 | 33 | 1 | 0 | 0 | 0 | 0 |
| 25 | 40 | 74 | 4 | 118 | 301.31 | 50900 | 87 | 44 | 80 | 124 | 178 | 368 | 566 | 1170 | 1460 | 1540 | 0.14 | 65 | 36 | 1 | 0 | 0 | 0 | 0 |
| 26 | 46 | 85 | 5 | 136 | 301.33 | 50922 | 22 | 11 | 177 | 188 | 202 | 483 | 695 | 1210 | 1490 | 1540 | 0.60 | 54 | 40 | 1 | 0 | 0 | 0 | 0 |
| 27 | 88 | 153 | 7 | 248 | 301.19 | 50769 | -153 | -77 | 304 | 227 | 389 | 661 | 875 | 1440 | 1730 | 1790 | 0.75 | 50 | 44 | 0 | 0 | 0 | 0 | 0 |
| 28 | 127 | 151 | 7 | 285 | 301.16 | 50736 | -33 | -17 | 304 | 287 | 440 | 778 | 1130 | 1760 | 2110 | 2070 | 0.42 | 55 | 45 | 1 | 0 | 0 | 0 | 0 |
| 29 | 146 | 218 | 8 | 372 | 301.51 | 51119 | 383 | 193 | 310 | 503 | NA | 983 | 1560 | 2330 | 2900 | 3920 | 1.12 | 54 | 45 | 1 | 0 | 0 | 0 | 0 |
| 30 | 137 | 223 | 9 | 369 | 301.90 | 51548 | 429 | 216 | 310 | 526 | NA | 1200 | 2070 | 2910 | 3670 | 4400 | 0.63 | 56 | 37 | 1 | 0 | 0 | 0 | 0 |
| 31 | 88 | 185 | 8 | 281 | 302.11 | 51779 | 231 | 116 | 307 | 423 | NA | 1100 | 2260 | 2970 | 3750 | 4390 | 0.01 | 52 | 35 | 1 | 0 | 0 | 0 | 0 |
| TOTALS | | | | | | | | | | | | | | | | | | | | | | | | |
| cfs | 2715 | 4986 | 215 | 7916 | | | | 1612 | 8520 | 10132 | 7650 | 27806 | 50359 | 86916 | 107470 | 123000 | 9.39 inches | | | 20 | 0 | 0 | 0 | 0 |
| ac-ft | 5385 | 9890 | 426 | 15701 | | | 3198 | 3198 | 16899 | 20097 | 15174 | 55153 | 99887 | 172398 | 213167 | 243971 | MAX | 66 | 49 | | | | | |
| | | | | | | | | | | | | | | | | | MIN | 43 | 29 | 40 | 0 | 0 | 0 | 0 |

| | |
|---|---|
| **Water storage elevation ± to fill curve:** | **0.48** |
| **Water storage in ac-ft ± to fill curve:** | **531** |
| **Percentage of full reservoir:** | **97.1%** |

**SNOTEL Summary for Water Year 2014**

Updated: March 31, 2014

| | | | |
|---|---|---|---|
| SECO W/Y pc: | 39.4" | sno depth/water content | 0 |
| SDMO W/Y pc: | 61.7" | 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 | 40 | |
| *remaining are provisional and subject* | CWS | 0 | 12615 |
| *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 2014

[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 | 102 | 159 | 7 | 268 | 302.17 | 51846 | 67 | 34 | 307 | 341 | 542 | 972 | 2200 | 3010 | 3740 | 4300 | 0.20 | 55 | 38 | 1 | 0 | 0 | 0 | 0 |
| 2 | 89 | 138 | 7 | 234 | 302.17 | 51846 | 0 | 0 | 306 | 306 | 432 | 897 | 2000 | 3080 | 3800 | 4210 | 0.09 | 51 | 35 | 1 | 0 | 0 | 0 | 0 |
| 3 | 78 | 121 | 6 | 205 | 302.08 | 51746 | -100 | -50 | 305 | 255 | 351 | 836 | 1760 | 3030 | 3750 | 4120 | 0.00 | 58 | 38 | 1 | 0 | 0 | 0 | 0 |
| 4 | 69 | 113 | 6 | 188 | 301.96 | 51614 | -132 | -67 | 305 | 238 | 323 | 799 | NA | 2930 | 3640 | 4030 | 0.12 | 53 | 40 | 1 | 0 | 0 | 0 | 0 |
| 5 | 62 | 103 | 6 | 171 | 301.77 | 51405 | -209 | -105 | 304 | 199 | 277 | 754 | 1370 | 2780 | 3450 | 3820 | 0.04 | 55 | 41 | 1 | 0 | 0 | 0 | 0 |
| 6 | 57 | 98 | 6 | 161 | 301.51 | 51174 | -231 | -116 | 304 | 188 | 268 | 716 | 1210 | 2590 | 3230 | 3580 | 0.03 | 55 | 47 | 1 | 0 | 0 | 0 | 0 |
| 7 | 51 | 91 | 5 | 147 | 301.31 | 50900 | -274 | -138 | 303 | 165 | 247 | 687 | 1070 | 2340 | 2930 | 3220 | 0.00 | 63 | 40 | 1 | 0 | 0 | 0 | 0 |
| 8 | 47 | 85 | 5 | 137 | 301.40 | 50999 | 99 | 50 | 96 | 146 | 224 | 522 | 895 | 2050 | 2580 | 2830 | 0.01 | 71 | 42 | 1 | 0 | 0 | 0 | 0 |
| 9 | 43 | 79 | 5 | 127 | 301.51 | 51119 | 120 | 61 | 96 | 157 | 210 | 470 | 747 | 1750 | 2200 | 2510 | 0.07 | 66 | 40 | 1 | 0 | 0 | 0 | 0 |
| 10 | 40 | 75 | 5 | 120 | 301.60 | 51218 | 99 | 50 | 60 | 110 | 191 | 409 | 650 | 1530 | 1940 | 2140 | 0.00 | 63 | 33 | 1 | 0 | 0 | 0 | 0 |
| 11 | 38 | 71 | 4 | 113 | 301.68 | 51306 | 88 | 44 | 63 | 107 | 177 | 382 | 602 | 1300 | 1650 | 1840 | 0.00 | 65 | 37 | 2 | 0 | 0 | 0 | 0 |
| 12 | 36 | 68 | 4 | 108 | 301.77 | 51405 | 99 | 50 | 64 | 114 | 165 | 330 | 536 | 1160 | 1470 | 1600 | 0.00 | 68 | 35 | 2 | 0 | 0 | 0 | 0 |
| 13 | 34 | 64 | 4 | 102 | 301.83 | 51471 | 66 | 33 | 64 | 97 | 155 | 299 | 457 | 1020 | 1310 | 1420 | 0.00 | 64 | 38 | 2 | 0 | 0 | 0 | 0 |
| 14 | 33 | 63 | 4 | 100 | 301.90 | 51548 | 77 | 39 | 64 | 103 | 146 | 276 | 422 | 932 | 1170 | 1270 | 0.00 | 69 | 41 | 2 | 0 | 0 | 0 | 1 |
| 15 | 31 | 60 | 4 | 95 | 301.96 | 51614 | 66 | 33 | 64 | 97 | 139 | 296 | 434 | 855 | 1080 | 1150 | 0.00 | 67 | 43 | 3 | 0 | 0 | 0 | 1 |
| 16 | 30 | 58 | 4 | 92 | 302.03 | 51691 | 77 | 39 | 30 | 69 | 133 | 267 | 396 | 822 | 1040 | 1090 | 0.00 | 58 | 46 | 4 | 0 | 0 | 0 | 1 |
| 17 | 30 | 58 | 4 | 92 | 302.13 | 51802 | 111 | 56 | 31 | 87 | 132 | 267 | 394 | 798 | 999 | 1080 | 0.16 | 56 | 48 | 4 | 0 | 0 | 0 | 1 |
| 18 | 29 | 58 | 4 | 91 | 302.24 | 51923 | 121 | 61 | 30 | 91 | 141 | 282 | 429 | 990 | 1210 | 1250 | 0.30 | 56 | 35 | 4 | 0 | 0 | 0 | 1 |
| 19 | 27 | 54 | 4 | 85 | 302.34 | 52033 | 110 | 55 | 20 | 75 | 125 | 229 | 358 | 878 | 1120 | 1230 | 0.00 | 59 | 37 | 4 | 0 | 0 | 0 | 0 |
| 20 | 27 | 56 | 4 | 87 | 302.44 | 52144 | 111 | 56 | 20 | 76 | 132 | 226 | 351 | 755 | 980 | 1130 | 0.06 | 57 | 37 | 4 | 0 | 0 | 0 | 0 |
| 21 | 25 | 53 | 4 | 82 | 302.53 | 52244 | 100 | 50 | 20 | 70 | 121 | 208 | 319 | 691 | 895 | 994 | 0.00 | 63 | 43 | 4 | 0 | 0 | 0 | 0 |
| 22 | 25 | 54 | 4 | 83 | 302.65 | 52377 | 133 | 67 | 20 | 87 | 127 | 232 | 345 | 718 | 893 | 1000 | 0.27 | 62 | 41 | 4 | 0 | 0 | 0 | 0 |
| 23 | 45 | 103 | 6 | 154 | 302.59 | 52310 | -67 | -34 | 189 | 155 | 177 | 413 | 503 | 838 | 962 | 1100 | 0.67 | 54 | 44 | 2 | 0 | 0 | 0 | 0 |
| 24 | 120 | 228 | 10 | 358 | 302.60 | 52321 | 11 | 6 | 533 | 539 | NA | 818 | 1090 | 1410 | 1550 | 1610 | 1.60 | 52 | 45 | 2 | 0 | 0 | 0 | 0 |
| 25 | 81 | 159 | 7 | 247 | 302.79 | 52532 | 211 | 106 | 199 | 305 | 539 | 865 | 1470 | 2180 | 2560 | 2480 | 0.07 | 57 | 40 | 2 | 0 | 0 | 0 | 0 |
| 26 | 68 | 129 | 6 | 203 | 303.02 | 52787 | 255 | 129 | 108 | 237 | 367 | 729 | 1490 | 2260 | 2740 | 2940 | 0.16 | 52 | 40 | 3 | 0 | 0 | 0 | 0 |
| 27 | 93 | 151 | 7 | 251 | 303.00 | 52765 | -22 | -11 | 294 | 283 | 472 | 771 | 1340 | 2280 | 2760 | 3000 | 0.65 | 53 | 39 | 3 | 0 | 0 | 0 | 0 |
| 28 | 78 | 138 | 7 | 223 | 302.93 | 52687 | -78 | -39 | 294 | 255 | 393 | 794 | 1360 | 2300 | 2790 | 2990 | 0.06 | 54 | 36 | 2 | 0 | 0 | 0 | 0 |
| 29 | 66 | 123 | 6 | 195 | 303.15 | 52932 | 245 | 124 | 106 | 230 | 312 | 634 | 1280 | 2210 | 2690 | 2880 | 0.00 | 61 | 40 | 3 | 0 | 0 | 0 | 0 |
| 30 | 55 | 111 | 6 | 172 | 303.33 | 53133 | 201 | 101 | 106 | 207 | 255 | 537 | 993 | 2070 | 2520 | 2710 | 0.00 | 76 | 47 | 4 | 0 | 0 | 0 | 0 |
| TOTALS | | | | | | | | | | | | | | | | | | | | | | | | |
| cfs | 1609 | 2921 | 161 | 4691 | | | | 683 | 4705 | 5388 | 7273 | 15917 | 26471 | 51557 | 63649 | 69524 | 4.56 inches | | | 70 | 0 | 0 | 0 | 5 |
| ac-ft | 3191 | 5794 | 319 | 9305 | | | 1354 | 1354 | 9332 | 10686 | 14426 | 31571 | 52505 | 102263 | 126248 | 137901 | MAX | 76 | 48 | 139 | 0 | 0 | 0 | 10 |
| | | | | | | | | | | | | | | | | | MIN | 51 | 33 | | | | | |

| | |
|---|---|
| **Water storage elevation ± to fill curve:** | **-0.13** |
| **Water storage in ac-ft ± to fill curve:** | **-146** |
| **Percentage of full reservoir:** | **99.6%** |

**SNOTEL Summary for Water Year 2014**

Updated: April 30, 2014

| | | | |
|---|---|---|---|
| SECO W/Y pc: | 45.3 | sno depth/water content | 0 |
| SDMO W/Y pc: | 70.2 | 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 | 179 | |
| *remaining are provisional and subject* | CWS | 0 | 12615 |
| *to daily changes as the WS elevation* | LO | 0 | 500 |
| *rises and falls. These numbers are for* | MUNI | 0 | 13500 |
| *planning purposes only* | Other | 10 | |

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

# SCOGGINS DAM -- RESERVOIR OPERATIONS
May 2014

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 | 99 | 5 | 152 | 303.54 | 53367 | 234 | 118 | 32 | 150 | 221 | 397 | 792 | 1780 | 2230 | 2440 | 0.00 | 82 | 52 | 0 | 0 | 0 | 0 | 0 |
| 2 | 44 | 91 | 5 | 140 | 303.49 | 53311 | -56 | -28 | 193 | 165 | 195 | 504 | 761 | 1500 | 1860 | 2070 | 0.00 | 85 | 46 | 0 | 0 | 0 | 0 | 1 |
| 3 | 40 | 84 | 5 | 129 | 303.41 | 53222 | -89 | -45 | 177 | 132 | 181 | 441 | 698 | 1350 | 1660 | 1790 | 0.00 | 71 | 44 | 0 | 0 | 0 | 0 | 1 |
| 4 | 44 | 95 | 5 | 144 | 303.37 | 53177 | -45 | -23 | 177 | 154 | 212 | 451 | 682 | 1270 | 1530 | 1690 | 0.40 | 58 | 50 | 0 | 0 | 0 | 0 | 1 |
| 5 | 41 | 95 | 5 | 141 | 303.34 | 53144 | -33 | -17 | 177 | 160 | 229 | 467 | 713 | 1320 | 1600 | 1690 | 0.19 | 59 | 45 | 0 | 0 | 0 | 0 | 1 |
| 6 | 40 | 85 | 5 | 130 | 303.42 | 53233 | 89 | 45 | 101 | 146 | 206 | 376 | 633 | 1240 | 1510 | 1610 | 0.16 | 61 | 41 | 0 | 0 | 0 | 0 | 1 |
| 7 | 38 | 78 | 5 | 121 | 303.45 | 53267 | 34 | 17 | 101 | 118 | 185 | 346 | 558 | 1080 | 1320 | 1460 | 0.00 | 62 | 36 | 0 | 0 | 0 | 0 | 1 |
| 8 | 36 | 75 | 5 | 116 | 303.47 | 53289 | 22 | 11 | 102 | 113 | 166 | 315 | 488 | 961 | 1170 | 1300 | 0.00 | 64 | 44 | 0 | 0 | 0 | 0 | 1 |
| 9 | 47 | 87 | 5 | 139 | 303.40 | 53211 | -78 | -39 | 213 | 174 | 213 | 458 | 618 | 1050 | 1200 | 1300 | 0.59 | 56 | 48 | 0 | 0 | 0 | 0 | 1 |
| 10 | 52 | 101 | 5 | 158 | 303.34 | 53144 | -67 | -34 | 212 | 178 | 340 | 544 | 732 | 1200 | 1430 | 1460 | 0.33 | 54 | 42 | 0 | 0 | 0 | 0 | 1 |
| 11 | 48 | 93 | 5 | 146 | 303.37 | 53177 | 33 | 17 | 153 | 170 | 279 | 493 | 740 | 1220 | 1450 | 1520 | 0.03 | 60 | 40 | 0 | 0 | 0 | 0 | 1 |
| 12 | 44 | 87 | 5 | 136 | 303.43 | 53244 | 67 | 34 | 112 | 146 | 223 | 398 | 641 | 1130 | 1370 | 1470 | 0.00 | 66 | 42 | 0 | 0 | 0 | 0 | 1 |
| 13 | 40 | 79 | 5 | 124 | 303.47 | 53289 | 45 | 23 | 112 | 135 | 190 | 348 | 542 | 993 | 1200 | 1350 | 0.00 | 77 | 46 | 0 | 0 | 0 | 0 | 1 |
| 14 | 37 | 59 | 4 | 100 | 303.49 | 53311 | 22 | 11 | 114 | 125 | 169 | 318 | 464 | 871 | 1050 | 1190 | 0.00 | 84 | 48 | 0 | 0 | 0 | 0 | 1 |
| 15 | 35 | 55 | 4 | 94 | 303.48 | 53300 | -11 | -6 | 115 | 109 | 152 | 295 | 411 | 758 | 916 | 1070 | 0.00 | 89 | 51 | 0 | 0 | 0 | 0 | 1 |
| 16 | 34 | 52 | 4 | 90 | 303.47 | 53289 | -11 | -6 | 116 | 110 | 141 | 278 | 384 | 702 | 830 | 962 | 0.00 | 81 | 47 | 0 | 0 | 0 | 0 | 2 |
| 17 | 32 | 48 | 4 | 84 | 303.45 | 53267 | -22 | -11 | 119 | 108 | 132 | 264 | 366 | 655 | 769 | 887 | 0.00 | 69 | 48 | 0 | 0 | 0 | 0 | 2 |
| 18 | 32 | 47 | 4 | 83 | 303.42 | 53233 | -34 | -17 | 119 | 102 | 127 | 257 | 358 | 626 | 734 | 869 | 0.04 | 69 | 52 | 0 | 0 | 0 | 0 | 2 |
| 19 | 34 | 45 | 4 | 83 | 303.36 | 53166 | -67 | -34 | 120 | 86 | 123 | 254 | 371 | 820 | 930 | 962 | 0.08 | 62 | 52 | 0 | 0 | 0 | 0 | 2 |
| 20 | 34 | 41 | 3 | 78 | 303.40 | 53211 | 45 | 23 | 64 | 87 | 115 | 198 | 279 | 667 | 825 | 994 | 0.00 | 70 | 44 | 0 | 0 | 0 | 0 | 2 |
| 21 | 33 | 40 | 3 | 76 | 303.42 | 53233 | 22 | 11 | 47 | 58 | 109 | 174 | 242 | 523 | 639 | 828 | 0.00 | 72 | 42 | 0 | 0 | 0 | 0 | 2 |
| 22 | 32 | 37 | 3 | 72 | 303.45 | 53267 | 34 | 17 | 47 | 64 | 103 | 169 | 225 | 450 | 540 | 700 | 0.00 | 74 | 48 | 0 | 0 | 0 | 0 | 2 |
| 23 | 31 | 36 | 3 | 70 | 303.50 | 53323 | 56 | 28 | 48 | 76 | 98 | 161 | 217 | 420 | 496 | 625 | 0.00 | 81 | 57 | 0 | 0 | 0 | 0 | 2 |
| 24 | 30 | 36 | 3 | 69 | 303.48 | 53300 | -23 | -12 | 95 | 83 | 96 | 188 | 250 | 413 | 472 | 589 | 0.08 | 68 | 47 | 0 | 0 | 0 | 0 | 2 |
| 25 | 29 | 35 | 3 | 67 | 303.46 | 53278 | -22 | -11 | 77 | 66 | 92 | 172 | 218 | 422 | 491 | 584 | 0.00 | 69 | 45 | 0 | 0 | 0 | 0 | 2 |
| 26 | 29 | 35 | 3 | 67 | 303.46 | 53278 | 0 | 0 | 71 | 71 | 91 | 164 | 221 | 395 | 460 | 578 | 0.00 | 68 | 51 | 0 | 0 | 0 | 0 | 2 |
| 27 | 28 | 32 | 3 | 63 | 303.45 | 53267 | -11 | -6 | 72 | 66 | 86 | 158 | 210 | 393 | 452 | 552 | 0.00 | 67 | 47 | 0 | 0 | 0 | 0 | 2 |
| 28 | 27 | 32 | 3 | 62 | 303.46 | 53278 | 11 | 6 | 57 | 63 | 85 | 145 | 187 | 352 | 412 | 542 | 0.07 | 63 | 43 | 0 | 0 | 0 | 0 | 2 |
| 29 | 22 | 31 | 2 | 55 | 303.45 | 53267 | -11 | -6 | 57 | 51 | 82 | 142 | 180 | 370 | 424 | 547 | 0.03 | 63 | 50 | 0 | 0 | 0 | 0 | 2 |
| 30 | 21 | 30 | 2 | 53 | 303.44 | 53256 | -11 | -6 | 58 | 52 | 80 | 139 | 160 | 329 | 389 | 512 | 0.01 | 65 | 44 | 0 | 0 | 0 | 0 | 2 |
| 31 | 20 | 28 | 2 | 50 | 303.47 | 53289 | 33 | 17 | 42 | 59 | 75 | 124 | 138 | 266 | 347 | 464 | 0.00 | 76 | 45 | 0 | 0 | 0 | 0 | 2 |
| TOTALS | | | | | | | | | | | | | | | | | | | | | | | | |
| cfs | 1102 | 1868 | 122 | 3092 | | | | 78.65 | 3300 | 3379 | 4796 | 9138 | 13479 | 25526 | 30706 | 34605 | 2.01 inches | | | 0 | 0 | 0 | 0 | 46 |
| ac-ft | 2186 | 3705 | 242 | 6133 | | | 156 | 156 | 6546 | 6702 | 9513 | 18125 | 26736 | 50631 | 60905 | 68639 | MAX | 89 | 57 | 0 | 0 | 0 | 0 | 91 |
| | | | | | | | | | | | | | | | | | MIN | 54 | 36 | | | | | |

| | |
|---|---|
| **Water storage elevation ± to fill curve:** | **-0.03** |
| **Water storage in ac-ft ± to fill curve:** | **-34** |
| **Percentage of full reservoir:** | **99.9%** |

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

**SNOTEL Summary for Water Year 2014**
Uptdated: May 31, 2014

| | | | |
|---|---|---|---|
| SECO W/Y pc: | 48.4" | sno depth/water content | 0 |
| SDMO W/Y pc: | 75.6" | sno depth/water content | 0 |

| **RESERVOIR DELIVERY STATUS** | | USED | REMAINING |
|---|---|---|---|
| *These allocations, amounts used and* | TVID | 179 | |
| *remaining are provisional and subject* | CWS | 0 | 12615 |
| *to daily changes as the WS elevation* | LO | 0 | 500 |
| *rises and falls. These numbers are for* | MUNI | 0 | 13500 |
| *planning purposes only* | Other | 101 | |

SCOGGINS DAM -- RESERVOIR OPERATIONS
June 2014

[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 | 20 | 28 | 2 | 50 | 303.47 | 53289 | 0 | 0 | 42 | 42 | 73 | 121 | 123 | 228 | 307 | 427 | 0.00 | 75 | 45 | 0 | 0 | 0 | 0 | 2 |
| 2 | 19 | 27 | 2 | 48 | 303.48 | 53300 | 11 | 6 | 42 | 48 | 71 | 117 | 125 | 231 | 298 | 397 | 0.00 | 74 | 46 | 0 | 0 | 0 | 0 | 2 |
| 3 | 18 | 26 | 2 | 46 | 303.49 | 53311 | 11 | 6 | 42 | 48 | 66 | 112 | 89 | 200 | 276 | 384 | 0.00 | 78 | 45 | 0 | 0 | 0 | 0 | 2 |
| 4 | 18 | 26 | 2 | 46 | 303.49 | 53311 | 0 | 0 | 42 | 42 | 67 | 113 | 98 | 175 | 241 | 352 | 0.00 | 69 | 44 | 0 | 0 | 0 | 0 | 2 |
| 5 | 18 | 25 | 2 | 45 | 303.43 | 53244 | -67 | -34 | 81 | 47 | 62 | 137 | 112 | 179 | 244 | 329 | 0.00 | 74 | 42 | 0 | 0 | 0 | 45 | 2 |
| 6 | 17 | 24 | 2 | 43 | 303.39 | 53200 | -44 | -22 | 69 | 47 | 77 | 139 | 113 | 187 | 248 | 321 | 0.00 | 75 | 40 | 0 | 0 | 0 | 30 | 2 |
| 7 | 16 | 24 | 2 | 42 | 303.35 | 53155 | -45 | -23 | 71 | 48 | 73 | 140 | 117 | 187 | 248 | 321 | 0.00 | 78 | 48 | 0 | 0 | 0 | 27 | 2 |
| 8 | 16 | 24 | 2 | 42 | 303.29 | 53088 | -67 | -34 | 70 | 36 | 72 | 138 | 110 | 168 | 232 | 317 | 0.00 | 77 | 48 | 0 | 0 | 0 | 27 | 2 |
| 9 | 16 | 23 | 2 | 41 | 303.26 | 53055 | -33 | -17 | 69 | 52 | 72 | 137 | 105 | 163 | 225 | 310 | 0.00 | 79 | 49 | 0 | 0 | 0 | 27 | 2 |
| 10 | 15 | 22 | 2 | 39 | 303.16 | 52943 | -112 | -56 | 85 | 29 | 70 | 147 | 86 | 154 | 214 | 299 | 0.00 | 72 | 42 | 0 | 0 | 0 | 42 | 2 |
| 11 | 15 | 22 | 2 | 39 | 303.08 | 52865 | -78 | -39 | 84 | 45 | 68 | 145 | 80 | 135 | 194 | 285 | 0.00 | 73 | 46 | 0 | 0 | 0 | 42 | 2 |
| 12 | 15 | 21 | 2 | 38 | 302.97 | 52732 | -133 | -67 | 116 | 49 | 67 | 171 | 107 | 124 | 180 | 265 | 0.00 | 77 | 54 | 31 | 0 | 0 | 35 | 2 |
| 13 | 16 | 17 | 1 | 34 | 302.89 | 52643 | -89 | -45 | 103 | 58 | 77 | 170 | 141 | 174 | 225 | 275 | 0.32 | 64 | 52 | 34 | 0 | 0 | 35 | 2 |
| 14 | 15 | 16 | 1 | 32 | 302.79 | 52532 | -111 | -56 | 90 | 34 | 72 | 157 | 128 | 198 | 255 | 314 | 0.00 | 62 | 51 | 28 | 0 | 0 | 30 | 3 |
| 15 | 15 | 16 | 1 | 32 | 302.70 | 52432 | -100 | -50 | 89 | 39 | 69 | 153 | 133 | 176 | 245 | 333 | 0.00 | 64 | 49 | 27 | 0 | 0 | 30 | 3 |
| 16 | 9 | 16 | 1 | 26 | 302.62 | 52343 | -89 | -45 | 90 | 45 | 70 | 154 | 141 | 203 | 256 | 329 | 0.03 | 64 | 44 | 34 | 0 | 0 | 30 | 3 |
| 17 | 8 | 15 | 1 | 24 | 302.55 | 52266 | -77 | -39 | 68 | 29 | 66 | 135 | 116 | 204 | 267 | 372 | 0.08 | 61 | 45 | 24 | 0 | 0 | 20 | 3 |
| 18 | 8 | 14 | 1 | 23 | 302.49 | 52199 | -67 | -34 | 69 | 35 | 65 | 133 | 110 | 164 | 235 | 348 | 0.00 | 63 | 44 | 31 | 0 | 0 | 15 | 3 |
| 19 | 8 | 14 | 1 | 23 | 302.43 | 52133 | -66 | -33 | 69 | 36 | 62 | 131 | 100 | 151 | 211 | 306 | 0.00 | 73 | 47 | 31 | 0 | 0 | 15 | 3 |
| 20 | 8 | 14 | 1 | 23 | 302.37 | 52067 | -66 | -33 | 90 | 57 | 62 | 145 | 83 | 135 | 194 | 292 | 0.02 | 77 | 52 | 32 | 0 | 0 | 35 | 3 |
| 21 | 7 | 13 | 1 | 21 | 302.19 | 51868 | -199 | -100 | 138 | 38 | 61 | 184 | 120 | 127 | 181 | 272 | 0.00 | 69 | 43 | 71 | 0 | 0 | 43 | 3 |
| 22 | 7 | 12 | 1 | 20 | 302.01 | 51669 | -199 | -100 | 138 | 38 | 59 | 181 | 133 | 143 | 194 | 258 | 0.00 | 75 | 48 | 72 | 0 | 0 | 43 | 3 |
| 23 | 6 | 12 | 1 | 19 | 301.85 | 51493 | -176 | -89 | 137 | 48 | 57 | 179 | 138 | 148 | 206 | 272 | 0.00 | 81 | 53 | 72 | 0 | 0 | 43 | 3 |
| 24 | 6 | 12 | 1 | 19 | 301.69 | 51317 | -176 | -89 | 126 | 37 | 56 | 168 | 137 | 143 | 200 | 275 | 0.02 | 79 | 54 | 74 | 0 | 0 | 30 | 3 |
| 25 | 7 | 12 | 1 | 20 | 301.55 | 51163 | -154 | -78 | 126 | 48 | 60 | 173 | 140 | 140 | 196 | 272 | 0.00 | 74 | 53 | 78 | 0 | 0 | 25 | 3 |
| 26 | 6 | 12 | 1 | 19 | 301.40 | 50999 | -164 | -83 | 123 | 40 | 58 | 168 | 149 | 234 | 229 | 360 | 0.00 | 75 | 58 | 81 | 0 | 0 | 20 | 3 |
| 27 | 13 | 21 | 2 | 36 | 301.32 | 50911 | -88 | -44 | 110 | 66 | 62 | 163 | 170 | 367 | 475 | 542 | 0.42 | 66 | 57 | 51 | 0 | 0 | 20 | 3 |
| 28 | 8 | 14 | 1 | 23 | 301.18 | 50758 | -153 | -77 | 119 | 42 | 67 | 178 | 201 | 336 | 505 | 595 | 0.00 | 69 | 57 | 64 | 0 | 0 | 27 | 3 |
| 29 | 7 | 12 | 1 | 20 | 301.06 | 50627 | -131 | -66 | 117 | 51 | 62 | 172 | 182 | 274 | 436 | 517 | 0.05 | 69 | 55 | 67 | 0 | 0 | 27 | 3 |
| 30 | 7 | 11 | 1 | 19 | 300.91 | 50463 | -164 | -83 | 117 | 34 | 54 | 161 | 154 | 222 | 360 | 432 | 0.00 | 71 | 49 | 79 | 0 | 0 | 27 | 3 |
| TOTALS | | | | | | | | | | | | | | | | | | | | | | | | |
| cfs | 364 | 545 | 43 | 952 | | | | -1425 | 2732 | 1307 | 1977 | 4522 | 3741 | 5670 | 7777 | 10371 | 0.94 inches | | | 981 | 0 | 0 | 790 | 77 |
| ac-ft | 722 | 1081 | 85 | 1888 | | | -2826 | -2826 | 5419 | 2593 | 3921 | 8969 | 7420 | 11246 | 15426 | 20571 | MAX | 81 | 58 | 1946 | 0 | 0 | 1567 | 153 |
| | | | | | | | | | | | | | | | | | MIN | 61 | 40 | | | | | |

**Water storage elevation ± to fill curve:** **-2.59**
**Water storage in ac-ft ± to fill curve:** **-2860**
**Percentage of full reservoir:** **94.6%**

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

**SNOTEL Summary for Water Year 2014**
Uptdated: June 30, 2014
SECO W/Y pc: 75.6" sno depth/water content 0
SDMO W/Y pc: 48.4" sno depth/water content 0

**RESERVOIR DELIVERY STATUS**

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

| | USED | REMAINING |
|---|---|---|
| TVID | 2124 | |
| CWS | 0 | 12615 |
| LO | 0 | 500 |
| MUNI | 1567 | 11933 |
| Other | 254 | |

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

# SCOGGINS DAM -- RESERVOIR OPERATIONS
July 2014

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 | 300.75 | 50289 | -174 | -88 | 134 | 46 | 51 | 171 | 118 | 171 | 300 | 368 | 0.00 | 84 | 56 | 69 | 10 | 0 | 35 | 3 |
| 2 | 5 | 9 | 1 | 15 | 300.53 | 50049 | -240 | -121 | 164 | 43 | 49 | 198 | 122 | 135 | 250 | 306 | 0.00 | 95 | 58 | 88 | 10 | 0 | 48 | 3 |
| 3 | 5 | 9 | 1 | 15 | 300.30 | 49800 | -249 | -126 | 157 | 31 | 48 | 190 | 128 | 134 | 240 | 268 | 0.00 | 82 | 55 | 86 | 10 | 0 | 43 | 3 |
| 4 | 5 | 10 | 1 | 16 | 300.09 | 49572 | -228 | -115 | 149 | 34 | 48 | 181 | 127 | 128 | 240 | 258 | 0.00 | 72 | 52 | 85 | 10 | 0 | 35 | 3 |
| 5 | 5 | 9 | 1 | 15 | 299.89 | 49356 | -216 | -109 | 149 | 40 | 46 | 179 | 118 | 128 | 234 | 252 | 0.00 | 80 | 57 | 86 | 10 | 0 | 35 | 3 |
| 6 | 4 | 8 | 1 | 13 | 299.69 | 49140 | -216 | -109 | 149 | 40 | 46 | 179 | 114 | 118 | 226 | 249 | 0.00 | 83 | 56 | 88 | 10 | 0 | 35 | 3 |
| 7 | 4 | 8 | 1 | 13 | 299.48 | 48914 | -226 | -114 | 149 | 35 | 44 | 176 | 103 | 122 | 228 | 242 | 0.00 | 87 | 58 | 88 | 10 | 0 | 35 | 3 |
| 8 | 4 | 8 | 1 | 13 | 299.20 | 48613 | -301 | -152 | 183 | 31 | 48 | 193 | 118 | 102 | 208 | 236 | 0.00 | 88 | 58 | 90 | 30 | 0 | 47 | 3 |
| 9 | 4 | 7 | 1 | 12 | 298.89 | 48281 | -332 | -167 | 202 | 35 | 47 | 210 | 139 | 108 | 210 | 224 | 0.00 | 88 | 56 | 100 | 40 | 0 | 47 | 3 |
| 10 | 3 | 6 | 1 | 10 | 298.55 | 47917 | -364 | -184 | 208 | 24 | 48 | 219 | 140 | 121 | 225 | 221 | 0.00 | 84 | 47 | 101 | 40 | 0 | 54 | 3 |
| 11 | 3 | 6 | 1 | 10 | 298.24 | 47587 | -330 | -166 | 199 | 33 | 48 | 211 | 125 | 113 | 218 | 230 | 0.00 | 87 | 53 | 102 | 40 | 3 | 40 | 4 |
| 12 | 3 | 5 | 1 | 9 | 297.87 | 47194 | -393 | -198 | 233 | 35 | 46 | 245 | 138 | 108 | 210 | 221 | 0.00 | 90 | 59 | 109 | 50 | 3 | 58 | 4 |
| 13 | 3 | 5 | 1 | 9 | 297.51 | 46813 | -381 | -192 | 233 | 41 | 45 | 244 | 140 | 115 | 222 | 221 | 0.00 | 95 | 58 | 109 | 50 | 3 | 58 | 4 |
| 14 | 4 | 6 | 1 | 11 | 297.09 | 46371 | -442 | -223 | 232 | 9 | 49 | 250 | 182 | 149 | 242 | 227 | 0.06 | 72 | 59 | 106 | 50 | 3 | 58 | 4 |
| 15 | 3 | 5 | 1 | 9 | 296.82 | 46087 | -284 | -143 | 178 | 35 | 56 | 197 | 95 | 145 | 258 | 252 | 0.00 | 91 | 54 | 92 | 40 | 3 | 30 | 4 |
| 16 | 2 | 6 | 1 | 9 | 296.55 | 45804 | -283 | -143 | 183 | 40 | 55 | 202 | 104 | 100 | 209 | 242 | 0.00 | 96 | 56 | 102 | 40 | 3 | 25 | 4 |
| 17 | 2 | 5 | 1 | 8 | 296.26 | 45501 | -303 | -153 | 183 | 30 | 54 | 198 | 121 | 100 | 201 | 210 | 0.00 | 93 | 51 | 108 | 40 | 3 | 20 | 4 |
| 18 | 2 | 5 | 1 | 8 | 295.94 | 45168 | -333 | -168 | 186 | 18 | 54 | 202 | 103 | 107 | 209 | 201 | 0.00 | 84 | 48 | 97 | 40 | 3 | 35 | 3 |
| 19 | 2 | 6 | 1 | 9 | 295.61 | 44825 | -343 | -173 | 197 | 24 | 55 | 214 | 109 | 95 | 196 | 204 | 0.00 | 81 | 56 | 97 | 40 | 3 | 45 | 3 |
| 20 | 2 | 5 | 1 | 8 | 295.30 | 44504 | -321 | -162 | 197 | 35 | 53 | 213 | 117 | 97 | 203 | 201 | 0.00 | 87 | 58 | 98 | 40 | 3 | 45 | 3 |
| 21 | 2 | 6 | 1 | 9 | 294.96 | 44153 | -351 | -177 | 197 | 20 | 54 | 212 | 127 | 112 | 210 | 207 | 0.00 | 72 | 49 | 97 | 40 | 3 | 45 | 3 |
| 22 | 2 | 5 | 1 | 8 | 294.70 | 43886 | -267 | -135 | 162 | 27 | 54 | 180 | 103 | 118 | 220 | 233 | 0.00 | 78 | 55 | 88 | 40 | 3 | 20 | 3 |
| 23 | 3 | 7 | 1 | 11 | 294.48 | 43660 | -226 | -114 | 143 | 29 | 55 | 165 | 111 | 130 | 234 | 252 | 0.11 | 78 | 59 | 76 | 40 | 3 | 10 | 3 |
| 24 | 5 | 10 | 1 | 16 | 294.27 | 43445 | -215 | -108 | 134 | 26 | 61 | 162 | 144 | 261 | 340 | 329 | 0.16 | 67 | 56 | 62 | 40 | 3 | 10 | 3 |
| 25 | 3 | 7 | 1 | 11 | 294.04 | 43210 | -235 | -118 | 146 | 28 | 59 | 172 | 134 | 195 | 308 | 356 | 0.00 | 70 | 49 | 67 | 40 | 3 | 25 | 3 |
| 26 | 2 | 6 | 1 | 9 | 293.83 | 42996 | -214 | -108 | 140 | 32 | 55 | 161 | 91 | 153 | 258 | 314 | 0.00 | 78 | 51 | 70 | 30 | 3 | 25 | 3 |
| 27 | 2 | 5 | 1 | 8 | 293.63 | 42792 | -204 | -103 | 139 | 36 | 53 | 159 | 81 | 111 | 209 | 262 | 0.00 | 83 | 53 | 70 | 30 | 3 | 25 | 3 |
| 28 | 2 | 5 | 1 | 8 | 293.38 | 42538 | -254 | -128 | 162 | 34 | 52 | 179 | 90 | 110 | 196 | 224 | 0.00 | 90 | 55 | 77 | 35 | 3 | 25 | 3 |
| 29 | 3 | 4 | 1 | 8 | 293.06 | 42214 | -324 | -163 | 191 | 28 | 51 | 206 | 89 | 108 | 196 | 213 | 0.00 | 93 | 54 | 84 | 45 | 3 | 48 | 3 |
| 30 | 3 | 4 | 1 | 8 | 292.70 | 41851 | -363 | -183 | 212 | 29 | 50 | 227 | 103 | 101 | 190 | 201 | 0.00 | 90 | 52 | 98 | 45 | 3 | 55 | 3 |
| 31 | 3 | 4 | 1 | 8 | 292.32 | 41469 | -382 | -193 | 212 | 19 | 50 | 227 | 103 | 103 | 190 | 193 | 0.00 | 89 | 54 | 98 | 45 | 3 | 55 | 3 |
| TOTALS | | | | | | | | | | | | | | | | | 0.33 inches | | | | | | | |
| cfs | 101 | 201 | 31 | 333 | | | | -4534 | 5503 | 969 | 1584 | 6122 | 3637 | 3898 | 7080 | 7617 | MAX | 96 | 59 | 2788 | 1040 | 63 | 1171 | 100 |
| ac-ft | 200 | 399 | 61 | 661 | | | -8994 | -8994 | 10915 | 1921 | 3142 | 12143 | 7214 | 7732 | 14043 | 15108 | MIN | 67 | 47 | 5530 | 2063 | 125 | 2323 | 198 |

| | |
|---|---|
| **Water storage elevation ± to fill curve:** | **-11.18** |
| **Water storage in ac-ft ± to fill curve:** | **-11854** |
| **Percentage of full reservoir:** | **77.8%** |

**SNOTEL Summary for Water Year 2014**

Updated: July 31, 2014

| | | | |
|---|---|---|---|
| SECO W/Y pc: | 50.5" | sno depth/water content | 0 |
| SDMO W/Y pc: | 78.3" | 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 | 7654 | |
| *remaining are provisional and subject* | CWS | 2063 | 10552 |
| *to daily changes as the WS elevation* | LO | 125 | 375 |
| *rises and falls. These numbers are for* | MUNI | 3890 | 9610 |
| *planning purposes only* | Other | 452 | |

# SCOGGINS DAM -- RESERVOIR OPERATIONS
August 2014

[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 | 3 | 1 | 7 | 291.99 | 41138 | -331 | -167 | 185 | 18 | 49 | 195 | 90 | 103 | 192 | 199 | 0.00 | 91 | 63 | 96 | 45 | 3 | 30 | 4 |
| 2 | 3 | 3 | 1 | 7 | 291.63 | 40779 | -359 | -181 | 213 | 32 | 48 | NA | 112 | 93 | 179 | 193 | 0.00 | 93 | 58 | 106 | 50 | 3 | 40 | 4 |
| 3 | 3 | 3 | 1 | 7 | 291.24 | 40391 | -388 | -196 | 212 | 16 | 48 | NA | 111 | 107 | 192 | 188 | 0.00 | 89 | 54 | 108 | 50 | 3 | 40 | 4 |
| 4 | 3 | 3 | 1 | 7 | 290.87 | 40024 | -367 | -185 | 212 | 27 | 48 | 227 | 124 | 121 | 203 | 201 | 0.00 | 93 | 58 | 108 | 50 | 3 | 40 | 4 |
| 5 | 2 | 2 | 1 | 5 | 290.47 | 39629 | -395 | -199 | 216 | 17 | 47 | 226 | 99 | 112 | 201 | 204 | 0.00 | 94 | 49 | 101 | 50 | 3 | 52 | 4 |
| 6 | 3 | 2 | 1 | 6 | 290.09 | 39256 | -373 | -188 | 211 | 23 | 48 | 223 | 101 | 96 | 183 | 199 | 0.00 | 84 | 54 | 101 | 50 | 3 | 47 | 4 |
| 7 | 3 | 2 | 1 | 6 | 289.70 | 38873 | -383 | -193 | 211 | 18 | 49 | 223 | 116 | 97 | 179 | 188 | 0.00 | 84 | 50 | 103 | 55 | 3 | 40 | 4 |
| 8 | 3 | 2 | 1 | 6 | 289.31 | 38493 | -380 | -192 | 211 | 19 | 48 | 222 | 116 | 105 | 190 | 185 | 0.00 | 82 | 49 | 103 | 55 | 3 | 40 | 4 |
| 9 | 3 | 2 | 1 | 6 | 288.92 | 38113 | -380 | -192 | 211 | 19 | 48 | 222 | NA | NA | NA | 190 | 0.00 | 73 | 49 | 103 | 55 | 3 | 40 | 4 |
| 10 | 2 | 2 | 1 | 5 | 288.54 | 37745 | -368 | -186 | 210 | 24 | 47 | 221 | 128 | 92 | 181 | 190 | 0.00 | 83 | 54 | 103 | 55 | 3 | 40 | 4 |
| 11 | 2 | 2 | 1 | 5 | 288.15 | 37368 | -377 | -190 | 210 | 20 | 47 | 221 | 119 | 112 | 203 | 196 | 0.00 | 95 | 63 | 103 | 55 | 3 | 40 | 4 |
| 12 | 2 | 2 | 1 | 5 | 287.78 | 37012 | -356 | -179 | 210 | 31 | 46 | 221 | 100 | 95 | 182 | 204 | 0.01 | 97 | 64 | 103 | 55 | 3 | 40 | 4 |
| 13 | 3 | 3 | 1 | 7 | 287.42 | 36667 | -345 | -174 | 201 | 27 | 48 | 213 | 128 | 101 | 182 | 190 | 0.07 | 77 | 61 | 97 | 55 | 3 | 35 | 4 |
| 14 | 3 | 3 | 1 | 7 | 287.11 | 36371 | -296 | -149 | 178 | 29 | 49 | 193 | 126 | 126 | 206 | 196 | 0.00 | 73 | 58 | 94 | 50 | 3 | 20 | 4 |
| 15 | 3 | 3 | 1 | 7 | 286.79 | 36066 | -305 | -154 | 172 | 18 | 49 | 184 | 102 | 126 | 210 | 215 | 0.00 | 77 | 61 | 87 | 45 | 3 | 27 | 3 |
| 16 | 3 | 3 | 1 | 7 | 286.47 | 35763 | -303 | -153 | 188 | 35 | 49 | 199 | 99 | 108 | 193 | 210 | 0.00 | 77 | 56 | 90 | 40 | 3 | 44 | 3 |
| 17 | 2 | 2 | 1 | 5 | 286.14 | 35450 | -313 | -158 | 186 | 28 | 47 | 198 | 97 | 107 | 192 | 207 | 0.00 | 85 | 59 | 91 | 40 | 3 | 44 | 3 |
| 18 | 2 | 2 | 1 | 5 | 285.80 | 35130 | -320 | -161 | 186 | 25 | 46 | 197 | 106 | 106 | 188 | 207 | 0.00 | 87 | 56 | 91 | 40 | 3 | 44 | 3 |
| 19 | 2 | 2 | 1 | 5 | 285.50 | 34848 | -282 | -142 | 170 | 28 | 49 | 183 | 94 | 98 | 187 | 204 | 0.00 | 92 | 61 | 92 | 40 | 3 | 27 | 3 |
| 20 | 2 | 1 | 1 | 4 | 285.15 | 34520 | -328 | -165 | 189 | 24 | 46 | 199 | 113 | 90 | 174 | 193 | 0.00 | 85 | 57 | 90 | 45 | 3 | 44 | 3 |
| 21 | 2 | 1 | 1 | 4 | 284.82 | 34211 | -309 | -156 | 172 | 16 | 46 | 182 | 90 | 101 | 181 | 188 | 0.00 | 78 | 42 | 87 | 45 | 3 | 30 | 3 |
| 22 | 2 | 1 | 1 | 4 | 284.51 | 33923 | -288 | -145 | 172 | 27 | 45 | 180 | 95 | 87 | 172 | 193 | 0.00 | 79 | 52 | 87 | 50 | 3 | 25 | 3 |
| 23 | 2 | 1 | 1 | 4 | 284.18 | 33617 | -306 | -154 | 177 | 23 | 45 | 185 | 89 | 87 | 172 | 188 | 0.00 | 80 | 52 | 85 | 50 | 3 | 32 | 3 |
| 24 | 2 | 1 | 1 | 4 | 283.85 | 33311 | -306 | -154 | 177 | 23 | 45 | 184 | 81 | 81 | 164 | 188 | 0.00 | 86 | 49 | 85 | 50 | 3 | 32 | 3 |
| 25 | 2 | 1 | 1 | 4 | 283.51 | 32998 | -313 | -158 | 176 | 18 | 45 | 185 | 90 | 85 | 164 | 182 | 0.00 | 80 | 52 | 84 | 50 | 3 | 32 | 3 |
| 26 | 2 | 1 | 1 | 4 | 283.15 | 32667 | -331 | -167 | 204 | 37 | 46 | 216 | 91 | 76 | 161 | 180 | 0.00 | 88 | 55 | 98 | 55 | 3 | 40 | 3 |
| 27 | 2 | 1 | 1 | 4 | 282.74 | 32292 | -375 | -189 | 214 | 25 | 45 | 224 | 108 | 79 | 161 | 180 | 0.00 | 92 | 57 | 104 | 60 | 3 | 40 | 3 |
| 28 | 2 | 2 | 1 | 5 | 282.34 | 31928 | -364 | -184 | 206 | 22 | 44 | 215 | 110 | 87 | 168 | 177 | 0.00 | 90 | 54 | 105 | 60 | 3 | 30 | 3 |
| 29 | 2 | 2 | 1 | 5 | 281.94 | 31565 | -363 | -183 | 210 | 27 | 45 | 220 | 114 | 99 | 179 | 185 | 0.00 | 83 | 54 | 101 | 60 | 3 | 37 | 3 |
| 30 | 2 | 2 | 1 | 5 | 281.57 | 31231 | -334 | -168 | 196 | 28 | 45 | 205 | 104 | 99 | 182 | 196 | 0.00 | 76 | 57 | 93 | 50 | 3 | 42 | 3 |
| 31 | 2 | 3 | 1 | 6 | 281.18 | 30880 | -351 | -177 | 196 | 19 | 47 | 207 | 138 | 107 | 186 | 207 | 0.02 | 71 | 54 | 92 | 50 | 3 | 42 | 3 |
| TOTALS | | | | | | | | | | | | | | | | | 0.10 inches | | | | | | | |
| cfs | 74 | 63 | 31 | 168 | | | | -5339 | 6082 | 743 | 1454 | 5970 | 3191 | 2983 | 5507 | 6023 | MAX | 97 | 64 | 2991 | 1560 | 93 | 1156 | 107 |
| ac-ft | 147 | 125 | 61 | 333 | | | -10589 | -10589 | 12064 | 1474 | 2884 | 11841 | 6329 | 5917 | 10923 | 11947 | MIN | 71 | 42 | 5933 | 3094 | 184 | 2293 | 212 |

| | |
|---|---|
| **Water storage elevation ± to fill curve:** | **-22.32** |
| **Water storage in ac-ft ± to fill curve:** | **-22443** |
| **Percentage of full reservoir:** | **57.9%** |

**SNOTEL Summary for Water Year 2014**

Uptdated: August 31, 2014

| | | | |
|---|---|---|---|
| SECO W/Y pc: | 50.8" | sno depth/water content | 0 |
| SDMO W/Y pc: | 79.7" | 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 | 13587 | |
| CWS | 5157 | 7458 |
| LO | 309 | 191 |
| MUNI | 6183 | 7317 |
| Other | 664 | |

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

## SCOGGINS DAM -- RESERVOIR OPERATIONS
September 2014

Source: Tualatin Valley Irrigation District

| | INFLOW | | | | HENRY HAGG LAKE | | | | | | TUALATIN RIVER | | | | | | WEATHER | | | WATER DELIVERIES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DAY | SCHO (cfs) [1] | SCLO (cfs) [2] | TANO (cfs) [3] | TOT INFLO (cfs) [4] | W.S. ELEV (ft) [5] | STOR CONT (ac-ft) [6] | CHNG STOR (ac-ft) [7] | CHNG STOR (cfs) [8] | REL (cfs) [9] | COMP INFLO (cfs) [10] | GASO (cfs) [11] | DLLO (cfs) [12] | GOLF (cfs) [13] | ROOD (cfs) [14] | FRMO (cfs) [15] | WSLO (cfs) [16] | PRECIP (inches) [17] | TEMP MAX (°F) [18] | TEMP MIN (°F) [19] | TVID (cfs) [20] | CWS (cfs) [21] | LO (cfs) [22] | MUNI (cfs) [23] | OTHR (cfs) [24] |
| 1 | 2 | 3 | 1 | 6 | 280.82 | 30557 | -323 | -163 | 195 | 32 | 46 | 206 | 155 | 132 | 213 | 218 | 0.00 | 75 | 51 | 91 | 50 | 3 | 42 | 3 |
| 2 | 2 | 2 | 1 | 5 | 280.44 | 30218 | -339 | -171 | 195 | 24 | 45 | 204 | 127 | 130 | 220 | 242 | 0.00 | 80 | 51 | 92 | 50 | 3 | 42 | 3 |
| 3 | 2 | 2 | 1 | 5 | 280.09 | 29907 | -311 | -157 | 178 | 21 | 63 | 206 | 108 | 109 | 196 | 239 | 0.00 | 74 | 46 | 87 | 45 | 3 | 35 | 3 |
| 4 | 2 | 2 | 1 | 5 | 279.77 | 29624 | -283 | -143 | 163 | 20 | 63 | 193 | 100 | 103 | 186 | 224 | 0.00 | 73 | 45 | 82 | 40 | 3 | 30 | 3 |
| 5 | 2 | 2 | 1 | 5 | 279.45 | 29341 | -283 | -143 | 170 | 27 | 60 | 195 | 92 | 95 | 179 | 215 | 0.00 | 82 | 50 | 81 | 40 | 3 | 37 | 4 |
| 6 | 2 | 2 | 1 | 5 | 279.12 | 29051 | -290 | -146 | 170 | 24 | 59 | 194 | 91 | 85 | 168 | 210 | 0.00 | 88 | 56 | 80 | 40 | 3 | 37 | 4 |
| 7 | 2 | 2 | 1 | 5 | 278.81 | 28780 | -271 | -137 | 169 | 32 | 59 | 193 | 94 | 79 | 165 | 201 | 0.00 | 93 | 49 | 79 | 40 | 3 | 37 | 4 |
| 8 | 2 | 2 | 1 | 5 | 278.47 | 28483 | -297 | -150 | 169 | 19 | 59 | na | | 103 | 94 | 175 | 199 | 0.00 | 88 | 46 | 79 | 40 | 3 | 37 | 4 |
| 9 | 2 | 2 | 1 | 5 | 278.14 | 28196 | -287 | -145 | 169 | 24 | 59 | 195 | 93 | 91 | 175 | 204 | 0.00 | 77 | 50 | 79 | 40 | 3 | 37 | 4 |
| 10 | 2 | 2 | 1 | 5 | 277.82 | 27919 | -277 | -140 | 169 | 29 | 59 | 192 | 96 | 88 | 171 | 201 | 0.00 | 76 | 46 | 79 | 40 | 3 | 37 | 4 |
| 11 | 2 | 2 | 1 | 5 | 277.48 | 27626 | -293 | -148 | 169 | 21 | 59 | 192 | 89 | 85 | 173 | 199 | 0.00 | 79 | 49 | 71 | 40 | 3 | 45 | 4 |
| 12 | 2 | 2 | 1 | 5 | 277.14 | 27334 | -292 | -147 | 169 | 22 | 60 | 195 | 106 | 85 | 168 | 196 | 0.00 | 74 | 56 | 81 | 40 | 3 | 35 | 4 |
| 13 | 2 | 2 | 1 | 5 | 276.80 | 27043 | -291 | -147 | 169 | 22 | 60 | 195 | 104 | 89 | 170 | 190 | 0.00 | 84 | 51 | 72 | 50 | 3 | 35 | 4 |
| 14 | 2 | 1 | 1 | 4 | 276.47 | 26761 | -282 | -142 | 169 | 27 | 60 | 194 | 103 | 88 | 171 | 193 | 0.00 | 87 | 45 | 73 | 50 | 3 | 35 | 4 |
| 15 | 2 | 1 | 1 | 4 | 276.14 | 26481 | -280 | -141 | 168 | 27 | 60 | 195 | 111 | 96 | 170 | 193 | 0.00 | 87 | 47 | 72 | 50 | 3 | 35 | 4 |
| 16 | 2 | 1 | 1 | 4 | 275.82 | 26211 | -270 | -136 | 168 | 32 | 60 | 193 | 97 | 98 | 172 | 190 | 0.00 | 89 | 51 | 72 | 50 | 3 | 35 | 4 |
| 17 | 2 | 2 | 1 | 5 | 275.47 | 25916 | -295 | -149 | 168 | 19 | 61 | 196 | 110 | 91 | 162 | 196 | 0.00 | 75 | 52 | 71 | 50 | 3 | 35 | 4 |
| 18 | 2 | 2 | 1 | 5 | 275.18 | 25672 | -244 | -123 | 159 | 36 | 61 | 188 | 118 | 104 | 172 | 193 | 0.01 | 76 | 59 | 66 | 50 | 3 | 30 | 4 |
| 19 | 2 | 2 | 1 | 5 | 274.89 | 25430 | -242 | -122 | 149 | 27 | 61 | 179 | 119 | 112 | 182 | 201 | 0.00 | 72 | 56 | 63 | 50 | 3 | 25 | 3 |
| 20 | 2 | 2 | 1 | 5 | 274.61 | 25197 | -233 | -117 | 148 | 31 | 60 | 177 | 108 | 106 | 182 | 213 | 0.00 | 83 | 53 | 62 | 50 | 3 | 25 | 3 |
| 21 | 2 | 1 | 1 | 4 | 274.32 | 24956 | -241 | -122 | 149 | 27 | 59 | 174 | 107 | 99 | 176 | 207 | 0.00 | 93 | 55 | 64 | 50 | 3 | 25 | 3 |
| 22 | 2 | 1 | 1 | 4 | 274.04 | 24724 | -232 | -117 | 149 | 32 | 59 | 177 | 120 | 102 | 177 | 204 | 0.00 | 86 | 56 | 64 | 50 | 3 | 25 | 3 |
| 23 | 2 | 2 | 1 | 5 | 273.76 | 24494 | -230 | -116 | 141 | 25 | 60 | 171 | 118 | 113 | 185 | 213 | 0.01 | 72 | 56 | 55 | 50 | 3 | 25 | 3 |
| 24 | 8 | 16 | 2 | 26 | 273.61 | 24370 | -124 | -63 | 135 | 72 | 83 | 192 | 141 | 209 | 252 | 333 | 1.13 | 64 | 57 | 28 | 50 | 3 | 25 | 3 |
| 25 | 4 | 7 | 1 | 12 | 273.44 | 24231 | -139 | -70 | 105 | 35 | 62 | 149 | 141 | 254 | 356 | 372 | 0.01 | 66 | 57 | 42 | 30 | 3 | 15 | 3 |
| 26 | 3 | 7 | 1 | 11 | 273.30 | 24116 | -115 | -58 | 89 | 31 | 56 | 128 | 110 | 216 | 311 | 376 | 0.16 | 68 | 57 | 49 | 10 | 3 | 15 | 1 |
| 27 | 3 | 5 | 1 | 9 | 273.16 | 24002 | -114 | -57 | 84 | 27 | 55 | 121 | 101 | 156 | 251 | 333 | 0.00 | 70 | 51 | 36 | 20 | 3 | 15 | 1 |
| 28 | 2 | 4 | 1 | 7 | 273.00 | 23871 | -131 | -66 | 85 | 19 | 53 | 119 | 95 | 141 | 220 | 285 | 0.00 | 72 | 47 | 39 | 20 | 3 | 15 | 1 |
| 29 | 2 | 3 | 1 | 6 | 272.84 | 23741 | -130 | -66 | 85 | 19 | 52 | 117 | 89 | 124 | 207 | 262 | 0.00 | 79 | 49 | 40 | 20 | 3 | 15 | 1 |
| 30 | 3 | 4 | 1 | 8 | 272.70 | 23627 | -114 | -57 | 78 | 21 | 55 | 115 | 86 | 118 | 195 | 258 | 0.05 | 64 | 49 | 31 | 20 | 3 | 15 | 1 |
| TOTALS | | | | | | | | | | | | | | | | | 1.37 inches | | | | | | | |
| cfs | 71 | 88 | 31 | 190 | | | | -3657 | 4483 | 826 | 1768 | 5145 | 3232 | 3492 | 5900 | 6960 | MAX | 93 | 59 | 1980 | 1225 | 90 | 896 | 94 |
| ac-ft | 141 | 175 | 61 | 377 | | | -7253 | -7253 | 8892 | 1639 | 3507 | 10205 | 6411 | 6926 | 11703 | 13805 | MIN | 64 | 45 | 3927 | 2430 | 179 | 1777 | 186 |

| | |
|---|---|
| **Water storage elevation ± to fill curve:** | **-30.8** |
| **Water storage in ac-ft ± to fill curve:** | **-29696** |
| **Percentage of full reservoir:** | **44.3%** |

**SNOTEL Summary for Water Year 2014**

Uptdated: September 30, 2014

| | | | |
|---|---|---|---|
| SECO W/Y pc: | 52.5" | sno depth/water content | 0 |
| SDMO W/Y pc: | 81.8" | sno depth/water content | 0 |

**Minimum Required Discharges**

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

| **RESERVOIR DELIVERY STATUS** | | USED | REMAINING |
|---|---|---|---|
| *These allocations, amounts used and* | TVID | 17514 | |
| *remaining are provisional and subject* | CWS | 7587 | 5028 |
| *to daily changes as the WS elevation* | LO | 488 | 12 |
| *rises and falls. These numbers are for* | MUNI | 7960 | 5540 |
| *planning purposes only* | Other | 851 | |

SCOGGINS DAM -- RESERVOIR OPERATIONS
October 2014

[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 | 2 | 4 | 1 | 7 | 272.51 | 23473 | -154 | -78 | 95 | 17 | 54 | 125 | 94 | 118 | 190 | 246 | 0.01 | 68 | 45 | 34 | 30 | 3 | 20 | 1 |
| 2 | 2 | 4 | 1 | 7 | 272.36 | 23352 | -121 | -61 | 89 | 28 | 53 | 123 | 101 | 112 | 190 | 236 | 0.00 | 67 | 45 | 28 | 40 | 3 | 10 | 1 |
| 3 | 2 | 3 | 1 | 6 | 272.16 | 23190 | -162 | -82 | 96 | 14 | 53 | 128 | 100 | 112 | 194 | 227 | 0.00 | 72 | 45 | 36 | 40 | 0 | 15 | 2 |
| 4 | 2 | 3 | 1 | 6 | 271.96 | 23029 | -161 | -81 | 116 | 35 | 46 | 139 | 95 | 106 | 188 | 221 | 0.00 | 80 | 45 | 35 | 40 | 0 | 32 | 2 |
| 5 | 2 | 3 | 1 | 6 | 271.75 | 22861 | -168 | -85 | 115 | 30 | 46 | 138 | 88 | 95 | 178 | 218 | 0.00 | 84 | 47 | 35 | 40 | 0 | 32 | 2 |
| 6 | 2 | 3 | 1 | 6 | 271.48 | 22644 | -217 | -109 | 115 | 6 | 45 | 137 | 91 | 96 | 176 | n/a | 0.00 | 86 | 52 | 35 | 40 | 0 | 32 | 2 |
| 7 | 2 | 3 | 1 | 6 | 271.24 | 22453 | -191 | -96 | 121 | 25 | 46 | 143 | 97 | 99 | 181 | 210 | 0.00 | 87 | 54 | 36 | 50 | 0 | 27 | 2 |
| 8 | 2 | 3 | 1 | 6 | 271.00 | 22262 | -191 | -96 | 121 | 25 | 46 | 142 | 96 | 99 | 180 | 215 | 0.00 | 82 | 47 | 36 | 50 | 0 | 27 | 2 |
| 9 | 2 | 3 | 1 | 6 | 270.75 | 22063 | -199 | -100 | 121 | 21 | 44 | 140 | 90 | 99 | 181 | 215 | 0.00 | 78 | 47 | 27 | 50 | 0 | 35 | 2 |
| 10 | 2 | 3 | 1 | 6 | 270.49 | 21856 | -207 | -104 | 129 | 25 | 45 | 148 | 91 | 92 | 177 | 215 | 0.00 | 76 | 47 | 31 | 50 | 0 | 40 | 2 |
| 11 | 2 | 3 | 1 | 6 | 270.26 | 21674 | -182 | -92 | 117 | 25 | 46 | 142 | 101 | 102 | 183 | 233 | 0.05 | 71 | 48 | 29 | 50 | 0 | 30 | 2 |
| 12 | 2 | 4 | 1 | 7 | 270.02 | 21484 | -190 | -96 | 117 | 21 | 48 | 148 | 109 | 134 | 216 | 236 | 0.00 | 69 | 46 | 28 | 50 | 0 | 30 | 2 |
| 13 | 2 | 4 | 1 | 7 | 269.77 | 21286 | -198 | -100 | 116 | 16 | 48 | 148 | 126 | 121 | 203 | 249 | 0.00 | 66 | 46 | 27 | 50 | 0 | 30 | 2 |
| 14 | 3 | 6 | 1 | 10 | 269.57 | 21129 | -157 | -79 | 116 | 37 | 52 | 151 | 117 | 132 | 212 | 282 | 0.17 | 70 | 46 | 24 | 50 | 0 | 30 | 1 |
| 15 | 4 | 11 | 1 | 16 | 269.39 | 20987 | -142 | -72 | 99 | 27 | 55 | 143 | 126 | 241 | 298 | 321 | 0.43 | 59 | 53 | 38 | 30 | 0 | 30 | 1 |
| 16 | 4 | 15 | 2 | 21 | 269.29 | 20909 | -78 | -39 | 98 | 59 | 74 | 169 | 193 | 303 | 418 | 414 | 0.59 | 58 | 49 | 41 | 10 | 0 | 25 | 1 |
| 17 | 3 | 9 | 1 | 13 | 269.18 | 20822 | -87 | -44 | 70 | 26 | 55 | 121 | 137 | 287 | 395 | 436 | 0.09 | 67 | 49 | 29 | 10 | 0 | 15 | 1 |
| 18 | 4 | 14 | 1 | 19 | 269.07 | 20736 | -86 | -43 | 57 | 14 | 57 | 111 | 112 | 230 | 337 | 468 | 0.38 | 59 | 52 | 15 | 10 | 0 | 10 | 1 |
| 19 | 3 | 11 | 1 | 15 | 268.99 | 20674 | -62 | -31 | 57 | 26 | 58 | 114 | 129 | 169 | 275 | 384 | 0.01 | 66 | 53 | 21 | 10 | 0 | 10 | 1 |
| 20 | 3 | 9 | 1 | 13 | 268.84 | 20556 | -118 | -59 | 85 | 26 | 55 | 133 | 118 | 159 | 251 | 321 | 0.08 | 70 | 56 | 30 | 10 | 0 | 30 | 1 |
| 21 | 5 | 18 | 1 | 24 | 268.77 | 20502 | -54 | -27 | 74 | 47 | 60 | 131 | 127 | 228 | 299 | 340 | 0.58 | 62 | 51 | 2 | 10 | 0 | 35 | 1 |
| 22 | 10 | 27 | 3 | 40 | 268.71 | 20455 | -47 | -24 | 74 | 50 | 94 | 162 | 201 | 202 | 304 | 368 | 0.44 | 58 | 53 | 6 | 10 | 0 | 25 | 1 |
| 23 | 20 | 61 | 4 | 85 | 268.98 | 20666 | 211 | 106 | 21 | 127 | 221 | 288 | 471 | 909 | 1050 | 1250 | 1.55 | 57 | 51 | 5 | 0 | 0 | 0 | 1 |
| 24 | 10 | 44 | 4 | 58 | 269.10 | 20760 | 94 | 47 | 21 | 68 | 122 | 169 | 279 | 1180 | 1490 | 1540 | 0.08 | 61 | 48 | 5 | 0 | 0 | 0 | 0 |
| 25 | 9 | 36 | 3 | 48 | 269.18 | 20822 | 62 | 31 | 21 | 52 | 87 | 115 | 186 | 630 | 912 | 1250 | 0.35 | 56 | 48 | 5 | 0 | 0 | 0 | 0 |
| 26 | 39 | 84 | 7 | 130 | 269.42 | 21011 | 189 | 95 | 21 | 116 | 304 | 294 | 305 | 456 | 638 | 875 | 0.78 | 60 | 47 | 5 | 0 | 0 | 0 | 0 |
| 27 | 17 | 61 | 5 | 83 | 269.66 | 21199 | 188 | 95 | 21 | 116 | 202 | 258 | 492 | 744 | 886 | 771 | 0.19 | 58 | 44 | 5 | 0 | 0 | 0 | 0 |
| 28 | 10 | 46 | 4 | 60 | 269.77 | 21286 | 87 | 44 | 21 | 65 | 108 | 145 | 282 | 642 | 868 | 863 | 0.10 | 57 | 48 | 5 | 0 | 0 | 0 | 0 |
| 29 | 23 | 74 | 5 | 102 | 269.97 | 21444 | 158 | 80 | 21 | 101 | 226 | 226 | 307 | 495 | 684 | 851 | 0.37 | 57 | 52 | 5 | 0 | 0 | 0 | 0 |
| 30 | 14 | 59 | 4 | 77 | 270.14 | 21579 | 135 | 68 | 21 | 89 | 152 | 190 | 343 | 586 | 744 | 710 | 0.18 | 60 | 55 | 5 | 0 | 0 | 0 | 0 |
| 31 | 17 | 60 | 4 | 81 | 270.31 | 21713 | 134 | 68 | 21 | 89 | 126 | 165 | 290 | 761 | 912 | 1220 | 0.72 | 61 | 50 | 5 | 0 | 0 | 0 | 0 |
| TOTALS | | | | | | | | | | | | | | | | | | | | | | | | |
| cfs | 224 | 688 | 65 | 977 | | | | -965 | 2387 | 1422 | 2728 | 4886 | 5494 | 9739 | 13410 | 15385 | 7.15 inches | | | 668 | 730 | 6 | 570 | 34 |
| ac-ft | 444 | 1365 | 129 | 1938 | | | -1914 | -1914 | 4735 | 2821 | 5411 | 9691 | 10897 | 19317 | 26599 | 30516 | MAX | 87 | 56 | 1325 | 1448 | 12 | 1131 | 67 |
| | | | | | | | | | | | | | | | | | MIN | 56 | 44 | | | | | |

| | |
|---|---|
| **Water storage elevation ± to fill curve:** | **-33.19** |
| **Water storage in ac-ft ± to fill curve:** | **-31610** |
| **Percentage of full reservoir:** | **40.7%** |

**SNOTEL Summary for Water Year 2015**

Updated: October 31, 2014

| | | | |
|---|---|---|---|
| SECO W/Y pc: | 9.7" | sno depth/water content | 0 |
| SDMO W/Y pc: | 14.0" | 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 | 18839 | |
| *remaining are provisional and subject* | CWS | 9035 | 3580 |
| *to daily changes as the WS elevation* | LO | 500 | 0 |
| *rises and falls. These numbers are for* | MUNI | 9090 | 4410 |
| *planning purposes only* | Other | 918 | |

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

# SCOGGINS DAM -- RESERVOIR OPERATIONS
November 2014

Source: Tualatin Valley Irrigation District

| DAY | INFLOW | | | | HENRY HAGG LAKE | | | | | | TUALATIN RIVER | | | | | | WEATHER | | | WATER DELIVERIES | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SCHO (cfs) [1] | SCLO (cfs) [2] | TANO (cfs) [3] | TOT INFLO (cfs) [4] | W.S. ELEV (ft) [5] | STOR CONT (ac-ft) [6] | CHNG STOR (ac-ft) [7] | CHNG STOR (cfs) [8] | REL (cfs) [9] | COMP INFLO (cfs) [10] | GASO (cfs) [11] | DLLO (cfs) [12] | GOLF (cfs) [13] | ROOD (cfs) [14] | FRMO (cfs) [15] | WSLO (cfs) [16] | PRECIP (inches) [17] | TEMP MAX (°F) [18] | TEMP MIN (°F) [19] | TVID (cfs) [20] | CWS (cfs) [21] | LO (cfs) [22] | MUNI (cfs) [23] | OTHR (cfs) [24] |
| 1 | 15 | 52 | 4 | 71 | 270.46 | 21832 | 119 | 60 | 21 | 81 | 114 | 164 | 337 | 1290 | 1560 | 1430 | 0.03 | 58 | 41 | 3 | 0 | 0 | 0 | 0 |
| 2 | 11 | 44 | 3 | 58 | 270.55 | 21904 | 72 | 36 | 21 | 57 | 92 | 134 | 253 | 880 | 1220 | 1410 | 0.06 | 48 | 40 | 3 | 0 | 0 | 0 | 0 |
| 3 | 24 | 60 | 4 | 88 | 270.68 | 22007 | 103 | 52 | 21 | 73 | 136 | 156 | 218 | 615 | 842 | 1040 | 0.24 | 53 | 45 | 3 | 0 | 0 | 0 | 0 |
| 4 | 66 | 98 | 8 | 172 | 270.90 | 22182 | 175 | 88 | 22 | 110 | 220 | 231 | 337 | 647 | 796 | 912 | 0.66 | 55 | 52 | 3 | 0 | 0 | 0 | 0 |
| 5 | 42 | 76 | 6 | 124 | 271.22 | 22437 | 255 | 129 | 21 | 150 | 295 | 353 | 539 | 908 | 1100 | 962 | 0.02 | 60 | 50 | 3 | 0 | 0 | 0 | 0 |
| 6 | 28 | 64 | 5 | 97 | 271.42 | 22597 | 160 | 81 | 21 | 102 | 177 | 230 | 417 | 899 | 1140 | 1080 | 0.07 | 60 | 53 | 3 | 0 | 0 | 0 | 0 |
| 7 | 22 | 60 | 4 | 86 | 271.51 | 22668 | 71 | 36 | 53 | 89 | 162 | 206 | 416 | 743 | 976 | 1040 | 0.09 | 60 | 42 | 4 | 0 | 0 | 0 | 0 |
| 8 | 16 | 53 | 4 | 73 | 271.62 | 22757 | 89 | 45 | 21 | 66 | 134 | 171 | 296 | 628 | 851 | 899 | 0.00 | 50 | 39 | 4 | 0 | 0 | 0 | 0 |
| 9 | 14 | 47 | 4 | 65 | 271.74 | 22853 | 96 | 48 | 21 | 69 | 115 | 149 | 254 | 520 | 708 | 776 | 0.00 | 60 | 41 | 4 | 0 | 0 | 0 | 0 |
| 10 | 13 | 44 | 3 | 60 | 271.80 | 22901 | 48 | 24 | 21 | 45 | 102 | 135 | 207 | 440 | 604 | 672 | 0.03 | 54 | 40 | 3 | 0 | 0 | 0 | 0 |
| 11 | 11 | 39 | 3 | 53 | 271.86 | 22949 | 48 | 24 | 21 | 45 | 91 | 120 | 185 | 354 | 525 | 584 | 0.00 | 55 | 43 | 3 | 0 | 0 | 0 | 0 |
| 12 | 10 | 37 | 3 | 50 | 271.90 | 22981 | 32 | 16 | 21 | 37 | 87 | 113 | 180 | 329 | 453 | 507 | 0.00 | 47 | 31 | 3 | 0 | 0 | 0 | 0 |
| 13 | 10 | 36 | 3 | 49 | 271.92 | 22997 | 16 | 8 | 21 | 29 | 78 | 102 | 178 | 299 | 410 | 454 | 0.08 | 41 | 32 | 1 | 0 | 0 | 0 | 0 |
| 14 | 9 | 34 | 3 | 46 | 271.96 | 23029 | 32 | 16 | 21 | 37 | 77 | 102 | 170 | 317 | 418 | 464 | 0.19 | 34 | 30 | 1 | 0 | 0 | 0 | 0 |
| 15 | 9 | 31 | 3 | 43 | 271.99 | 23053 | 24 | 12 | 21 | 33 | 72 | 95 | 164 | 297 | 412 | 445 | 0.00 | 44 | 29 | 1 | 0 | 0 | 0 | 0 |
| 16 | 9 | 29 | 3 | 41 | 272.00 | 23061 | 8 | 4 | 21 | 25 | 68 | 90 | 134 | 267 | 378 | 418 | 0.00 | 45 | 24 | 1 | 0 | 0 | 0 | 0 |
| 17 | 9 | 28 | 3 | 40 | 272.01 | 23070 | 9 | 5 | 21 | 26 | 65 | 86 | 131 | 244 | 344 | 384 | 0.00 | 48 | 24 | 1 | 0 | 0 | 0 | 0 |
| 18 | 9 | 27 | 3 | 39 | 272.03 | 23086 | 16 | 8 | 22 | 30 | 63 | 83 | 125 | 225 | 321 | 360 | 0.00 | 48 | 25 | 1 | 0 | 0 | 0 | 0 |
| 19 | 8 | 26 | 3 | 37 | 272.04 | 23094 | 8 | 4 | 22 | 26 | 61 | 81 | 109 | 211 | 304 | 340 | 0.00 | 45 | 30 | 1 | 0 | 0 | 0 | 0 |
| 20 | 10 | 30 | 3 | 43 | 272.07 | 23118 | 24 | 12 | 22 | 34 | 63 | 81 | 101 | 211 | 301 | 336 | 0.14 | 50 | 36 | 1 | 0 | 0 | 0 | 0 |
| 21 | 9 | 28 | 3 | 40 | 272.10 | 23142 | 24 | 12 | 22 | 34 | 63 | 83 | 106 | 207 | 302 | 348 | 0.03 | 48 | 40 | 1 | 0 | 0 | 0 | 0 |
| 22 | 51 | 98 | 7 | 156 | 272.45 | 23425 | 283 | 143 | 20 | 163 | 462 | 383 | 412 | 448 | 533 | 605 | 1.04 | 54 | 44 | 1 | 0 | 0 | 0 | 0 |
| 23 | 38 | 76 | 6 | 120 | 272.73 | 23652 | 227 | 114 | 20 | 134 | 247 | 295 | 568 | 872 | 1010 | 743 | 0.14 | 54 | 41 | 1 | 0 | 0 | 0 | 0 |
| 24 | 33 | 85 | 7 | 125 | 273.00 | 23871 | 219 | 110 | 20 | 130 | 202 | 247 | 641 | 1170 | 1400 | 1290 | 0.17 | 53 | 44 | 1 | 0 | 0 | 0 | 0 |
| 25 | 45 | 82 | 7 | 134 | 273.28 | 24100 | 229 | 115 | 23 | 138 | 191 | 216 | 503 | 1120 | 1400 | 1390 | 0.16 | 58 | 57 | 1 | 0 | 0 | 0 | 0 |
| 26 | 50 | 76 | 6 | 132 | 273.57 | 24339 | 239 | 120 | 22 | 142 | 306 | 324 | 558 | 934 | 1100 | 1250 | 0.01 | 62 | 51 | 1 | 0 | 0 | 0 | 0 |
| 27 | 42 | 74 | 5 | 121 | 273.80 | 24527 | 188 | 95 | 23 | 118 | 225 | 259 | 489 | 878 | 1020 | 1120 | 0.02 | 58 | 50 | 1 | 0 | 0 | 0 | 0 |
| 28 | 44 | 87 | 7 | 138 | 274.07 | 24749 | 222 | 112 | 23 | 135 | 242 | 258 | 465 | 768 | 905 | 1050 | 0.16 | 57 | 52 | 1 | 0 | 0 | 0 | 0 |
| 29 | 74 | 134 | 11 | 219 | 274.57 | 25163 | 414 | 209 | 23 | 232 | 299 | 441 | 730 | 1050 | 1150 | 1260 | 0.37 | 55 | 38 | 1 | 0 | 0 | 0 | 0 |
| 30 | 58 | 106 | 9 | 173 | 274.99 | 25513 | 350 | 176 | 23 | 199 | 335 | 397 | 804 | 1440 | 1620 | 1460 | 0.04 | 44 | 28 | 1 | 0 | 0 | 0 | 0 |
| TOTALS | | | | | | | | | | | | | | | | | | | | | | | | |
| cfs | 789 | 1761 | 143 | 2693 | | | | 1916 | 675 | 2591 | 4844 | 5785 | 10027 | 19211 | 24103 | 25029 | 3.75 inches | | | | | | | |
| ac-ft | 1565 | 3493 | 284 | 5342 | | | 3800 | 3800 | 1339 | 5139 | 9608 | 11475 | 19889 | 38105 | 47808 | 49645 | MAX | 62 | 57 | 57 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | MIN | 34 | 24 | 113 | 0 | 0 | 0 | 0 |

| | |
|---|---|
| **Water storage elevation ± to fill curve:** | **-8.51** |
| **Water storage in ac-ft ± to fill curve:** | **-7476** |
| **Percentage of full reservoir:** | **47.8%** |

**SNOTEL Summary for Water Year 2015**

Updated: November 30, 2014

| | | | |
|---|---|---|---|
| SECO W/Y pc: | 16.1" | sno depth/water content | 0 |
| SDMO W/Y pc: | 25.5" | sno depth/water content | 0 |

**Minimum Required Discharges**

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

| **RESERVOIR DELIVERY STATUS** | | USED | REMAINING |
|---|---|---|---|
| *These allocations, amounts used and* | TVID | 18952 | |
| *remaining are provisional and subject* | CWS | 9035 | 3580 |
| *to daily changes as the WS elevation* | LO | 500 | 0 |
| *rises and falls. These numbers are for* | MUNI | 9090 | 4410 |
| *planning purposes only* | Other | 918 | |

SCOGGINS DAM -- RESERVOIR OPERATIONS
December 2014

[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 | 47 | 87 | 7 | 141 | 275.29 | 25765 | 252 | 127 | 23 | 150 | 241 | 305 | 664 | 1400 | 1650 | 1660 | 0.00 | 39 | 28 | 0 | 0 | 0 | 0 | 0 |
| 2 | 38 | 74 | 5 | 117 | 275.55 | 25983 | 218 | 110 | 23 | 133 | 195 | 249 | 503 | 1180 | 1390 | 1540 | 0.00 | 41 | 27 | 0 | 0 | 0 | 0 | 0 |
| 3 | 29 | 64 | 4 | 97 | 275.74 | 26143 | 160 | 81 | 23 | 104 | 165 | 211 | 401 | 944 | 1140 | 1310 | 0.00 | 42 | 29 | 0 | 0 | 0 | 0 | 0 |
| 4 | 29 | 61 | 4 | 94 | 275.94 | 26312 | 169 | 85 | 23 | 108 | 148 | 187 | 343 | 805 | 961 | 1160 | 0.30 | 47 | 37 | 0 | 0 | 0 | 0 | 0 |
| 5 | 36 | 64 | 4 | 104 | 276.20 | 26532 | 220 | 111 | 23 | 134 | 203 | 293 | 490 | 1330 | 1540 | 1700 | 0.78 | 44 | 38 | 0 | 0 | 0 | 0 | 0 |
| 6 | 86 | 116 | 10 | 212 | 276.51 | 26795 | 263 | 133 | 24 | 157 | 257 | 323 | 490 | 1350 | 1640 | 1990 | 0.80 | 50 | 43 | 0 | 0 | 0 | 0 | 0 |
| 7 | 65 | 101 | 8 | 174 | 276.97 | 27188 | 393 | 198 | 23 | 221 | 379 | 488 | 848 | 1690 | 1970 | 1980 | 0.03 | 55 | 40 | 0 | 0 | 0 | 0 | 0 |
| 8 | 51 | 87 | 7 | 145 | 277.31 | 27480 | 292 | 147 | 23 | 170 | 270 | 402 | 778 | 1680 | 2020 | 2110 | 0.02 | 51 | 40 | 0 | 0 | 0 | 0 | 0 |
| 9 | 51 | 78 | 6 | 135 | 277.63 | 27755 | 275 | 139 | 23 | 162 | 222 | 336 | 653 | 1480 | 1810 | 1970 | 0.10 | 48 | 41 | 0 | 0 | 0 | 0 | 0 |
| 10 | 95 | 130 | 11 | 236 | 278.13 | 28188 | 433 | 218 | 23 | 241 | 430 | 479 | 785 | 1530 | 1820 | 1970 | 0.61 | 60 | 49 | 0 | 0 | 0 | 0 | 0 |
| 11 | 149 | 206 | 21 | 376 | 279.02 | 29025 | 837 | 422 | 24 | 446 | 795 | 666 | 1290 | 2180 | 2580 | 2610 | 1.18 | 56 | 43 | 0 | 0 | 0 | 0 | 0 |
| 12 | 127 | 182 | 20 | 329 | 279.99 | 29818 | 793 | 400 | 23 | 423 | 773 | 750 | 1560 | 2440 | 2970 | 2990 | 0.27 | 60 | 45 | 0 | 0 | 0 | 0 | 0 |
| 13 | 97 | 144 | 13 | 254 | 280.66 | 30414 | 596 | 300 | 24 | 324 | 560 | 716 | 1630 | 2440 | 2990 | 3030 | 0.03 | 50 | 37 | 0 | 0 | 0 | 0 | 0 |
| 14 | 78 | 114 | 10 | 202 | 281.17 | 30871 | 457 | 230 | 24 | 254 | 406 | 623 | 1500 | 2430 | 2960 | 2960 | 0.00 | 43 | 37 | 0 | 0 | 0 | 0 | 0 |
| 15 | 62 | 96 | 8 | 166 | 281.55 | 31213 | 342 | 172 | 24 | 196 | 314 | 524 | 1230 | 2350 | 2880 | 2870 | 0.00 | 53 | 37 | 0 | 0 | 0 | 0 | 0 |
| 16 | 55 | 82 | 7 | 144 | 281.89 | 31520 | 307 | 155 | 24 | 179 | 263 | 422 | 915 | 2150 | 2640 | 2700 | 0.09 | 48 | 40 | 0 | 0 | 0 | 0 | 0 |
| 17 | 46 | 72 | 5 | 123 | 282.15 | 31755 | 235 | 118 | 24 | 142 | 227 | 313 | 742 | 1770 | 2210 | 2360 | 0.00 | 48 | 38 | 0 | 0 | 0 | 0 | 0 |
| 18 | 41 | 65 | 5 | 111 | 282.39 | 31973 | 218 | 110 | 24 | 134 | 199 | 268 | 606 | 1420 | 1760 | 1940 | 0.06 | 46 | 39 | 0 | 0 | 0 | 0 | 0 |
| 19 | 55 | 81 | 7 | 143 | 282.39 | 31973 | 0 | 0 | 199 | 199 | 264 | 419 | 646 | 1250 | 1510 | 1720 | 0.52 | 49 | 44 | 0 | 0 | 0 | 0 | 0 |
| 20 | 159 | 192 | 20 | 371 | 282.51 | 32083 | 110 | 55 | 200 | 255 | 407 | 468 | 778 | 1420 | 1680 | 1800 | 0.97 | 49 | 43 | 0 | 0 | 0 | 0 | 0 |
| 21 | 315 | 470 | 30 | 815 | 285.15 | 34520 | 2437 | 1229 | 49 | 1278 | na | 1020 | 1780 | 2440 | 2970 | 3160 | 1.85 | 58 | 48 | 0 | 0 | 0 | 0 | 0 |
| 22 | 190 | 244 | 25 | 459 | 286.61 | 35895 | 1375 | 693 | 50 | 743 | na | 889 | 2650 | 2840 | 3460 | 3650 | 0.14 | 53 | 48 | 0 | 0 | 0 | 0 | 0 |
| 23 | 141 | 172 | 16 | 329 | 287.27 | 36524 | 629 | 317 | 204 | 521 | na | 757 | 2680 | 2940 | 3590 | 3680 | 0.04 | 53 | 45 | 0 | 0 | 0 | 0 | 0 |
| 24 | 157 | 178 | 17 | 352 | 287.76 | 36993 | 469 | 236 | 205 | 441 | na | 691 | 2500 | 3240 | 3910 | 4310 | 0.76 | 51 | 40 | 0 | 0 | 0 | 0 | 0 |
| 25 | 130 | 159 | 14 | 303 | 288.21 | 37426 | 433 | 218 | 205 | 423 | na | 687 | 2310 | 3580 | 4360 | 4670 | 0.19 | 48 | 37 | 0 | 0 | 0 | 0 | 0 |
| 26 | 111 | 138 | 11 | 260 | 288.52 | 37726 | 300 | 151 | 205 | 356 | 636 | 655 | 2160 | 3540 | 4380 | 4690 | 0.04 | 46 | 39 | 0 | 0 | 0 | 0 | 0 |
| 27 | 97 | 118 | 9 | 224 | 288.48 | 37687 | -39 | -20 | 366 | 346 | 525 | 648 | 1970 | 3420 | 4250 | 4560 | 0.00 | 43 | 40 | 0 | 0 | 0 | 0 | 0 |
| 28 | 97 | 116 | 9 | 222 | 288.36 | 37571 | -116 | -58 | 365 | 307 | 539 | 639 | 1820 | 3250 | 4050 | 4350 | 0.32 | 45 | 37 | 0 | 0 | 0 | 0 | 0 |
| 29 | 86 | 108 | 9 | 203 | 288.16 | 37378 | -193 | -97 | 364 | 267 | 526 | 628 | 1690 | 3070 | 3830 | 4070 | 0.06 | 46 | 34 | 0 | 0 | 0 | 0 | 0 |
| 30 | 76 | 92 | 8 | 176 | 287.88 | 37108 | -270 | -136 | 361 | 225 | 428 | 614 | 1540 | 2860 | 3570 | 3730 | 0.00 | 44 | 28 | 0 | 0 | 0 | 0 | 0 |
| 31 | 66 | 84 | 7 | 157 | 287.53 | 36773 | -335 | -169 | 360 | 191 | 358 | 597 | 1390 | 2650 | 3280 | 3410 | 0.00 | 35 | 22 | 0 | 0 | 0 | 0 | 0 |
| TOTALS | | | | | | | | | | | | | | | | | | | | | | | | |
| cfs | 2862 | 3975 | 337 | 7174 | | | | 5677 | 3555 | 9232 | 9730 | 16267 | 39342 | 67069 | 81771 | 86650 | 9.16 inches | | | 0 | 0 | 0 | 0 | 0 |
| ac-ft | 5677 | 7884 | 668 | 14230 | | | 11260 | 11260 | 7051 | 18312 | 19299 | 32266 | 78035 | 133031 | 162193 | 171870 | MAX | 60 | 49 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | | | | | | | | | | MIN | 35 | 22 | 0 | 0 | 0 | 0 | 0 |

| | |
|---|---|
| **Water storage elevation ± to fill curve:** | **4.03** |
| **Water storage in ac-ft ± to fill curve:** | **3784** |
| **Percentage of full reservoir:** | **69.0%** |

**SNOTEL Summary for Water Year 2015**

Updated: December 31, 2014

| | | | |
|---|---|---|---|
| SECO W/Y pc: | 27.8" | sno depth/water content | 0 |
| SDMO W/Y pc: | 44.1" | sno depth/water content | 4.0"/0.5" |

**Minimum Required Discharges**

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

| **RESERVOIR DELIVERY STATUS** | | USED | REMAINING |
|---|---|---|---|
| *These allocations, amounts used and* | TVID | 18952 | |
| *remaining are provisional and subject* | CWS | 9035 | 3580 |
| *to daily changes as the WS elevation* | LO | 500 | 0 |
| *rises and falls. These numbers are for* | MUNI | 9090 | 4410 |
| *planning purposes only* | Other | 918 | |

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# Appendix D

# Barney Reservoir Operations Monthly Records

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

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF JANUARY 2014

[See Appendix E for breakdown of municipal use by water provider.] Source: Barney Reservoir Joint Ownership Commission

| DAY | SURFACE ELEVATION | STORAGE | CHANGE IN STORAGE | RAIN @ BARNEY | TEMP @ BARNEY | | MEASURED FLOW TO | | STORAGE RELEASED TO TRASK—ODFW | | STORAGE RELEASED TO TUALATIN | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Min | Max | TRASK | TUALATIN | | | CWS | | MUNICIPAL | |
| | feet | ac-ft | ac-ft | in. | °F | °F | cfs | cfs | cfs | ac-ft | cfs | ac-ft | cfs | ac-ft |
| **1** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **2** | 1631.8 | 16425 | 187 | 0.01 | 35 | 42 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **3** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **4** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **5** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **6** | 1632.1 | 16538 | 113 | 0.18 | 28 | 47 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **7** | 1632.1 | 16538 | 0 | 0.17 | 34 | 38 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **8** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **9** | 1632.6 | 16725 | 187 | 1.93 | 36 | 43 | 1.1 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **10** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **11** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **12** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **13** | 1634.9 | 17588 | 863 | 5.29 | 33 | 44 | 2.3 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **14** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **15** | 1635.5 | 17813 | 225 | 0.03 | 31 | 43 | 1.1 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **16** | 1635.7 | 17888 | 75 | 0.00 | 31 | 43 | 1.1 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **17** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **18** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **19** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **20** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **21** | 1636.3 | 18150 | 262 | 0.00 | 30 | 45 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **22** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **23** | 1636.7 | 18350 | 200 | 0.00 | 34 | 44 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **24** | 1636.7 | 18350 | 0 | 0.00 | 32 | 46 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **25** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **26** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **27** | 1636.9 | 18450 | 100 | 0.00 | 31 | 48 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **28** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **29** | 1637.2 | 18600 | 150 | 1.14 | 34 | 44 | 1.1 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **30** | 1637.4 | 18700 | 100 | 0.52 | 34 | 43 | 1.1 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **31** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Monthly Totals | | | 2462 | 9.27 | | | | | | 0 | | 0 | | 0 |
| Year to Date Totals | | | 2462 | 9.27 | | | | | | 0 | | 0 | | 0 |

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF FEBRUARY 2014

[See Appendix E for breakdown of municipal use by water provider.] Source: Barney Reservoir Joint Ownership Commission

| DAY | SURFACE ELEVATION | STORAGE | CHANGE IN STORAGE | RAIN @ BARNEY | TEMP @ BARNEY | | MEASURED FLOW TO | | STORAGE RELEASED TO TRASK—ODFW | | STORAGE RELEASED TO TUALATIN | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Min | Max | TRASK | TUALATIN | | | CWS | | MUNICIPAL | |
| | feet | ac-ft | ac-ft | in. | ºF | ºF | cfs | cfs | cfs | ac-ft | cfs | ac-ft | cfs | ac-ft |
| **1** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **2** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **3** | 1637.9 | 18950 | 250 | 0.53 | 30 | 42 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **4** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **5** | 1638.1 | 19040 | 90 | 0.05 | 17 | 36 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **6** | 1638.2 | 19080 | 40 | 0.00 | 14 | 23 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **7** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **8** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **9** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **10** | 1638.7 | 19280 | 200 | 0.59 | 11 | 43 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **11** | 1638.9 | 19360 | 80 | 0.64 | 33 | 42 | 1.1 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **12** | 1639.8 | 19720 | 360 | 1.93 | 34 | 44 | 2.8 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **13** | 1640.3 | 19920 | 200 | 0.63 | 35 | 43 | 2.3 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **14** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **15** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **16** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **17** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **18** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **19** | 1641.0 | 20000 | 80 | 8.75 | 31 | 44 | 215.1 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **20** | 1641.0 | 20000 | 0 | 1.03 | 32 | 42 | 178.6 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **21** | 1641.0 | 20000 | 0 | 0.15 | 35 | 40 | 126.4 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **22** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **23** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **24** | 1640.8 | 20000 | 0 | 0.19 | 28 | 42 | 64.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **25** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **26** | 1640.7 | 20000 | 0 | 0.11 | 33 | 45 | 55.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **27** | 1640.7 | 20000 | | 0.05 | 36 | 41 | 47.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **28** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Monthly Totals | | | 1300 | 14.65 | | | | | | 0 | | 0 | | 0 |
| Year to Date Totals | | | 3762 | 23.92 | | | | | | 0 | | 0 | | 0 |

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF MARCH 2014

[See Appendix E for breakdown of municipal use by water provider.] Source: Barney Reservoir Joint Ownership Commission

| DAY | SURFACE ELEVATION | STORAGE | CHANGE IN STORAGE | RAIN @ BARNEY | TEMP @ BARNEY | | MEASURED FLOW TO | | STORAGE RELEASED TO TRASK—ODFW | | STORAGE RELEASED TO TUALATIN | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Min | Max | TRASK | TUALATIN | | | CWS | | MUNICIPAL | |
| | feet | ac-ft | ac-ft | in. | °F | °F | cfs | cfs | cfs | ac-ft | cfs | ac-ft | cfs | ac-ft |
| **1** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **2** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **3** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **4** | 1640.8 | 20000 | 0 | 2.54 | 34 | 46 | 79.6 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **5** | 1640.9 | 20000 | 0 | 1.65 | 43 | 49 | 110.8 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **6** | 1641.1 | 20000 | 0 | 2.95 | 40 | 50 | 270.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **7** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **8** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **9** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **10** | 1640.9 | 20000 | 0 | 3.52 | 42 | 50 | 142.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **11** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **12** | 1640.8 | 20000 | 0 | 0.29 | 31 | 43 | 95.2 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **13** | 1640.8 | 20000 | 0 | 0.00 | 32 | 50 | 79.6 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **14** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **15** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **16** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **17** | 1640.8 | 20000 | 0 | 1.78 | 32 | 50 | 64.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **18** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **19** | 1640.7 | 20000 | 0 | 0.02 | 33 | 44 | 47.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **20** | 1640.7 | 20000 | 0 | 0.22 | 30 | 43 | 47.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **21** | 1640.8 | 20000 | 0 | 0.11 | 28 | 40 | 47.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **22** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **23** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **24** | 1640.7 | 20000 | 0 | 0.00 | 30 | 49 | 41.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **25** | 1640.7 | 20000 | 0 | 0.16 | 42 | 52 | 41.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **26** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **27** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **28** | 1640.9 | 20000 | 0 | 4.20 | 42 | 45 | 142.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **29** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **30** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **31** | 1640.8 | 20000 | 0 | 1.51 | 34 | 45 | 79.6 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Monthly Totals | | | 0 | 18.95 | | | | | | 0 | | 0 | | 0 |
| Year to Date Totals | | | 3762 | 42.87 | | | | | | 0 | | 0 | | 0 |

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF APRIL 2014

[See Appendix E for breakdown of municipal use by water provider.] Source: Barney Reservoir Joint Ownership Commission

| DAY | SURFACE ELEVATION | STORAGE | CHANGE IN STORAGE | RAIN @ BARNEY | TEMP @ BARNEY | | MEASURED FLOW TO | | STORAGE RELEASED TO TRASK—ODFW | | STORAGE RELEASED TO TUALATIN | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Min | Max | TRASK | TUALATIN | | | CWS | | MUNICIPAL | |
| | feet | ac-ft | ac-ft | in. | ºF | ºF | cfs | cfs | cfs | ac-ft | cfs | ac-ft | cfs | ac-ft |
| **1** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **2** | 1640.7 | 20000 | 0 | 0.24 | 34 | 44 | 55.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **3** | 1640.7 | 20000 | 0 | 0.00 | 34 | 47 | 55.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **4** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **5** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **6** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **7** | 1640.7 | 20000 | 0 | 0.95 | 36 | 49 | 47.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **8** | 1640.7 | 20000 | 0 | 0.00 | 41 | 58 | 41.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **9** | 1640.7 | 20000 | 0 | 0.06 | 38 | 57 | 47.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **10** | 1640.7 | 20000 | 0 | 0.00 | 33 | 51 | 41.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **11** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **12** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **13** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **14** | 1640.6 | 20000 | 0 | 0.00 | 34 | 57 | 31.3 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **15** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **16** | 1640.6 | 20000 | 0 | 0.00 | 39 | 57 | 31.3 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **17** | 1640.6 | 20000 | 0 | 0.25 | 43 | 45 | 35.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **18** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **19** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **20** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **21** | 1640.6 | 20000 | 0 | 0.82 | 34 | 51 | 31.3 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **22** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **23** | 1640.7 | 20000 | 0 | 1.94 | 43 | 51 | 64.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **24** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **25** | 1640.7 | 20000 | 0 | 1.76 | 35 | 45 | 79.6 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **26** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **27** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **28** | 1640.7 | 20000 | 0 | 1.35 | 32 | 42 | 55.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **29** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **30** | 1640.7 | 20000 | 0 | 0.00 | 38 | 60 | 41.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Monthly Totals | | | 0 | 7.37 | | | | | | 0 | | 0 | | 0 |
| Year to Date Totals | | | 3762 | 50.24 | | | | | | 0 | | 0 | | 0 |

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF MAY 2014

[See Appendix E for breakdown of municipal use by water provider.] Source: Barney Reservoir Joint Ownership 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** | 1640.7 | 20000 | 0 | 0.00 | 52 | 70 | 41.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **2** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **3** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **4** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **5** | 1640.7 | 20000 | 0 | 1.74 | 40 | 74 | 47.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **6** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **7** | 1640.7 | 20000 | 0 | 0.00 | 34 | 50 | 35.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **8** | 1640.7 | 20000 | 0 | 0.11 | 41 | 52 | 41.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **9** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **10** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **11** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **12** | 1640.7 | 20000 | 0 | 1.91 | 36 | 54 | 47.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **13** | 1640.7 | 20000 | 0 | 0.00 | 48 | 61 | 41.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **14** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **15** | 1640.6 | 20000 | 0 | 0.00 | 53 | 76 | 35.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **16** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **17** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **18** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **19** | 1640.6 | 20000 | 0 | 0.27 | 45 | 70 | 31.3 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **20** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **21** | 1640.6 | 20000 | 0 | 0.30 | 41 | 59 | 27.6 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **22** | 1640.6 | 20000 | 0 | 0.00 | 47 | 61 | 27.6 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **23** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **24** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **25** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **26** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **27** | 1640.6 | 20000 | 0 | 0.17 | 42 | 67 | 20.2 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **28** | 1640.6 | 20000 | 0 | 0.01 | 41 | 53 | 16.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **29** | 1640.6 | 20000 | 0 | 0.06 | 44 | 52 | 16.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **30** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **31** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Monthly Totals | | | 0 | 4.57 | | | | | | 0 | | 0 | | 0 |
| Year to Date Totals | | | 3762 | 54.81 | | | | | | 0 | | 0 | | 0 |

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF JUNE 2014

[See Appendix E for breakdown of municipal use by water provider.] Source: Barney Reservoir Joint Ownership Commission

| DAY | SURFACE ELEVATION | STORAGE | CHANGE IN STORAGE | RAIN @ BARNEY | TEMP @ BARNEY | | MEASURED FLOW TO | | STORAGE RELEASED TO TRASK—ODFW | | STORAGE RELEASED TO TUALATIN | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Min | Max | TRASK | TUALATIN | | | CWS | | MUNICIPAL* | |
| | feet | ac-ft | ac-ft | in. | ºF | ºF | cfs | cfs | cfs | ac-ft | cfs | ac-ft | cfs | ac-ft |
| **1** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **2** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **3** | 1640.6 | 20000 | 0 | 0.00 | 49 | 64 | 13.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **4** | 1640.6 | 20000 | 0 | 0.00 | 45 | 57 | 13.0 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **5** | 1640.6 | 20000 | 0 | 0.00 | 40 | 60 | 13.0 | 15.3 | 0 | 0 | 0 | 0 | 15 | 30 |
| **6** | 1640.5 | 20000 | 0 | 0.00 | 40 | 64 | 8.4 | 15.3 | 8 | 16 | 0 | 0 | 15 | 30 |
| **7** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **8** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **9** | 1640.3 | 19920 | -80 | 0.00 | 46 | 66 | 8.4 | 15.0 | 8 | 16 | 0 | 0 | 15 | 30 |
| **10** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **11** | 1640.2 | 19880 | -40 | 0.00 | 42 | 62 | 8.4 | 15.0 | 8 | 16 | 0 | 0 | 15 | 30 |
| **12** | 1640.2 | 19880 | 0 | 0.40 | 46 | 54 | 8.4 | 15.0 | 8 | 16 | 0 | 0 | 15 | 30 |
| **13** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **14** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **15** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **16** | 1639.9 | 19760 | -120 | 0.25 | 42 | 52 | 8.4 | 15.0 | 8 | 16 | 0 | 0 | 15 | 30 |
| **17** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **18** | 1639.8 | 19720 | -40 | 0.02 | 51 | 56 | 8.4 | 15.0 | 8 | 16 | 0 | 0 | 15 | 30 |
| **19** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **20** | 1639.7 | 19580 | -140 | 0.00 | 44 | 66 | 8.4 | 15.0 | 8 | 16 | 0 | 0 | 15 | 30 |
| **21** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **22** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **23** | 1639.4 | 19560 | -20 | 0.00 | 42 | 67 | 8.4 | 15.0 | 8 | 16 | 0 | 0 | 15 | 30 |
| **24** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **25** | 1639.3 | 19520 | -40 | 0.34 | 50 | 65 | 8.4 | 15.0 | 8 | 16 | 0 | 0 | 15 | 30 |
| **26** | 1639.2 | 19480 | -40 | 0.14 | 54 | 64 | 8.4 | 15.0 | 8 | 16 | 0 | 0 | 15 | 30 |
| **27** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **28** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **29** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **30** | 1639.0 | 19400 | -80 | 0.98 | 52 | 70 | 8.4 | 15.0 | 8 | 16 | 0 | 0 | 15 | 30 |
| Monthly Totals | | | -600 | 2.13 | | | | | | 397 | | 0 | | 774 |
| Year to Date Totals | | | 3162 | 56.94 | | | | | | 397 | | 0 | | 774 |

*In this table (Reservoir Operations), the amount of water released is recorded on the day it was released from the reservoir. In the Municipal Use tables (Appendix E), the released water is recorded on the day that it was available for use which one day later.

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF JULY 2014

[See Appendix E for breakdown of municipal use by water provider.] Source: Barney Reservoir Joint Ownership 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** | 1639.0 | 19400 | 0 | 0.00 | 51 | 78 | 8.4 | 15.0 | 8 | 16 | 0 | 0 | 15 | 30 |
| **2** | 1638.9 | 19360 | -40 | 0.00 | 54 | 85 | 8.4 | 15.0 | 8 | 16 | 0 | 0 | 15 | 30 |
| **3** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **4** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **5** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **6** | | | | | | | | | 8 | 16 | 0 | 0 | 15 | 30 |
| **7** | 1638.5 | 19200 | -160 | 0.00 | 40 | 80 | 8.4 | 20.0 | 8 | 16 | 0 | 0 | 20 | 40 |
| **8** | 1638.3 | 19120 | -80 | 0.00 | 47 | 82 | 8.4 | 20.0 | 8 | 16 | 0 | 0 | 20 | 40 |
| **9** | 1638.2 | 19080 | -40 | 0.00 | 44 | 81 | 8.4 | 20.0 | 8 | 16 | 0 | 0 | 20 | 40 |
| **10** | | | | | | | | | 8 | 16 | 0 | 0 | 20 | 40 |
| **11** | 1638.0 | 19000 | -80 | 0.00 | 40 | 80 | 8.4 | 20.3 | 8 | 16 | 0 | 0 | 20 | 40 |
| **12** | | | | | | | | | 8 | 16 | 0 | 0 | 20 | 40 |
| **13** | | | | | | | | | 8 | 16 | 0 | 0 | 20 | 40 |
| **14** | 1637.6 | 18800 | -200 | 0.03 | 45 | 85 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **15** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **16** | 1637.2 | 18600 | -200 | 0.00 | 44 | 88 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **17** | 1637.0 | 18500 | -100 | 0.00 | 42 | 86 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **18** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **19** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **20** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **21** | 1636.3 | 18150 | -350 | 0.00 | 38 | 80 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **22** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **23** | 1635.9 | 17963 | -187 | 0.21 | 44 | 73 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **24** | 1635.8 | 17925 | -38 | 0.55 | 44 | 60 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **25** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **26** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **27** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **28** | 1635.1 | 17663 | -262 | 0.00 | 37 | 83 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **29** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **30** | 1634.7 | 17513 | -150 | 0.00 | 38 | 85 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **31** | 1634.5 | 17438 | -75 | 0.00 | 46 | 84 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| Monthly Totals | | | -1962 | 0.79 | | | | | | 492 | | 0 | | 1527 |
| Year to Date Totals | | | 1200 | 57.73 | | | | | | 889 | | 0 | | 2301 |

*In this table (Reservoir Operations), the amount of water released is recorded on the day it was released from the reservoir. In the Municipal Use tables (Appendix E), the released water is recorded on the day that it was available for use which one day later.

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF AUGUST 2014

[See Appendix E for breakdown of municipal use by water provider.] Source: Barney Reservoir Joint Ownership Commission

| DAY | SURFACE ELEVATION | STORAGE | CHANGE IN STORAGE | RAIN @ BARNEY | TEMP @ BARNEY | | MEASURED FLOW TO | | STORAGE RELEASED TO TRASK—ODFW | | STORAGE RELEASED TO TUALATIN | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Min | Max | TRASK | TUALATIN | | | CWS | | MUNICIPAL* | |
| | feet | ac-ft | ac-ft | in. | °F | °F | cfs | cfs | cfs | ac-ft | cfs | ac-ft | cfs | ac-ft |
| **1** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **2** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **3** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **4** | 1633.8 | 17175 | -263 | 0.00 | 43 | 87 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **5** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **6** | 1633.4 | 17025 | -150 | 0.00 | 40 | 88 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **7** | 1633.2 | 16950 | -75 | 0.00 | 40 | 79 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **8** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **9** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **10** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **11** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **12** | 1632.2 | 16575 | -375 | 0.20 | 38 | 90 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **13** | 1632.0 | 16500 | -75 | 0.07 | 47 | 76 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **14** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **15** | 1631.7 | 16388 | -112 | 0.02 | 46 | 72 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **16** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **17** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **18** | 1631.1 | 16163 | -225 | 0.00 | 44 | 82 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **19** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **20** | 1630.7 | 16013 | -150 | 0.00 | 43 | 83 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **21** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **22** | 1630.3 | 15863 | -150 | 0.00 | 35 | 72 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **23** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **24** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **25** | 1629.7 | 15638 | -225 | 0.00 | 40 | 80 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **26** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **27** | 1629.3 | 15489 | -149 | 0.00 | 47 | 85 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **28** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **29** | 1628.9 | 15338 | -151 | 0.00 | 45 | 84 | 8.4 | 30.0 | 8 | 16 | 0 | 0 | 30 | 60 |
| **30** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **31** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| Monthly Totals | | | -2100 | 0.29 | | | | | | 492 | | 0 | | 1845 |
| Year to Date Totals | | | -900 | 58.02 | | | | | | 1381 | | 0 | | 4146 |

*In this table (Reservoir Operations), the amount of water released is recorded on the day it was released from the reservoir. In the Municipal Use tables (Appendix E), the released water is recorded on the day that it was available for use which one day later.

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF SEPTEMBER 2014

[See Appendix E for breakdown of municipal use by water provider.] Source: Barney Reservoir Joint Ownership Commission

| DAY | SURFACE ELEVATION | STORAGE | CHANGE IN STORAGE | RAIN @ BARNEY | TEMP @ BARNEY | | MEASURED FLOW TO | | STORAGE RELEASED TO TRASK—ODFW | | STORAGE RELEASED TO TUALATIN | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Min | Max | TRASK | TUALATIN | | | CWS | | MUNICIPAL* | |
| | feet | ac-ft | ac-ft | in. | ºF | ºF | cfs | cfs | cfs | ac-ft | cfs | ac-ft | cfs | ac-ft |
| **1** | | | | | | | | | 8 | 16 | 0 | 0 | 30 | 60 |
| **2** | 1628.1 | 15038 | -300 | 0.04 | 41 | 75 | 8.4 | 44.2 | 8 | 16 | 14 | 28 | 30 | 60 |
| **3** | 1627.9 | 14963 | -75 | 0.00 | 41 | 71 | 8.4 | 44.2 | 8 | 16 | 14 | 28 | 30 | 60 |
| **4** | 1627.5 | 14813 | -150 | 0.00 | 38 | 79 | 8.4 | 44.2 | 8 | 16 | 14 | 28 | 30 | 60 |
| **5** | | | | | | | | | 8 | 16 | 14 | 28 | 30 | 60 |
| **6** | | | | | | | | | 8 | 16 | 14 | 28 | 30 | 60 |
| **7** | | | | | | | | | 8 | 16 | 14 | 28 | 30 | 60 |
| **8** | | | | | | | | | 8 | 16 | 14 | 28 | 30 | 60 |
| **9** | 1626.1 | 14288 | -525 | 0.00 | 38 | 84 | 8.4 | 44.2 | 8 | 16 | 14 | 28 | 30 | 60 |
| **10** | 1625.8 | 14175 | -113 | 0.00 | 43 | 70 | 8.4 | 44.2 | 8 | 16 | 14 | 28 | 30 | 60 |
| **11** | 1625.5 | 14063 | -112 | 0.00 | 44 | 72 | 8.4 | 44.2 | 8 | 16 | 14 | 28 | 30 | 60 |
| **12** | | | | | | | | | 8 | 16 | 14 | 28 | 30 | 60 |
| **13** | | | | | | | | | 8 | 16 | 14 | 28 | 30 | 60 |
| **14** | | | | | | | | | 8 | 16 | 14 | 28 | 30 | 60 |
| **15** | 1624.3 | 13613 | -450 | 0.00 | 42 | 81 | 8.4 | 44.2 | 8 | 16 | 14 | 28 | 30 | 60 |
| **16** | | | | | | | | | 8 | 16 | 14 | 28 | 30 | 60 |
| **17** | 1623.7 | 13388 | -225 | 0.00 | 41 | 81 | 8.4 | 44.2 | 8 | 16 | 14 | 28 | 30 | 60 |
| **18** | 1623.4 | 13275 | -113 | 0.03 | 45 | 73 | 8.4 | 44.2 | 8 | 16 | 14 | 28 | 30 | 60 |
| **19** | | | | | | | | | 8 | 16 | 14 | 28 | 30 | 60 |
| **20** | | | | | | | | | 8 | 16 | 14 | 28 | 30 | 60 |
| **21** | | | | | | | | | 8 | 16 | 14 | 28 | 30 | 60 |
| **22** | 1622.2 | 12825 | -450 | 0.00 | 39 | 82 | 8.4 | 44.2 | 8 | 16 | 14 | 28 | 30 | 60 |
| **23** | | | | | | | | | 8 | 16 | 14 | 28 | 30 | 60 |
| **24** | 1621.7 | 12638 | -187 | 1.25 | 45 | 70 | 8.4 | 34.0 | 8 | 16 | 14 | 28 | 20 | 40 |
| **25** | 1621.5 | 12563 | -75 | 0.18 | 39 | 64 | 8.4 | 34.0 | 8 | 16 | 14 | 28 | 20 | 40 |
| **26** | | | | | | | | | 8 | 16 | 14 | 28 | 20 | 40 |
| **27** | | | | | | | | | 8 | 16 | 14 | 28 | 20 | 40 |
| **28** | | | | | | | | | 8 | 16 | 14 | 28 | 20 | 40 |
| **29** | 1620.6 | 12225 | -338 | 0.29 | 37 | 70 | 8.4 | 34.0 | 8 | 16 | 14 | 28 | 20 | 40 |
| **30** | | | | | | | | | 8 | 16 | 14 | 28 | 20 | 40 |
| Monthly Totals | | | -3113 | 1.79 | | | | | | 476 | | 806 | | 1646 |
| Year to Date Totals | | | -4013 | 59.81 | | | | | | 1857 | | 806 | | 5792 |

*In this table (Reservoir Operations), the amount of water released is recorded on the day it was released from the reservoir. In the Municipal Use tables (Appendix E), the released water is recorded on the day that it was available for use which one day later.

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF OCTOBER 2014

[See Appendix E for breakdown of municipal use by water provider.] Source: Barney Reservoir Joint Ownership 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** | 1620.1 | 12038 | -187 | 0.31 | 33 | 64 | 8.4 | 34.0 | 8 | 16 | 14 | 28 | 20 | 40 |
| **2** | | | | | | | | | 8 | 16 | 14 | 28 | 20 | 40 |
| **3** | 1619.7 | 11900 | -138 | 0.00 | 33 | 64 | 8.4 | 34.0 | 8 | 16 | 14 | 28 | 15 | 30 |
| **4** | | | | | | | | | 8 | 16 | 14 | 28 | 15 | 30 |
| **5** | | | | | | | | | 8 | 16 | 14 | 28 | 15 | 30 |
| **6** | 1619.1 | 11700 | -200 | 0.00 | 41 | 76 | 8.4 | 29.9 | 8 | 16 | 14 | 28 | 15 | 30 |
| **7** | | | | | | | | | 8 | 16 | 14 | 28 | 15 | 30 |
| **8** | 1618.7 | 11566 | -134 | 0.00 | 39 | 79 | 8.4 | 29.9 | 8 | 16 | 14 | 28 | 15 | 30 |
| **9** | | | | | | | | | 8 | 16 | 14 | 28 | 15 | 30 |
| **10** | 1618.3 | 11433 | -133 | 0.00 | 38 | 71 | 8.4 | 29.9 | 8 | 16 | 14 | 28 | 15 | 30 |
| **11** | | | | | | | | | 8 | 16 | 14 | 28 | 15 | 30 |
| **12** | | | | | | | | | 8 | 16 | 14 | 28 | 15 | 30 |
| **13** | 1617.6 | 11200 | -233 | 0.21 | 36 | 67 | 8.4 | 29.9 | 8 | 16 | 14 | 28 | 15 | 30 |
| **14** | | | | | | | | | 8 | 16 | 14 | 28 | 15 | 30 |
| **15** | 1617.3 | 11100 | -100 | 1.13 | 37 | 65 | 8.4 | 29.9 | 8 | 16 | 14 | 28 | 15 | 30 |
| **16** | | | | | | | | | 8 | 16 | 14 | 28 | 15 | 30 |
| **17** | 1617.0 | 11000 | -100 | 0.62 | 35 | 60 | 8.4 | 29.9 | 8 | 16 | 14 | 28 | 15 | 30 |
| **18** | | | | | | | | | 8 | 16 | 14 | 28 | 15 | 30 |
| **19** | | | | | | | | | 8 | 16 | 14 | 28 | 15 | 30 |
| **20** | 1616.4 | 10800 | -200 | 0.46 | 40 | 65 | 8.4 | 29.9 | 8 | 16 | 14 | 28 | 15 | 30 |
| **21** | 1616.3 | 10766 | -34 | 0.69 | 44 | 59 | 8.4 | 44.2 | 8 | 16 | 14 | 28 | 30 | 60 |
| **22** | 1616.2 | 10700 | -66 | 1.51 | 40 | 58 | 8.4 | 44.2 | 8 | 16 | 14 | 28 | 30 | 60 |
| **23** | 1616.3 | 10766 | 66 | 1.79 | 43 | 59 | 8.4 | 22.0 | 8 | 16 | 11 | 22 | 11 | 22 |
| **24** | 1616.3 | 10766 | 0 | 0.32 | 34 | 58 | 8.4 | 0.0 | 8 | 16 | 0 | 0 | 0 | 0 |
| **25** | | | | | | | | | 8 | 16 | 0 | 0 | 0 | 0 |
| **26** | | | | | | | | | 8 | 16 | 0 | 0 | 0 | 0 |
| **27** | 1617.1 | 11033 | 267 | 3.08 | 32 | 58 | 8.4 | 0.0 | 8 | 16 | 0 | 0 | 0 | 0 |
| **28** | | | | | | | | | 8 | 16 | 0 | 0 | 0 | 0 |
| **29** | 1617.4 | 11133 | 100 | 1.23 | 34 | 60 | 8.4 | 0.0 | 8 | 16 | 0 | 0 | 0 | 0 |
| **30** | 1617.6 | 11200 | 67 | 0.16 | 39 | 60 | 8.4 | 0.0 | 8 | 16 | 0 | 0 | 0 | 0 |
| **31** | | | | | | | | | 8 | 16 | 0 | 0 | 0 | 0 |
| Monthly Totals | | | -1025 | 11.51 | | | | | | 492 | | 633 | | 756 |
| Year to Date Totals | | | -5038 | 71.32 | | | | | | 2349 | | 1438 | | 6548 |

*In this table (Reservoir Operations), the amount of water released is recorded on the day it was released from the reservoir. In the Municipal Use tables (Appendix E), the released water is recorded on the day that it was available for use which one day later.

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF NOVEMBER 2014

[See Appendix E for breakdown of municipal use by water provider.] Source: Barney Reservoir Joint Ownership Commission

| DAY | SURFACE ELEVATION | STORAGE | CHANGE IN STORAGE | RAIN @ BARNEY | TEMP @ BARNEY | | MEASURED FLOW TO | | STORAGE RELEASED TO TRASK—ODFW | | STORAGE RELEASED TO TUALATIN | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Min | Max | TRASK | TUALATIN | | | CWS | | MUNICIPAL | |
| | feet | ac-ft | ac-ft | in. | °F | °F | cfs | cfs | cfs | ac-ft | cfs | ac-ft | cfs | ac-ft |
| **1** | | | | | | | | | 8 | 16 | 0 | 0 | 0 | 0 |
| **2** | | | | | | | | | 8 | 16 | 0 | 0 | 0 | 0 |
| **3** | 1618.0 | 11333 | 133 | 1.46 | 27 | 60 | 8.4 | 0.0 | 8 | 16 | 0 | 0 | 0 | 0 |
| **4** | | | | | | | | | 8 | 16 | 0 | 0 | 0 | 0 |
| **5** | | | | | | | | | 8 | 16 | 0 | 0 | 0 | 0 |
| **6** | 1618.7 | 11566 | 233 | 1.62 | 36 | 59 | 8.4 | 0.0 | 8 | 16 | 0 | 0 | 0 | 0 |
| **7** | | | | | | | | | 8 | 16 | 0 | 0 | 0 | 0 |
| **8** | | | | | | | | | 8 | 16 | 0 | 0 | 0 | 0 |
| **9** | | | | | | | | | 8 | 16 | 0 | 0 | 0 | 0 |
| **10** | 1619.0 | 11666 | 100 | 0.36 | 32 | 59 | 8.4 | 0.0 | 8 | 16 | 0 | 0 | 0 | 0 |
| **11** | | | | | | | | | 8 | 16 | 0 | 0 | 0 | 0 |
| **12** | 1619.1 | 11700 | 34 | 0.00 | 19 | 50 | 6.2 | 0.0 | 6 | 12 | 0 | 0 | 0 | 0 |
| **13** | 1619.1 | 11700 | 0 | 0.24 | 18 | 40 | 6.2 | 0.0 | 6 | 12 | 0 | 0 | 0 | 0 |
| **14** | | | | | | | | | 6 | 12 | 0 | 0 | 0 | 0 |
| **15** | | | | | | | | | 6 | 12 | 0 | 0 | 0 | 0 |
| **16** | | | | | | | | | 6 | 12 | 0 | 0 | 0 | 0 |
| **17** | 1619.2 | 11733 | 33 | 0.16 | 14 | 42 | 4.0 | 0.0 | 4 | 8 | 0 | 0 | 0 | 0 |
| **18** | | | | | | | | | 4 | 8 | 0 | 0 | 0 | 0 |
| **19** | 1619.3 | 11766 | 33 | 0.00 | 19 | 44 | 4.0 | 0.0 | 4 | 8 | 0 | 0 | 0 | 0 |
| **20** | | | | | | | | | 4 | 8 | 0 | 0 | 0 | 0 |
| **21** | 1619.4 | 11800 | 34 | 0.40 | 24 | 53 | 4.0 | 0.0 | 4 | 8 | 0 | 0 | 0 | 0 |
| **22** | | | | | | | | | 4 | 8 | 0 | 0 | 0 | 0 |
| **23** | | | | | | | | | 4 | 8 | 0 | 0 | 0 | 0 |
| **24** | 1620.3 | 12113 | 313 | 2.32 | 29 | 59 | 2.3 | 0.0 | 2 | 4 | 0 | 0 | 0 | 0 |
| **25** | 1620.6 | 12225 | 112 | 1.11 | 34 | 59 | 2.8 | 0.0 | 2 | 4 | 0 | 0 | 0 | 0 |
| **26** | 1620.9 | 12338 | 113 | 0.29 | 39 | 59 | 1.7 | 0.0 | 2 | 4 | 0 | 0 | 0 | 0 |
| **27** | | | | | | | | | 2 | 4 | 0 | 0 | 0 | 0 |
| **28** | | | | | | | | | 2 | 4 | 0 | 0 | 0 | 0 |
| **29** | | | | | | | | | 2 | 4 | 0 | 0 | 0 | 0 |
| **30** | | | | | | | | | 2 | 4 | 0 | 0 | 0 | 0 |
| Monthly Totals | | | 1138 | 7.96 | | | | | | 317 | | 0 | | 0 |
| Year to Date Totals | | | -3900 | 79.28 | | | | | | 2666 | | 1438 | | 6548 |

## BARNEY RESERVOIR OPERATIONS FOR THE MONTH OF DECEMBER 2014

[See Appendix E for breakdown of municipal use by water provider.] Source: Barney Reservoir Joint Ownership 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** | 1622.4 | 12900 | 562 | 2.09 | 25 | 62 | 1.1 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **2** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **3** | 1622.7 | 13013 | 113 | 0.02 | 21 | 44 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **4** | 1622.9 | 13088 | 75 | 0.34 | 24 | 45 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **5** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **6** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **7** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **8** | 1624.1 | 13538 | 450 | 1.79 | 26 | 55 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **9** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **10** | 1624.8 | 13800 | 262 | 1.79 | 33 | 60 | 1.1 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **11** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **12** | 1626.4 | 14400 | 600 | 2.27 | 30 | 56 | 1.7 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **13** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **14** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **15** | 1627.3 | 14700 | 300 | 0.07 | 33 | 50 | 1.1 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **16** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **17** | 1627.7 | 14888 | 188 | 0.17 | 25 | 48 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **18** | 1627.8 | 14925 | 37 | 0.10 | 27 | 48 | 0.5 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **19** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **20** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **21** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **22** | 1632.0 | 16500 | 1575 | 8.22 | 26 | 58 | 2.8 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **23** | 1632.6 | 16725 | 225 | 0.21 | 32 | 52 | 2.3 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **24** | 1633.1 | 16913 | 188 | 0.58 | 26 | 58 | 2.3 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **25** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **26** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **27** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **28** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **29** | 1634.9 | 17588 | 675 | 1.99 | 23 | 51 | 1.7 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **30** | | | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **31** | 1635.5 | 17813 | 225 | 0.00 | 12 | 42 | 1.1 | 0.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Monthly Totals | | | 5475 | 19.64 | | | | | | 0 | | 0 | | 0 |
| Year to Date Totals | | | 1575 | 98.92 | | | | | | 2666 | | 1438 | | 6548 |

*In this table (Reservoir Operations), the amount of water released is recorded on the day it was released from the reservoir. In the Municipal Use tables (Appendix E), the released water is recorded on the day that it was available for use which one day later.

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# Appendix E

# Municipal Water Use Allocations
# Monthly Records

## MONTHLY SUMMARIES OF MUNICIPAL ALLOCATIONS

## MUNICIPAL ALLOCATIONS FOR THE MONTH OF JUNE 2014

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** | 45 | 0 | 45 | -11 | 30 | 0 | 2 | 0 | 13 | 11 |
| **6** | 45 | 15 | 30 | 2 | 15 | 0 | 3 | 2 | 12 | 11 |
| **7** | 42 | 15 | 27 | 1 | 12 | 0 | 3 | 1 | 12 | 12 |
| **8** | 42 | 15 | 27 | 2 | 15 | 0 | 2 | 2 | 10 | 11 |
| **9** | 42 | 15 | 27 | 3 | 16 | 0 | 2 | 2 | 10 | 10 |
| **10** | 57 | 15 | 42 | -3 | 28 | 0 | 3 | 0 | 11 | 18 |
| **11** | 57 | 15 | 42 | -3 | 30 | 0 | 3 | 0 | 9 | 18 |
| **12** | 50 | 15 | 35 | 1 | 18 | 0 | 4 | 0 | 14 | 14 |
| **13** | 50 | 15 | 35 | 2 | 18 | 0 | 5 | 1 | 12 | 12 |
| **14** | 45 | 15 | 30 | 3 | 14 | 1 | 5 | 2 | 10 | 9 |
| **15** | 45 | 15 | 30 | 4 | 15 | 1 | 4 | 3 | 11 | 7 |
| **16** | 45 | 15 | 30 | 4 | 14 | 1 | 5 | 3 | 11 | 6 |
| **17** | 35 | 15 | 20 | 3 | 6 | 2 | 4 | 5 | 11 | 5 |
| **18** | 30 | 15 | 15 | 6 | 7 | 2 | 2 | 5 | 6 | 2 |
| **19** | 30 | 15 | 15 | 7 | 9 | 2 | 2 | 4 | 4 | 3 |
| **20** | 50 | 15 | 35 | 4 | 21 | 1 | 4 | 2 | 10 | 8 |
| **21** | 58 | 15 | 43 | 1 | 22 | 0 | 7 | 0 | 14 | 14 |
| **22** | 58 | 15 | 43 | 1 | 23 | 0 | 6 | 1 | 14 | 13 |
| **23** | 58 | 15 | 43 | 0 | 20 | 0 | 6 | 0 | 17 | 14 |
| **24** | 45 | 15 | 30 | 1 | 12 | 0 | 3 | 2 | 15 | 11 |
| **25** | 40 | 15 | 25 | 3 | 13 | 0 | 2 | 3 | 11 | 9 |
| **26** | 35 | 15 | 20 | 5 | 10 | 1 | 1 | 4 | 8 | 5 |
| **27** | 35 | 15 | 20 | 6 | 11 | 1 | 1 | 4 | 8 | 5 |
| **28** | 42 | 15 | 27 | 6 | 18 | 0 | 1 | 3 | 8 | 6 |
| **29** | 42 | 15 | 27 | 6 | 18 | 0 | 1 | 2 | 8 | 6 |
| **30** | 42 | 15 | 27 | 5 | 16 | 1 | 2 | 3 | 8 | 6 |
| **Monthly Summary** | | | | | | | | | | |
| Mean daily cfs | 38.8 | 12.5 | 26.3 | 1.9 | 14.3 | 0.5 | 2.7 | 1.8 | 9.3 | 8.3 |
| Total ac-ft | 2,311 | 744 | 1,567 | 114 | 853 | 31 | 163 | 106 | 551 | 492 |
| **Year-to-Date Summary** | | | | | | | | | | |
| Mean daily cfs | 38.8 | 12.5 | 26.3 | 1.9 | 14.3 | 0.5 | 2.7 | 1.8 | 9.3 | 8.3 |
| Total ac-ft | 2,311 | 744 | 1,567 | 114 | 853 | 31 | 163 | 106 | 551 | 492 |

†In this table (Municipal Use), the amount of water allocated to each provider is recorded on the day that it was available. In the Barney Reservoir Operations table (Appendix D), the amount of water released is recorded on the day it was released from the reservoir, which is one day earlier than its availability.

**When regulation of natural flow begins, JWC staff cannot always immediately reach Barney Reservoir to begin releases. In such cases, TVWD's stored water balance in Barney Reservoir is charged and Hillsboro's is credited.

## MUNICIPAL ALLOCATIONS FOR THE MONTH OF JULY 2014

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** | 50 | 15 | 35 | 3 | 17 | 1 | 6 | 2 | 12 | 9 |
| **2** | 63 | 15 | 48 | -2 | 28 | 0 | 4 | 0 | 16 | 17 |
| **3** | 58 | 15 | 43 | 0 | 26 | 0 | 4 | 0 | 14 | 15 |
| **4** | 50 | 15 | 35 | -1 | 19 | 0 | 3 | 0 | 13 | 16 |
| **5** | 50 | 15 | 35 | -1 | 21 | 0 | 2 | 0 | 12 | 16 |
| **6** | 50 | 15 | 35 | -1 | 20 | 0 | 3 | 0 | 12 | 16 |
| **7** | 50 | 15 | 35 | 0 | 20 | 0 | 4 | 0 | 11 | 15 |
| **8** | 67 | 20 | 47 | 1 | 29 | 0 | 4 | 0 | 14 | 18 |
| **9** | 67 | 20 | 47 | 1 | 30 | 0 | 4 | 0 | 13 | 18 |
| **10** | 74 | 20 | 54 | -1 | 34 | 0 | 4 | 0 | 15 | 21 |
| **11** | 60 | 20 | 40 | 3 | 25 | 0 | 4 | 1 | 11 | 16 |
| **12** | 78 | 20 | 58 | 0 | 35 | 0 | 5 | 0 | 18 | 20 |
| **13** | 78 | 20 | 58 | -3 | 34 | 0 | 5 | 0 | 19 | 23 |
| **14** | 78 | 20 | 58 | -2 | 35 | 0 | 4 | 0 | 19 | 22 |
| **15** | 60 | 30 | 30 | 8 | 17 | 1 | 3 | 5 | 10 | 15 |
| **16** | 55 | 30 | 25 | 10 | 14 | 2 | 3 | 5 | 8 | 13 |
| **17** | 50 | 30 | 20 | 13 | 13 | 2 | 2 | 5 | 5 | 10 |
| **18** | 65 | 30 | 35 | 10 | 22 | 2 | 4 | 5 | 10 | 13 |
| **19** | 75 | 30 | 45 | 10 | 29 | 2 | 5 | 4 | 11 | 14 |
| **20** | 75 | 30 | 45 | 9 | 28 | 2 | 5 | 4 | 12 | 15 |
| **21** | 75 | 30 | 45 | 8 | 27 | 1 | 5 | 4 | 13 | 16 |
| **22** | 50 | 30 | 20 | 9 | 10 | 3 | 3 | 6 | 7 | 11 |
| **23** | 40 | 30 | 10 | 10 | 5 | 4 | 2 | 8 | 4 | 8 |
| **24** | 40 | 30 | 10 | 16 | 6 | 3 | 1 | 7 | 3 | 4 |
| **25** | 55 | 30 | 25 | 15 | 16 | 3 | 3 | 6 | 6 | 5 |
| **26** | 55 | 30 | 25 | 13 | 14 | 3 | 3 | 7 | 7 | 8 |
| **27** | 55 | 30 | 25 | 13 | 15 | 3 | 3 | 6 | 7 | 8 |
| **28** | 55 | 30 | 25 | 13 | 15 | 3 | 3 | 6 | 7 | 8 |
| **29** | 78 | 30 | 48 | 8 | 29 | 2 | 6 | 3 | 13 | 17 |
| **30** | 85 | 30 | 55 | 6 | 35 | 1 | 6 | 2 | 14 | 20 |
| **31** | 85 | 30 | 55 | 6 | 34 | 1 | 7 | 2 | 14 | 21 |
| **Monthly Summary** | | | | | | | | | | |
| Mean daily cfs | 62.1 | 24.4 | 37.8 | 5.7 | 22.7 | 1.3 | 3.9 | 3.0 | 11.2 | 14.4 |
| Total ac-ft | 3,820 | 1,498 | 2,323 | 349 | 1,393 | 78 | 238 | 182 | 691 | 888 |
| **Year-to-Date Summary** | | | | | | | | | | |
| Mean daily cfs | 50.5 | 18.4 | 32.1 | 3.8 | 18.5 | 0.9 | 3.3 | 2.4 | 10.3 | 11.4 |
| Total ac-ft | 6,131 | 2,241 | 3,890 | 464 | 2,246 | 109 | 401 | 288 | 1,242 | 1,380 |

†In this table (Municipal Use), the amount of water allocated to each provider is recorded on the day that it was available. In the Barney Reservoir Operations table (Appendix D), the amount of water released is recorded on the day it was released from the reservoir, which is one day earlier than its availability.

*At times a municipal partner only has stored water available in one reservoir and the releases from that reservoir are not enough to cover their total usage. When that occurs, their total usage is charged to the reservoir and another partner's stored water balance is credited.

## MUNICIPAL ALLOCATIONS FOR THE MONTH OF AUGUST 2014

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** | 60 | 30 | 30 | 9 | 18 | 2 | 4 | 4 | 8 | 15 |
| **2** | 70 | 30 | 40 | 5 | 21 | 1 | 6 | 3 | 13 | 21 |
| **3** | 70 | 30 | 40 | 5 | 21 | 1 | 6 | 3 | 13 | 21 |
| **4** | 70 | 30 | 40 | 8 | 25 | 2 | 5 | 3 | 10 | 17 |
| **5** | 82 | 30 | 52 | 7 | 34 | 1 | 6 | 3 | 12 | 19 |
| **6** | 77 | 30 | 47 | 6 | 29 | 1 | 6 | 3 | 13 | 20 |
| **7** | 70 | 30 | 40 | 7 | 23 | 2 | 5 | 4 | 12 | 18 |
| **8** | 70 | 30 | 40 | 7 | 23 | 2 | 5 | 3 | 12 | 19 |
| **9** | 70 | 30 | 40 | 7 | 23 | 1 | 5 | 3 | 11 | 19 |
| **10** | 70 | 30 | 40 | 7 | 24 | 1 | 5 | 3 | 11 | 19 |
| **11** | 70 | 30 | 40 | 6 | 23 | 2 | 6 | 3 | 12 | 19 |
| **12** | 70 | 30 | 40 | 7 | 20 | 2 | 6 | 4 | 13 | 17 |
| **13** | 65 | 30 | 35 | 13 | 22 | 2 | 4 | 5 | 9 | 9 |
| **14** | 50 | 30 | 20 | 13 | 12 | 3 | 2 | 7 | 6 | 8 |
| **15** | 57 | 30 | 27 | 10 | 14 | 3 | 4 | 6 | 9 | 11 |
| **16** | 74 | 30 | 44 | 7 | 25 | 2 | 6 | 4 | 12 | 17 |
| **17** | 74 | 30 | 44 | 9 | 28 | 2 | 5 | 4 | 11 | 15 |
| **18** | 74 | 30 | 44 | 8 | 26 | 2 | 6 | 4 | 12 | 16 |
| **19** | 57 | 30 | 27 | 10 | 14 | 3 | 4 | 6 | 8 | 11 |
| **20** | 74 | 30 | 44 | 9 | 24 | 2 | 6 | 5 | 13 | 14 |
| **21** | 60 | 30 | 30 | 11 | 17 | 2 | 4 | 6 | 9 | 11 |
| **22** | 55 | 30 | 25 | 10 | 13 | 3 | 4 | 6 | 8 | 11 |
| **23** | 62 | 30 | 32 | 11 | 19 | 2 | 4 | 5 | 9 | 12 |
| **24** | 62 | 30 | 32 | 11 | 19 | 2 | 4 | 5 | 9 | 12 |
| **25** | 62 | 30 | 32 | 10 | 19 | 2 | 4 | 5 | 9 | 12 |
| **26** | 70 | 30 | 40 | 9 | 22 | 2 | 6 | 5 | 12 | 15 |
| **27** | 70 | 30 | 40 | 9 | 23 | 2 | 6 | 4 | 11 | 15 |
| **28** | 60 | 30 | 30 | 11 | 18 | 3 | 4 | 5 | 8 | 11 |
| **29** | 67 | 30 | 37 | 11 | 22 | 2 | 5 | 5 | 10 | 11 |
| **30** | 72 | 30 | 42 | 10 | 25 | 2 | 5 | 5 | 12 | 12 |
| **31** | 72 | 30 | 42 | 12 | 24 | 3 | 5 | 6 | 13 | 10 |
| **Monthly Summary** | | | | | | | | | | |
| Mean daily cfs | 67.3 | 30.0 | 37.3 | 8.9 | 21.7 | 2.0 | 5.0 | 4.4 | 10.6 | 14.7 |
| Total ac-ft | 4,138 | 1,845 | 2,293 | 545 | 1,332 | 126 | 306 | 270 | 655 | 904 |
| **Year-to-Date Summary** | | | | | | | | | | |
| Mean daily cfs | 56.1 | 22.3 | 33.8 | 5.5 | 19.5 | 1.3 | 3.9 | 3.0 | 10.4 | 12.5 |
| Total ac-ft | 10,269 | 4,086 | 6,183 | 1,008 | 3,578 | 235 | 708 | 558 | 1,897 | 2,284 |

†In this table (Municipal Use), the amount of water allocated to each provider is recorded on the day that it was available. In the Barney Reservoir Operations table (Appendix D), the amount of water released is recorded on the day it was released from the reservoir, which is one day earlier than its availability.

## MUNICIPAL ALLOCATIONS FOR THE MONTH OF SEPTEMBER 2014

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** | 72 | 30 | 42 | 7 | 24 | 1 | 5 | 4 | 13 | 18 |
| **2** | 72 | 30 | 42 | 5 | 22 | 1 | 6 | 3 | 13 | 21 |
| **3** | 65 | 30 | 35 | 7 | 20 | 2 | 5 | 3 | 10 | 18 |
| **4** | 60 | 30 | 30 | 8 | 18 | 2 | 4 | 4 | 8 | 17 |
| **5** | 67 | 30 | 37 | 6 | 20 | 1 | 5 | 3 | 12 | 20 |
| **6** | 67 | 30 | 37 | 6 | 21 | 2 | 5 | 3 | 11 | 19 |
| **7** | 67 | 30 | 37 | 6 | 21 | 1 | 5 | 3 | 11 | 19 |
| **8** | 67 | 30 | 37 | 7 | 22 | 1 | 5 | 3 | 10 | 18 |
| **9** | 67 | 30 | 37 | 7 | 22 | 1 | 5 | 3 | 11 | 19 |
| **10** | 67 | 30 | 37 | 7 | 22 | 2 | 5 | 3 | 10 | 18 |
| **11** | 75 | 30 | 45 | 7 | 26 | 2 | 6 | 3 | 13 | 18 |
| **12** | 65 | 30 | 35 | 8 | 21 | 2 | 5 | 4 | 10 | 16 |
| **13** | 65 | 30 | 35 | 8 | 20 | 2 | 4 | 4 | 10 | 17 |
| **14** | 65 | 30 | 35 | 8 | 20 | 2 | 5 | 4 | 10 | 17 |
| **15** | 65 | 30 | 35 | 7 | 20 | 2 | 5 | 3 | 10 | 18 |
| **16** | 65 | 30 | 35 | 6 | 20 | 2 | 5 | 3 | 11 | 19 |
| **17** | 65 | 30 | 35 | 6 | 19 | 1 | 5 | 3 | 11 | 20 |
| **18** | 60 | 30 | 30 | 5 | 15 | 2 | 5 | 4 | 11 | 19 |
| **19** | 55 | 30 | 25 | 8 | 13 | 2 | 4 | 5 | 8 | 15 |
| **20** | 55 | 30 | 25 | 9 | 14 | 2 | 3 | 5 | 8 | 14 |
| **21** | 55 | 30 | 25 | 6 | 12 | 2 | 4 | 5 | 9 | 16 |
| **22** | 55 | 30 | 25 | 6 | 11 | 2 | 4 | 5 | 10 | 17 |
| **23** | 55 | 30 | 25 | 9 | 13 | 2 | 4 | 6 | 9 | 13 |
| **24** | 55 | 30 | 25 | 12 | 13 | 4 | 4 | 8 | 8 | 7 |
| **25** | 35 | 20 | 15 | 9 | 8 | 2 | 2 | 5 | 5 | 3 |
| **26** | 35 | 20 | 15 | 9 | 8 | 3 | 2 | 5 | 5 | 4 |
| **27** | 35 | 20 | 15 | 8 | 8 | 2 | 2 | 5 | 5 | 5 |
| **28** | 35 | 20 | 15 | 9 | 8 | 2 | 2 | 5 | 5 | 4 |
| **29** | 35 | 20 | 15 | 7 | 7 | 3 | 3 | 5 | 5 | 5 |
| **30** | 35 | 20 | 15 | 6 | 7 | 2 | 3 | 5 | 6 | 7 |
| **Monthly Summary** | | | | | | | | | | |
| Mean daily cfs | 57.9 | 28.0 | 29.9 | 7.2 | 16.5 | 1.9 | 4.2 | 4.2 | 9.2 | 14.7 |
| Total ac-ft | 3,443 | 1,666 | 1,777 | 430 | 981 | 114 | 249 | 249 | 547 | 873 |
| **Year-to-Date Summary** | | | | | | | | | | |
| Mean daily cfs | 56.5 | 23.7 | 32.8 | 5.9 | 18.8 | 1.4 | 3.9 | 3.3 | 10.1 | 13.0 |
| Total ac-ft | 13,712 | 5,752 | 7,960 | 1,439 | 4,559 | 349 | 957 | 807 | 2,444 | 3,157 |

†In this table (Municipal Use), the amount of water allocated to each provider is recorded on the day that it was available. In the Barney Reservoir Operations table (Appendix D), the amount of water released is recorded on the day it was released from the reservoir, which is one day earlier than its availability.

## MUNICIPAL ALLOCATIONS FOR THE MONTH OF OCTOBER 2014

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** | 40 | 20 | 20 | 11 | 6 | 0 | 4 | 0 | 10 | 9 |
| **2** | 30 | 20 | 10 | 6 | 4 | 2 | 2 | 5 | 4 | 7 |
| **3** | 35 | 20 | 15 | 14 | 3 | 0 | 4 | 0 | 8 | 6 |
| **4** | 47 | 15 | 32 | 6 | 14 | 0 | 5 | 0 | 13 | 9 |
| **5** | 47 | 15 | 32 | 7 | 16 | 0 | 5 | 0 | 11 | 8 |
| **6** | 47 | 15 | 32 | 2 | 16 | 0 | 6 | 0 | 11 | 13 |
| **7** | 42 | 15 | 27 | 1 | 13 | 0 | 5 | 0 | 9 | 14 |
| **8** | 42 | 15 | 27 | 1 | 13 | 0 | 4 | 0 | 9 | 14 |
| **9** | 50 | 15 | 35 | -2 | 20 | 0 | 5 | 0 | 11 | 17 |
| **10** | 55 | 15 | 40 | -2 | 23 | 0 | 5 | 0 | 12 | 17 |
| **11** | 45 | 15 | 30 | 4 | 15 | 0 | 5 | 0 | 11 | 11 |
| **12** | 45 | 15 | 30 | 4 | 14 | 0 | 5 | 0 | 12 | 11 |
| **13** | 45 | 15 | 30 | 5 | 15 | 0 | 5 | 0 | 10 | 10 |
| **14** | 45 | 15 | 30 | 6 | 16 | 0 | 4 | 0 | 10 | 9 |
| **15** | 45 | 15 | 30 | 7 | 10 | 0 | 6 | 0 | 14 | 8 |
| **16** | 40 | 15 | 25 | 8 | 6 | 0 | 6 | 0 | 12 | 7 |
| **17** | 30 | 15 | 15 | 8 | 4 | 0 | 4 | 0 | 7 | 7 |
| **18** | 25 | 15 | 10 | 10 | 2 | 0 | 3 | 0 | 6 | 5 |
| **19** | 25 | 15 | 10 | 9 | 0 | 0 | 3 | 0 | 7 | 6 |
| **20** | 45 | 15 | 30 | 5 | 13 | 0 | 6 | 0 | 12 | 10 |
| **21** | 50 | 15 | 35 | 18 | 0 | -14 | 21 | 0 | 14 | 12 |
| **22** | 55 | 30 | 25 | 26 | 0 | -7 | 13 | 0 | 12 | 11 |
| **23** | 30 | 30 | 0 | 17 | 0 | 3 | 0 | 5 | 0 | 5 |
| **24** | 11 | 11 | 0 | 6 | 0 | 1 | 0 | 2 | 0 | 2 |
| **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 |
| **31** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Monthly Summary** | | | | | | | | | | |
| Mean daily cfs | 31.3 | 12.9 | 18.4 | 5.6 | 7.2 | -0.5 | 4.0 | 0.4 | 7.2 | 7.4 |
| Total ac-ft | 1926 | 795 | 1131 | 345 | 440 | -31 | 248 | 24 | 442 | 457 |
| **Year-to-Date Summary** | | | | | | | | | | |
| Mean daily cfs | 51.5 | 21.6 | 29.9 | 5.9 | 16.5 | 1.0 | 4.0 | 2.7 | 9.5 | 11.9 |
| Total ac-ft | 15,638 | 6,548 | 9,090 | 1,784 | 5,000 | 318 | 1,205 | 832 | 2,886 | 3,614 |

†In this table (Municipal Use), the amount of water allocated to each provider is recorded on the day that it was available. In the Barney Reservoir Operations table (Appendix D), the amount of water released is recorded on the day it was released from the reservoir, which is one day earlier than its availability.

*At times a municipal partner only has stored water available in one reservoir and the releases from that reservoir are not enough to cover their total usage. When that occurs, their total usage is charged to the reservoir and another partner's stored water balance is credited.

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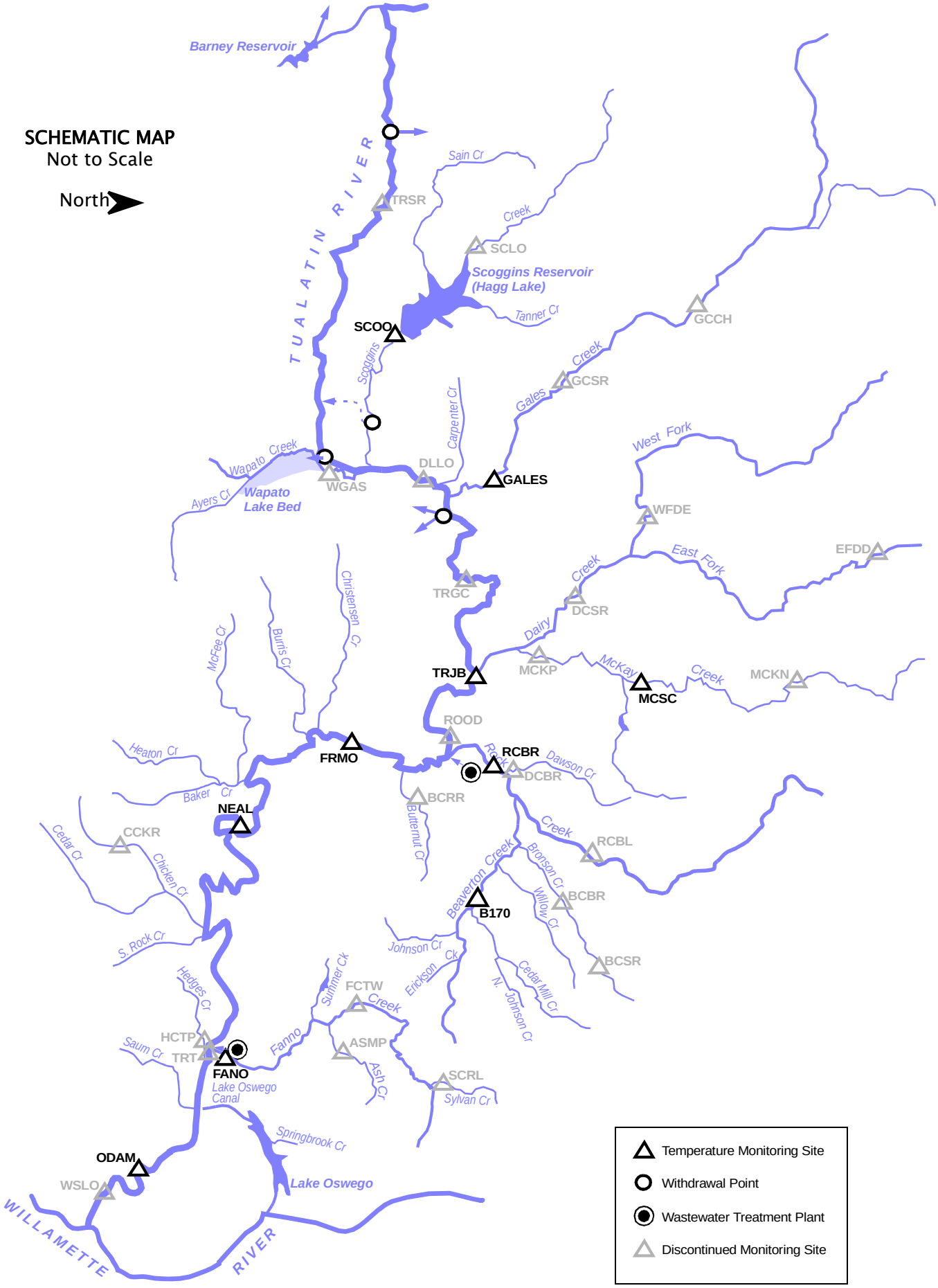
# Appendix F

# Stream Temperature Records

# STREAM TEMPERATURE SITES — LOCATIONS



## STREAM TEMPERATURE SITES — ALPHABETICAL LISTING BY SITE CODE

| SITE CODE | SITE NAME | RIVER MILE | STATION ID | PAGE |
|---|---|---|---|---|
| B170 | Beaverton Creek at 170th Ave, Beaverton, Oregon | 4.9 | — | F-8 |
| FANO | Fanno Creek at Durham Road near Tigard, Oregon | 1.2 | 14206950 | F-11 |
| GALES | Gales Creek at Old Hwy 47 near Forest Grove, Oregon | 2.36 | 14204530 | F-5 |
| MCSC | McKay Creek at Scotch Church Road above Waible Ck near North Plains, Oregon | 6.3 | 14206070 | F-6 |
| NEAL | Tualatin River at RM 24.5 near Scholls, Oregon | 24.5 | 14206694 | F-10 |
| ODAM | Tualatin River at Oswego Dam near West Linn, Oregon | 3.4 | 14207200 | F-12 |
| RCBR | Rock Creek at Brookwood Avenue, Hillsboro, Oregon | 2.4 | — | F-9 |
| SCOO | Scoggins Creek below Henry Hagg Lake near Gaston, Oregon | 4.80 | 14202980 | F-4 |
| TRJB | Tualatin River at Hwy 219 Bridge | 44.4 | 14206241 | F-7 |

**Discontinued Sites**

| | | | | |
|---|---|---|---|---|
| ASMP | Ash Creek at Metzger Park at Metzger, Oregon | 1.25 | 14206933 | |
| BCBR | Bronson Creek at Bronson Road near Orenco, Oregon | 2.1 | 14206423 | |
| BCRR | Butternut Creek at Rosa Road near Farmington, Oregon | 1.0 | 14206483 | |
| BCSR | Bronson Creek at Saltzman Road near Orenco, Oregon | 5.1 | 14206419 | |
| CCKR | Chicken Creek at Kruger Road | 4.5 | — | |
| DCBR | Dawson Creek at Brookwood Road near Hillsboro, Oregon | 0.7 | 14206443 | |
| DCSR | Dairy Creek at Susbauer Road | 6.02 | — | |
| DLLO | Tualatin River at Dilley, Oregon | 58.8 | 14203500 | |
| EFDD | East Fork Dairy Creek near Dairy Creek Road near Mountaindale, Oregon | 12.33 | 14205480 | |
| FCTW | Fanno Creek at Tuckerwood | 7.3 | 14206927 | |
| FRMO | Tualatin River at Farmington, Oregon | 33.3 | 14206500 | |
| GCCH | Gales Creek at Clapshaw Hill Road near Gales Creek, Oregon | 12.36 | 14204540 | |
| GCSR | Gales Creek at Stringtown Road | 6.98 | — | |
| HCTP | Hedges Creek at Tualatin Community Park at Tualatin, Oregon | 0.3 | 14206958 | |
| MCKN | McKay Creek at Northrup Road near North Plains, Oregon | 15.5 | 14205980 | |
| MCKP | McKay Creek at Padgett Road | 1.31 | 14206190 | |
| RCBL | Rock Creek below Bethany Lake | 8.9 | 14206340 | |
| ROOD | Tualatin River at Rood Bridge Road near Hillsboro, Oregon | 38.4 | 14206295 | |
| SCLO | Scoggins Creek above Henry Hagg Lake near Gaston, Oregon | 9.3 | 14202850 | |
| SCRL | Sylvan Creek at Raleighwood Lane near West Slope, Oregon | 1.0 | 14206905 | |
| TRGC | Tualatin River at Golf Course Road near Cornelius, Oregon | 51.5 | 14204800 | |
| TRSR | Tualatin River at South Road near Cherry Grove, Oregon | 67.83 | — | |
| TRT | Tualatin River at Tualatin, Oregon | 8.9 | 14206956 | |
| WFDE | West Fork Dairy Creek at Evers Road | 1.96 | 14205160 | |
| WGAS | Wapato Creek at Gaston Road at Gaston, Oregon | — | 14202650 | |
| WSLO | Tualatin River at West Linn | 1.75 | 14207500 | |

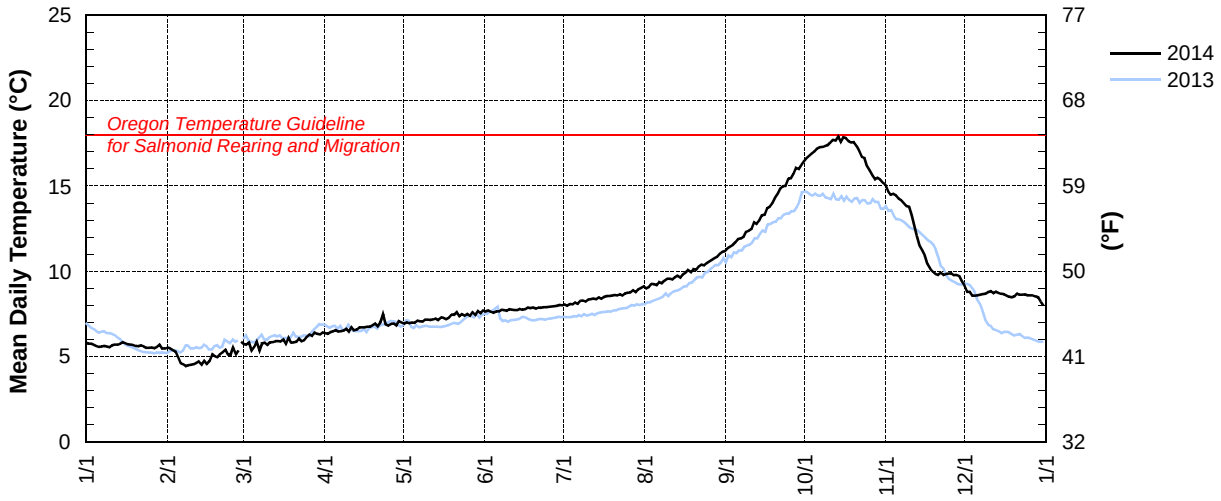
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

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

LATITUDE: 452810 LONGITUDE: 12311561

| Day | 2014 Mean Daily Water Temperature in Degrees Celsius | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 5.9 | 5.5 | 5.9 | 6.4 | 7.0 | 7.7 | 8.0 | 9.1 | 11.2 | 16.4 | 15.1 | 9.2 |
| 2 | 5.8 | 5.5 | 5.7 | 6.4 | 7.0 | 7.7 | 8.1 | 9.0 | 11.4 | 16.6 | 14.7 | 8.8 |
| 3 | 5.8 | 5.4 | 5.7 | 6.3 | 7.0 | 7.7 | 8.0 | 9.1 | 11.5 | 16.8 | 14.5 | 8.8 |
| 4 | 5.7 | 5.3 | 5.8 | 6.4 | 7.0 | 7.6 | 8.1 | 9.3 | 11.6 | 16.9 | 14.6 | 8.6 |
| 5 | 5.6 | 5.0 | 5.4 | 6.5 | 7.0 | 7.6 | 8.1 | 9.2 | 11.7 | 17.0 | 14.5 | 8.6 |
| 6 | 5.6 | 4.6 | 5.6 | 6.6 | 7.0 | 7.7 | 8.2 | 9.2 | 11.9 | 17.2 | 14.3 | 8.6 |
| 7 | 5.6 | 4.6 | 5.9 | 6.5 | 7.1 | 7.7 | 8.1 | 9.4 | 11.9 | 17.3 | 14.2 | 8.6 |
| 8 | 5.6 | 4.5 | 5.4 | 6.5 | 7.1 | 7.7 | 8.3 | 9.3 | 12.0 | 17.3 | 14.0 | 8.7 |
| 9 | 5.6 | 4.5 | 5.8 | 6.5 | 7.1 | 7.7 | 8.3 | 9.5 | 12.3 | 17.3 | 13.8 | 8.7 |
| 10 | 5.6 | 4.5 | 5.8 | 6.6 | 7.2 | 7.7 | 8.2 | 9.6 | 12.4 | 17.4 | 13.8 | 8.8 |
| 11 | 5.7 | 4.6 | 5.7 | 6.5 | 7.2 | 7.8 | 8.4 | 9.6 | 12.5 | 17.5 | 13.3 | 8.8 |
| 12 | 5.7 | 4.6 | 5.8 | 6.7 | 7.2 | 7.8 | 8.4 | 9.5 | 12.9 | 17.7 | 12.7 | 8.7 |
| 13 | 5.7 | 4.7 | 5.9 | 6.5 | 7.2 | 7.7 | 8.4 | 9.7 | 12.8 | 17.7 | 12.1 | 8.8 |
| 14 | 5.8 | 4.5 | 5.9 | 6.6 | 7.2 | 7.7 | 8.4 | 9.8 | 13.0 | 17.9 | 11.5 | 8.7 |
| 15 | 5.9 | 4.8 | 5.9 | 6.7 | 7.1 | 7.8 | 8.5 | 9.7 | 13.3 | 17.6 | 11.2 | 8.7 |
| 16 | 5.8 | 4.6 | 5.9 | 6.7 | 7.3 | 7.7 | 8.4 | 9.8 | 13.3 | 17.9 | 10.9 | 8.7 |
| 17 | 5.7 | 4.7 | 6.0 | 6.7 | 7.3 | 7.8 | 8.5 | 9.9 | 13.7 | 17.8 | 10.4 | 8.6 |
| 18 | 5.7 | 5.1 | 5.8 | 6.8 | 7.2 | 7.9 | 8.6 | 10.1 | 13.8 | 17.6 | 10.2 | 8.5 |
| 19 | 5.7 | 5.0 | 6.1 | 6.8 | 7.3 | 7.9 | 8.6 | 9.9 | 14.0 | 17.6 | 10.0 | 8.5 |
| 20 | 5.6 | 5.0 | 5.8 | 6.8 | 7.5 | 7.9 | 8.6 | 10.1 | 14.3 | 17.6 | 9.9 | 8.5 |
| 21 | 5.6 | 5.1 | 5.8 | 6.9 | 7.4 | 7.8 | 8.6 | 10.1 | 14.6 | 17.4 | 9.8 | 8.7 |
| 22 | 5.7 | 5.3 | 5.9 | 6.8 | 7.6 | 7.9 | 8.6 | 10.3 | 14.9 | 17.0 | 9.9 | 8.6 |
| 23 | 5.6 | 5.4 | 6.1 | 7.0 | 7.4 | 7.9 | 8.7 | 10.4 | 15.0 | 16.7 | 9.8 | 8.6 |
| 24 | 5.5 | 5.1 | 5.9 | 7.5 | 7.5 | 7.9 | 8.6 | 10.4 | 15.0 | 16.7 | 9.8 | 8.6 |
| 25 | 5.5 | 5.1 | 6.0 | 6.9 | 7.4 | 7.9 | 8.7 | 10.5 | 15.4 | 16.2 | 9.9 | 8.6 |
| 26 | 5.5 | 5.5 | 6.2 | 6.8 | 7.5 | 7.9 | 8.7 | 10.6 | 15.5 | 15.9 | 9.9 | 8.6 |
| 27 | 5.5 | 5.2 | 6.3 | 6.9 | 7.4 | 7.9 | 8.8 | 10.7 | 15.7 | 15.6 | 9.8 | 8.6 |
| 28 | 5.6 | 5.4 | 6.2 | 6.9 | 7.6 | 8.0 | 8.9 | 10.8 | 16.1 | 15.4 | 9.8 | 8.5 |
| 29 | 5.7 | — | 6.4 | 6.8 | 7.5 | 8.0 | 8.8 | 10.9 | 16.0 | 15.5 | 9.7 | 8.5 |
| 30 | 5.5 | — | 6.3 | 7.1 | 7.7 | 8.0 | 9.0 | 11.0 | 16.2 | 15.4 | 9.4 | 8.2 |
| 31 | 5.5 | — | 6.3 | — | 7.6 | — | 9.0 | 11.1 | — | 15.2 | — | 8.0 |
| MEAN | 5.6 | 5.0 | 5.9 | 6.7 | 7.3 | 7.8 | 8.5 | 9.9 | 13.5 | 16.9 | 11.8 | 8.6 |
| MAX | 5.9 | 5.5 | 6.4 | 7.5 | 7.7 | 8.0 | 9.0 | 11.1 | 16.2 | 17.9 | 15.1 | 9.2 |
| MIN | 5.5 | 4.5 | 5.4 | 6.3 | 7.0 | 7.6 | 8.0 | 9.0 | 11.2 | 15.2 | 9.4 | 8.0 |

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



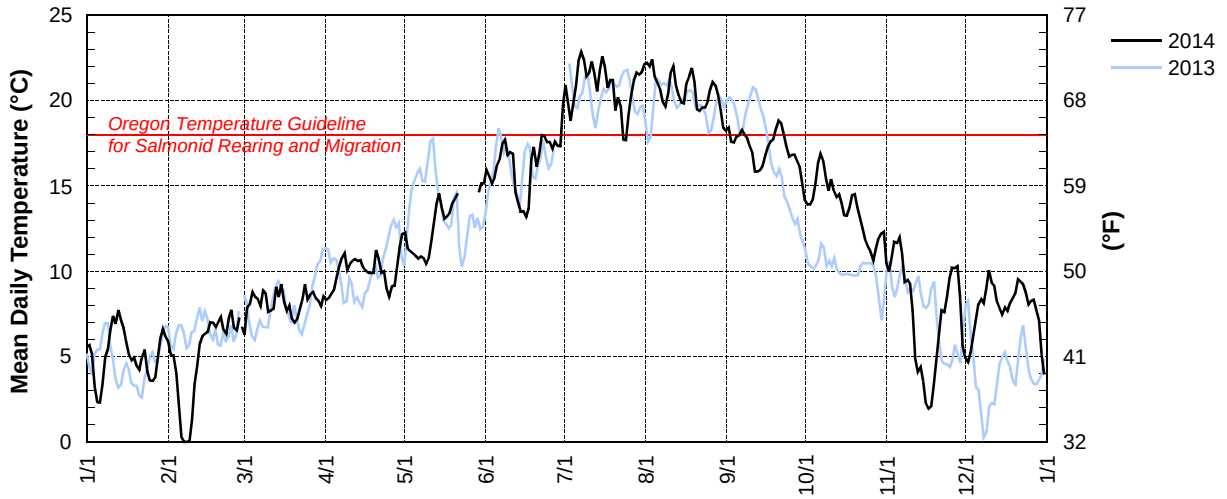
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

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

LATITUDE: 453039.75 LONGITUDE: 1230652.0

| Day | 2014 Mean Daily Water Temperature in Degrees Celsius | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 5.6 | 5.8 | 6.8 | 8.5 | 12.2 | 15.2 | 19.7 | 22.2 | 18.3 | 14.2 | 10.5 | 4.9 |
| 2 | 5.7 | 5.1 | 6.3 | 8.3 | 12.3 | 15.9 | 20.9 | 22.2 | 18.4 | 13.9 | 10.0 | 4.7 |
| 3 | 5.2 | 5.1 | 7.9 | 8.5 | 11.3 | 15.6 | 19.9 | 22.0 | 17.6 | 13.9 | 10.8 | 5.3 |
| 4 | 3.2 | 4.0 | 8.1 | 8.7 | 11.2 | 15.2 | 18.8 | 22.4 | 17.6 | 14.2 | 11.7 | 6.3 |
| 5 | 2.3 | 2.2 | 8.8 | 9.0 | 11.1 | 15.5 | 19.9 | 21.4 | 17.9 | 15.1 | 11.7 | 7.2 |
| 6 | 2.3 | 0.3 | 8.5 | 9.7 | 10.9 | 16.2 | 20.9 | 21.0 | 18.0 | 16.3 | 12.0 | 8.1 |
| 7 | 3.4 | 0.0 | 8.4 | 10.3 | 10.8 | 16.6 | 22.4 | 20.6 | 18.3 | 16.9 | 11.0 | 8.4 |
| 8 | 5.0 | 0.0 | 8.0 | 10.8 | 10.9 | 17.5 | 22.9 | 19.9 | 18.0 | 16.4 | 9.4 | 8.1 |
| 9 | 5.4 | 0.0 | 8.9 | 11.1 | 10.8 | 17.7 | 22.4 | 19.7 | 17.9 | 15.5 | 9.5 | 9.0 |
| 10 | 6.6 | 1.3 | 8.7 | 10.1 | 10.5 | 16.8 | 21.4 | 20.4 | 17.4 | 14.7 | 9.3 | 10.1 |
| 11 | 7.4 | 3.4 | 7.6 | 10.4 | 10.8 | 17.0 | 21.6 | 21.7 | 16.9 | 15.4 | 7.7 | 9.3 |
| 12 | 6.9 | 4.5 | 7.7 | 10.6 | 11.8 | 16.9 | 22.3 | 22.1 | 15.8 | 14.8 | 4.9 | 9.2 |
| 13 | 7.7 | 5.8 | 7.8 | 10.7 | 12.9 | 14.6 | 21.6 | 20.9 | 15.9 | 14.3 | 4.1 | 8.2 |
| 14 | 7.2 | 6.2 | 9.1 | 10.6 | 14.0 | 14.0 | 20.6 | 20.4 | 15.9 | 14.5 | 4.4 | 7.8 |
| 15 | 6.7 | 6.4 | 8.5 | 10.7 | 14.6 | 13.5 | 21.7 | 19.9 | 16.2 | 14.0 | 3.5 | 7.5 |
| 16 | 5.9 | 6.5 | 9.2 | 10.3 | 13.7 | 13.5 | 22.6 | 19.9 | 16.8 | 13.3 | 2.3 | 7.9 |
| 17 | 5.1 | 7.0 | 8.2 | 10.1 | 13.1 | 13.2 | 22.0 | 21.1 | 17.3 | 13.3 | 2.0 | 7.7 |
| 18 | 4.8 | 7.0 | 7.7 | 9.9 | 13.2 | 13.7 | 20.8 | 21.4 | 17.6 | 13.8 | 2.1 | 8.1 |
| 19 | 4.9 | 6.7 | 8.0 | 9.9 | 13.4 | 16.5 | 21.2 | 21.9 | 17.7 | 14.5 | 3.4 | 8.4 |
| 20 | 4.4 | 7.1 | 7.2 | 9.9 | 14.0 | 17.3 | 21.2 | 21.1 | 18.4 | 14.5 | 5.1 | 8.8 |
| 21 | 4.2 | 7.3 | 7.0 | 11.3 | 14.3 | 16.1 | 19.4 | 19.5 | 18.8 | 13.8 | 6.5 | 9.5 |
| 22 | 5.0 | 6.6 | 7.2 | 10.7 | 14.6 | 16.9 | 20.2 | 19.4 | 18.7 | 13.1 | 7.7 | 9.4 |
| 23 | 5.4 | 6.3 | 7.8 | 9.9 | 14.6 | 18.0 | 19.6 | 19.6 | 18.0 | 12.5 | 7.6 | 9.3 |
| 24 | 4.2 | 7.3 | 8.4 | 10.0 | 14.6 | 17.9 | 17.7 | 19.6 | 17.4 | 11.8 | 8.5 | 8.8 |
| 25 | 3.6 | 7.7 | 9.2 | 9.0 | 14.6 | 17.6 | 17.7 | 20.0 | 16.7 | 11.5 | 9.6 | 8.1 |
| 26 | 3.6 | 6.7 | 8.4 | 8.5 | 14.6 | 17.6 | 19.2 | 20.7 | 16.8 | 11.2 | 10.2 | 8.3 |
| 27 | 3.8 | 6.5 | 8.7 | 9.1 | 14.6 | 17.2 | 20.3 | 21.1 | 16.8 | 10.6 | 10.2 | 8.7 |
| 28 | 4.9 | 7.3 | 8.8 | 9.2 | 14.6 | 17.6 | 21.2 | 20.9 | 16.5 | 11.3 | 10.3 | 8.1 |
| 29 | 6.1 | — | 8.5 | 10.3 | 14.6 | 17.3 | 21.6 | 20.3 | 16.1 | 11.9 | 8.5 | 7.4 |
| 30 | 6.6 | — | 8.3 | 11.5 | 14.6 | 17.3 | 21.5 | 19.5 | 15.2 | 12.2 | 5.6 | 4.3 |
| 31 | 6.1 | — | 8.0 | — | 15.2 | — | 21.7 | 18.4 | — | 12.3 | — | 2.6 |
| MEAN | 5.1 | 5.0 | 8.1 | 9.9 | 13.0 | 16.2 | 20.8 | 20.7 | 17.3 | 13.7 | 7.7 | 7.7 |
| MAX | 7.7 | 7.7 | 9.2 | 11.5 | 15.2 | 18.0 | 22.9 | 22.4 | 18.8 | 16.9 | 12.0 | 10.1 |
| MIN | 2.3 | 0.0 | 6.3 | 8.3 | 10.5 | 13.2 | 17.7 | 18.4 | 15.2 | 10.6 | 2.0 | 2.6 |

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



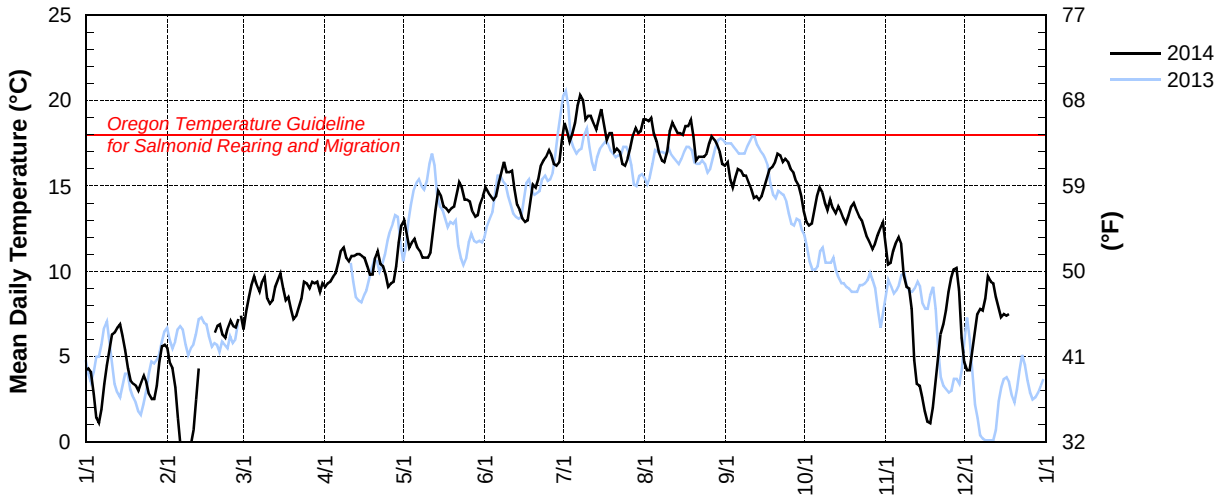

**USGS #453040123065201 is equivalent to OWRD #14204530.

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 | 2014 Mean Daily Water Temperature in Degrees Celsius | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB* | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC* |
| 1 | 4.2 | 5.5 | 7.4 | 9.3 | 12.7 | 14.4 | 17.7 | 18.9 | 16.2 | 13.5 | 11.7 | 4.7 |
| 2 | 4.3 | 4.6 | 6.6 | 9.1 | 13.0 | 14.9 | 18.7 | 18.9 | 16.4 | 12.9 | 10.4 | 4.2 |
| 3 | 4.1 | 4.3 | 7.6 | 9.3 | 12.2 | 14.6 | 18.2 | 18.8 | 15.4 | 12.7 | 10.5 | 4.2 |
| 4 | 2.8 | 3.2 | 8.5 | 9.4 | 11.4 | 14.4 | 17.6 | 19.0 | 14.9 | 12.8 | 11.2 | 5.3 |
| 5 | 1.4 | 1.4 | 9.2 | 9.7 | 11.7 | 14.2 | 18.1 | 18.1 | 15.5 | 13.6 | 11.7 | 6.4 |
| 6 | 1.1 | -0.1 | 9.7 | 9.9 | 11.9 | 14.4 | 18.7 | 17.6 | 16.0 | 14.4 | 12.0 | 7.5 |
| 7 | 1.9 | -0.1 | 9.2 | 10.5 | 11.4 | 15.2 | 19.7 | 16.9 | 15.9 | 14.9 | 11.6 | 7.8 |
| 8 | 3.4 | -0.1 | 8.8 | 11.2 | 11.2 | 15.8 | 20.3 | 16.5 | 15.6 | 14.6 | 9.8 | 7.7 |
| 9 | 4.5 | -0.1 | 9.4 | 11.4 | 10.8 | 16.4 | 20.0 | 16.4 | 15.6 | 14.0 | 9.1 | 8.4 |
| 10 | 5.4 | -0.1 | 9.7 | 10.8 | 10.8 | 15.8 | 18.9 | 17.0 | 15.2 | 13.6 | 9.0 | 9.7 |
| 11 | 6.3 | 0.7 | 8.4 | 10.6 | 10.8 | 15.8 | 19.1 | 18.2 | 14.8 | 14.2 | 7.8 | 9.4 |
| 12 | 6.4 | 2.5 | 8.1 | 10.9 | 11.1 | 15.9 | 19.1 | 18.7 | 14.3 | 13.7 | 4.8 | 9.3 |
| 13 | 6.7 | 4.3** | 8.3 | 10.9 | 12.3 | 14.8 | 18.7 | 18.4 | 14.4 | 13.4 | 3.4 | 8.5 |
| 14 | 6.9 | | 9.1 | 11.0 | 13.6 | 13.9 | 18.3 | 18.1 | 14.2 | 13.8 | 3.3 | 7.9 |
| 15 | 6.2 | | 9.5 | 11.0 | 14.7 | 13.6 | 18.9 | 18.1 | 14.4 | 13.5 | 2.6 | 7.3 |
| 16 | 5.4 | | 9.9 | 10.9 | 14.4 | 13.1 | 19.5 | 18.0 | 15.0 | 13.1 | 1.8 | 7.5 |
| 17 | 4.3 | | 9.0 | 10.8 | 13.8 | 12.9 | 18.7 | 18.5 | 15.5 | 12.8 | 1.2 | 7.4 |
| 18 | 3.6 | | 8.3 | 10.3 | 13.7 | 13.0 | 17.7 | 18.5 | 16.0 | 13.3 | 1.1 | 7.5** |
| 19 | 3.4 | 6.4** | 8.5 | 9.8 | 13.5 | 14.1 | 18.1 | 18.9 | 16.1 | 13.8 | 2.0 | |
| 20 | 3.3 | 6.8 | 7.8 | 9.8 | 13.7 | 15.1 | 18.1 | 17.9 | 16.4 | 14.0 | 3.4 | |
| 21 | 3.0 | 6.9 | 7.2 | 10.8 | 13.8 | 14.9 | 17.0 | 16.5 | 16.9 | 13.6 | 4.8 | |
| 22 | 3.5 | 6.3 | 7.4 | 11.2 | 14.5 | 15.4 | 17.2 | 16.7 | 16.8 | 13.2 | 6.3 | |
| 23 | 3.9 | 6.1 | 7.9 | 10.4 | 15.2 | 16.2 | 17.0 | 16.7 | 16.4 | 13.0 | 6.9 | |
| 24 | 3.5 | 6.7 | 8.4 | 10.3 | 14.9 | 16.5 | 16.3 | 16.7 | 16.6 | 12.5 | 7.7 | |
| 25 | 2.8 | 7.1 | 9.4 | 9.8 | 14.2 | 16.7 | 16.2 | 16.9 | 16.4 | 12.0 | 8.8 | |
| 26 | 2.5 | 6.8** | 9.3 | 9.1 | 14.2 | 17.1 | 16.6 | 17.5 | 16.0 | 11.7 | 9.6 | |
| 27 | 2.5 | 6.7 | 9.0 | 9.3 | 14.1 | 16.8 | 17.2 | 17.9 | 15.8 | 11.3 | 10.1 | |
| 28 | 3.3 | 7.2 | 9.4 | 9.4 | 13.5 | 16.3 | 18.0 | 17.7 | 15.3 | 11.6 | 10.2 | |
| 29 | 4.7 | — | 9.3 | 10.3 | 13.2 | 16.2 | 18.4 | 17.4 | 15.0 | 12.1 | 8.9 | |
| 30 | 5.6 | — | 9.4 | 11.7 | 13.3 | 16.4 | 18.1 | 17.0 | 14.4 | 12.5 | 6.1 | |
| 31 | 5.7 | — | 8.8 | — | 14.0 | — | 18.2 | 16.3 | — | 12.9 | — | |
| MEAN | 4.1 | | 8.7 | 10.3 | 13.0 | 15.2 | 18.2 | 17.7 | 15.6 | 13.2 | 7.3 | |
| MAX | 6.9 | | 9.9 | 11.7 | 15.2 | 17.1 | 20.3 | 19.0 | 16.9 | 14.9 | 12.0 | |
| MIN | 1.1 | | 6.6 | 9.1 | 10.8 | 12.9 | 16.2 | 16.3 | 14.2 | 11.3 | 1.1 | |

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

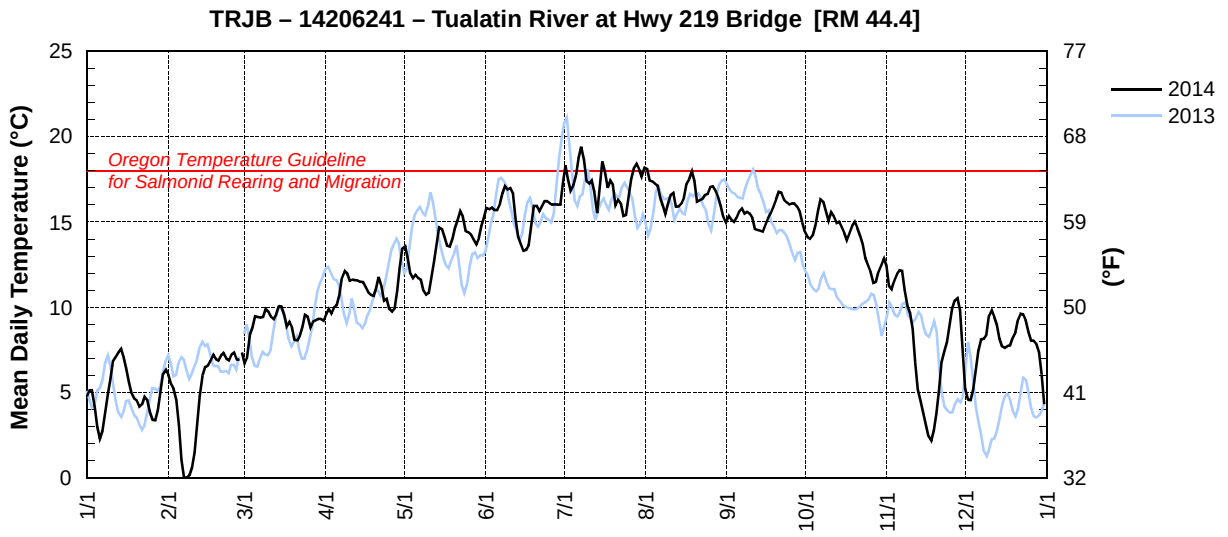
**MCSC – 14206070 – McKay Creek at Scotch Church Road above Waible Creek near North Plains, Oregon [RM 6.3]**



## 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 | 2014 Mean Daily Water Temperature in Degrees Celsius | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY* | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 4.8 | 6.1 | 7.4 | 9.2 | 13.4 | 15.3 | 17.3 | 18.2 | 15.0 | 14.4 | 12.5 | 5.2 |
| 2 | 5.1 | 5.5 | 6.7 | 9.6 | 13.6 | 15.8 | 18.3 | 18.1 | 15.4 | 14.1 | 11.3 | 4.6 |
| 3 | 5.2 | 5.2 | 7.1 | 9.9 | 12.9 | 15.8 | 17.5 | 17.5 | 15.1 | 14.0 | 11.1 | 4.6 |
| 4 | 4.2 | 4.6 | 8.4 | 9.6 | 12.0 | 15.8 | 16.8 | 17.4 | 15.0 | 14.2 | 11.6 | 5.2 |
| 5 | 3.0 | 3.1 | 8.8 | 10.0 | 11.7 | 15.7 | 17.2 | 17.3 | 15.2 | 14.8 | 12.0 | 6.3 |
| 6 | 2.3 | 1.1 | 9.5 | 10.1 | 11.9 | 15.7 | 17.7 | 17.2 | 15.6 | 15.7 | 12.2 | 7.4 |
| 7 | 2.8 | 0.0 | 9.4 | 10.7 | 11.7 | 16.1 | 18.8 | 16.4 | 15.8 | 16.3 | 12.1 | 8.1 |
| 8 | 3.9 | 0.0 | 9.4 | 11.7 | 11.6 | 16.7 | 19.4 | 16.0 | 15.5 | 16.2 | 11.0 | 8.2 |
| 9 | 4.9 | 0.2 | 9.4 | 12.1 | 11.0 | 17.1 | 18.6 | 15.5 | 15.6 | 15.6 | 10.1 | 8.4 |
| 10 | 5.8 | 0.6 | 9.9 | 12.0 | 10.8 | 16.9 | 17.4 | 16.1 | 15.5 | 15.1 | 9.7 | 9.5 |
| 11 | 6.9 | 1.5 | 9.8 | 11.6 | 10.9 | 17.0 | 17.3 | 16.6 | 15.2 | 15.6 | 8.8 | 9.8 |
| 12 | 7.1 | 3.2 | 9.5 | 11.6 | 11.8 | 16.7 | 17.5 | 16.7 | 14.6 | 15.4 | 6.8 | 9.4 |
| 13 | 7.4 | 4.8 | 9.3 | 11.6 | 12.7 | 15.2 | 16.8 | 15.9 | 14.5 | 14.9 | 5.2 | 9.0 |
| 14 | 7.6 | 6.0 | 9.6 | 11.6 | 13.7 | 14.1 | 15.5 | 15.9 | 14.5 | 15.0 | 4.5 | 8.2 |
| 15 | 7.1 | 6.5 | 10.1 | 11.5 | 14.7 | 13.7 | 17.1 | 16.1 | 14.5 | 14.7 | 3.8 | 7.7 |
| 16 | 6.4 | 6.6 | 10.1 | 11.5 | 14.6 | 13.3 | 18.5 | 16.4 | 14.9 | 14.4 | 3.1 | 7.6 |
| 17 | 5.6 | 6.9 | 9.6 | 11.2 | 14.1 | 13.4 | 18.0 | 17.2 | 15.3 | 14.0 | 2.5 | 7.7 |
| 18 | 5.0 | 7.2 | 8.9 | 10.9 | 13.6 | 13.7 | 17.0 | 17.5 | 15.5 | 14.4 | 2.2 | 7.8 |
| 19 | 4.7 | 7.0 | 9.2 | 10.7 | 13.6 | 14.8 | 17.4 | 18.0 | 15.9 | 14.8 | 2.8 | 8.2 |
| 20 | 4.5 | 6.9 | 8.8 | 10.7 | 14.0 | 15.9 | 17.2 | 17.4 | 16.3 | 15.0 | 3.8 | 8.5 |
| 21 | 4.2 | 7.2 | 8.1 | 11.1 | 14.7 | 15.9 | 16.0 | 16.2 | 16.8 | 14.7 | 5.1 | 9.3 |
| 22 | 4.3 | 7.3 | 8.1 | 11.8 | 15.1 | 15.7 | 16.3 | 16.3 | 16.7 | 14.2 | 6.8 | 9.6 |
| 23 | 4.8 | 7.0 | 8.3 | 11.2 | 15.6 | 15.9 | 16.1 | 16.4 | 16.3 | 13.7 | 7.4 | 9.6 |
| 24 | 4.6 | 6.9 | 8.9 | 10.4 | 15.3 | 16.2 | 15.4 | 16.6 | 16.2 | 12.9 | 8.0 | 9.3 |
| 25 | 3.9 | 7.3 | 9.6 | 10.5 | 14.5 | 16.2 | 15.4 | 16.7 | 16.0 | 12.5 | 8.9 | 8.5 |
| 26 | 3.4 | 7.4 | 9.5 | 9.9 | 14.4 | 16.1 | 16.4 | 17.0 | 16.1 | 12.1 | 9.9 | 8.1 |
| 27 | 3.4 | 6.9 | 8.8 | 9.8 | 14.3 | 16.0 | 17.5 | 17.1 | 16.1 | 11.4 | 10.4 | 8.1 |
| 28 | 4.0 | 6.9 | 9.2 | 10.0 | 14.0 | 16.0 | 18.2 | 16.8 | 15.9 | 11.5 | 10.5 | 7.9 |
| 29 | 5.1 | — | 9.2 | 11.0 | 13.7 | 16.0 | 18.4 | 16.4 | 15.6 | 12.1 | 9.8 | 7.4 |
| 30 | 6.1 | — | 9.3 | 12.4 | 14.0 | 16.0 | 18.1 | 16.0 | 15.0 | 12.5 | 7.3 | 6.1 |
| 31 | 6.4 | — | 9.3 | — | 14.8 | — | 17.7 | 15.3 | — | 12.9 | — | 4.3 |
| MEAN | 5.0 | 5.0 | 9.0 | 10.9 | 13.4 | 15.6 | 17.3 | 16.7 | 15.5 | 14.2 | 8.0 | 7.7 |
| MAX | 7.6 | 7.4 | 10.1 | 12.4 | 15.6 | 17.1 | 19.4 | 18.2 | 16.8 | 16.3 | 12.5 | 9.8 |
| MIN | 2.3 | 0.0 | 6.7 | 9.2 | 10.8 | 13.3 | 15.4 | 15.3 | 14.5 | 11.4 | 2.2 | 4.3 |



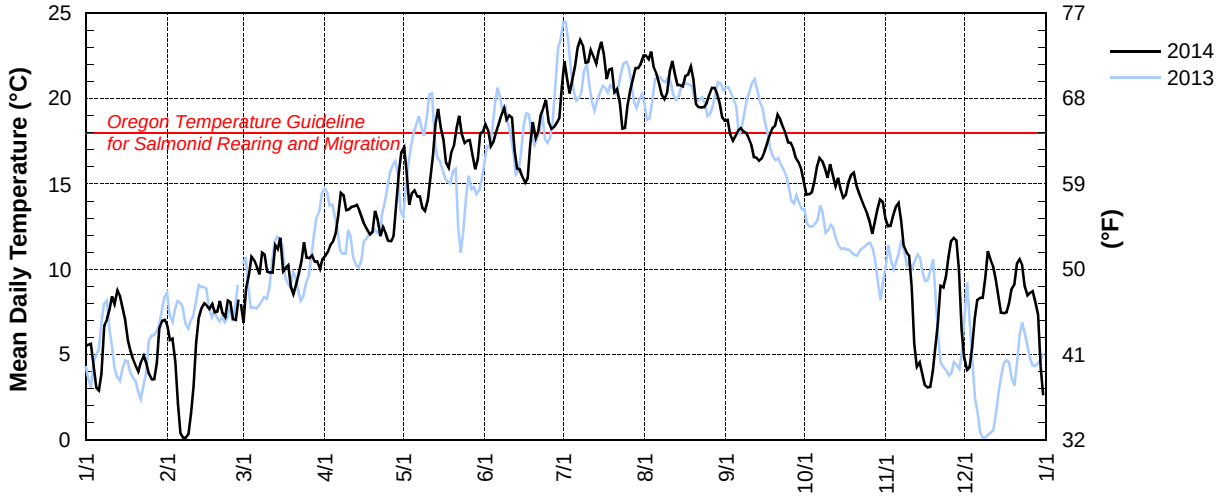
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

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

LATITUDE: 453004 LONGITUDE: 1225103

| Day | 2014 Mean Daily Water Temperature in Degrees Celsius | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 5.5 | 6.7 | 8.0 | 10.6 | 16.9 | 18.1 | 20.8 | 22.5 | 18.7 | 15.1 | 13.0 | 4.8 |
| 2 | 5.6 | 5.9 | 6.9 | 10.8 | 17.2 | 18.5 | 22.2 | 22.5 | 18.8 | 14.4 | 12.5 | 4.1 |
| 3 | 5.6 | 6.0 | 8.9 | 11.0 | 15.6 | 18.1 | 21.2 | 22.3 | 17.9 | 14.4 | 12.6 | 4.3 |
| 4 | 4.4 | 4.6 | 9.7 | 11.4 | 13.8 | 17.2 | 20.3 | 22.8 | 17.5 | 14.5 | 13.1 | 5.4 |
| 5 | 3.1 | 2.2 | 10.8 | 11.6 | 14.5 | 17.5 | 21.2 | 21.8 | 17.8 | 15.2 | 13.7 | 7.1 |
| 6 | 2.9 | 0.4 | 10.6 | 12.1 | 14.6 | 18.0 | 21.9 | 21.4 | 18.1 | 16.0 | 13.9 | 8.2 |
| 7 | 3.9 | 0.1 | 10.2 | 13.2 | 14.3 | 18.6 | 23.0 | 20.9 | 18.3 | 16.5 | 12.9 | 8.3 |
| 8 | 6.7 | 0.1 | 9.7 | 14.5 | 14.3 | 19.1 | 23.4 | 20.2 | 18.1 | 16.3 | 11.4 | 8.3 |
| 9 | 7.1 | 0.4 | 11.0 | 14.3 | 13.6 | 19.5 | 23.1 | 20.0 | 18.0 | 15.9 | 11.0 | 9.5 |
| 10 | 7.6 | 1.6 | 10.9 | 13.5 | 13.4 | 18.8 | 22.1 | 20.4 | 17.7 | 15.4 | 10.8 | 11.1 |
| 11 | 8.4 | 3.2 | 9.9 | 13.5 | 14.1 | 19.0 | 22.1 | 21.6 | 17.3 | 16.2 | 9.0 | 10.5 |
| 12 | 8.0 | 5.7 | 9.8 | 13.7 | 15.4 | 18.9 | 22.9 | 22.2 | 16.6 | 15.5 | 5.7 | 10.1 |
| 13 | 8.8 | 7.2 | 9.8 | 13.7 | 16.7 | 17.0 | 22.5 | 21.5 | 16.6 | 14.9 | 4.3 | 9.4 |
| 14 | 8.4 | 7.7 | 11.4 | 13.8 | 18.5 | 15.9 | 22.0 | 20.8 | 16.4 | 15.4 | 4.6 | 8.4 |
| 15 | 7.7 | 8.0 | 11.2 | 13.4 | 19.4 | 15.9 | 22.8 | 20.8 | 16.5 | 14.7 | 3.9 | 7.5 |
| 16 | 7.1 | 7.9 | 11.9 | 13.0 | 18.3 | 15.4 | 23.3 | 20.7 | 16.9 | 14.2 | 3.2 | 7.4 |
| 17 | 5.8 | 7.7 | 9.9 | 12.6 | 17.6 | 15.1 | 22.6 | 21.3 | 17.4 | 14.4 | 3.1 | 7.5 |
| 18 | 5.2 | 8.0 | 10.1 | 12.3 | 16.2 | 15.3 | 21.2 | 21.4 | 17.9 | 15.1 | 3.1 | 8.0 |
| 19 | 4.7 | 7.5 | 10.2 | 12.1 | 15.9 | 17.3 | 21.7 | 21.9 | 18.3 | 15.6 | 4.0 | 8.9 |
| 20 | 4.3 | 7.5 | 9.0 | 12.2 | 16.9 | 18.6 | 21.8 | 21.1 | 18.4 | 15.7 | 5.4 | 9.1 |
| 21 | 4.0 | 8.2 | 8.6 | 13.4 | 17.3 | 17.7 | 20.4 | 19.7 | 19.1 | 14.9 | 6.9 | 10.4 |
| 22 | 4.6 | 7.4 | 9.2 | 12.9 | 18.3 | 18.1 | 20.6 | 19.5 | 18.8 | 14.5 | 9.1 | 10.6 |
| 23 | 5.0 | 7.2 | 9.8 | 11.9 | 19.0 | 19.1 | 19.8 | 19.5 | 18.4 | 14.0 | 9.0 | 10.3 |
| 24 | 4.5 | 8.2 | 10.5 | 12.5 | 17.9 | 19.5 | 18.3 | 19.5 | 18.0 | 13.7 | 9.6 | 9.0 |
| 25 | 3.9 | 8.1 | 11.6 | 12.1 | 17.4 | 19.9 | 18.3 | 19.7 | 17.4 | 13.3 | 10.7 | 8.5 |
| 26 | 3.5 | 7.1 | 10.7 | 11.7 | 17.5 | 18.6 | 19.6 | 20.2 | 17.4 | 12.9 | 11.7 | 8.6 |
| 27 | 3.6 | 7.0 | 10.7 | 11.6 | 17.6 | 18.2 | 20.4 | 20.6 | 17.1 | 12.1 | 11.8 | 8.7 |
| 28 | 4.5 | 8.2 | 10.8 | 12.0 | 16.8 | 18.4 | 21.2 | 20.6 | 16.5 | 12.8 | 11.7 | 8.1 |
| 29 | 6.6 | — | 10.5 | 13.8 | 15.9 | 18.6 | 21.8 | 20.3 | 16.3 | 13.5 | 9.9 | 7.4 |
| 30 | 7.0 | — | 10.5 | 15.6 | 16.4 | 18.9 | 21.8 | 19.7 | 15.9 | 14.1 | 6.5 | 4.3 |
| 31 | 7.0 | — | 10.0 | — | 18.0 | — | 22.0 | 18.9 | — | 13.9 | — | 2.6 |
| MEAN | 5.6 | 5.7 | 10.1 | 12.7 | 16.4 | 18.0 | 21.5 | 20.9 | 17.6 | 14.7 | 8.9 | 7.9 |
| MAX | 8.8 | 8.2 | 11.9 | 15.6 | 19.4 | 19.9 | 23.4 | 22.8 | 19.1 | 16.5 | 13.9 | 11.1 |
| MIN | 2.9 | 0.1 | 6.9 | 10.6 | 13.4 | 15.1 | 18.3 | 18.9 | 15.9 | 12.1 | 3.1 | 2.6 |

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

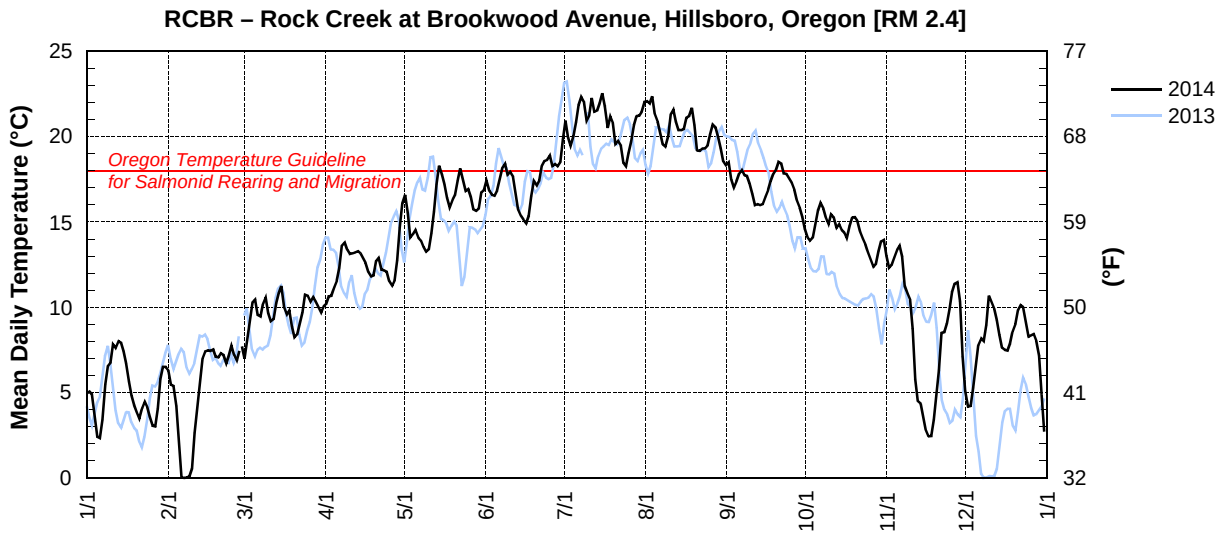


UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

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

LATITUDE: 453029.5 LONGITUDE: 1225600.6

| Day | 2014 Mean Daily Water Temperature in Degrees Celsius | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | 5.0 | 6.3 | 7.7 | 10.1 | 16.1 | 16.9 | 19.9 | 22.0 | 18.3 | 14.6 | 13.0 | 5.1 |
| 2 | 5.1 | 5.5 | 7.0 | 10.2 | 16.6 | 17.4 | 20.9 | 22.1 | 18.5 | 14.1 | 12.3 | 4.2 |
| 3 | 4.9 | 5.4 | 8.1 | 10.6 | 15.6 | 16.8 | 20.0 | 22.0 | 17.5 | 13.9 | 12.5 | 4.2 |
| 4 | 3.7 | 4.2 | 9.3 | 10.7 | 14.1 | 16.6 | 19.5 | 22.4 | 17.0 | 14.1 | 12.9 | 5.3 |
| 5 | 2.4 | 2.0 | 10.3 | 11.2 | 14.3 | 16.6 | 20.0 | 21.3 | 17.4 | 14.9 | 13.4 | 6.5 |
| 6 | 2.4 | 0.1 | 10.5 | 11.6 | 14.5 | 16.8 | 20.9 | 20.9 | 17.8 | 15.7 | 13.6 | 7.8 |
| 7 | 3.4 | 0.0 | 9.6 | 12.3 | 14.1 | 17.6 | 21.9 | 20.2 | 18.0 | 16.1 | 13.0 | 8.2 |
| 8 | 5.5 | 0.0 | 9.5 | 13.6 | 13.9 | 18.2 | 22.3 | 19.6 | 17.7 | 15.8 | 11.3 | 8.0 |
| 9 | 6.6 | 0.1 | 10.3 | 13.8 | 13.6 | 18.4 | 22.0 | 19.4 | 17.7 | 15.2 | 10.8 | 9.0 |
| 10 | 6.8 | 0.6 | 10.6 | 13.4 | 13.3 | 17.8 | 21.0 | 20.0 | 17.3 | 14.9 | 10.5 | 10.7 |
| 11 | 7.8 | 2.6 | 9.7 | 13.1 | 13.4 | 17.9 | 21.3 | 21.3 | 16.6 | 15.5 | 8.7 | 10.3 |
| 12 | 7.6 | 4.2 | 9.2 | 13.2 | 14.3 | 17.6 | 22.3 | 21.6 | 16.0 | 15.3 | 5.8 | 9.9 |
| 13 | 8.0 | 5.6 | 9.3 | 13.2 | 15.6 | 16.7 | 21.5 | 20.9 | 16.1 | 14.7 | 4.5 | 9.3 |
| 14 | 7.9 | 7.0 | 10.2 | 13.3 | 17.2 | 15.7 | 21.5 | 20.4 | 16.0 | 14.9 | 4.4 | 8.4 |
| 15 | 7.4 | 7.4 | 10.9 | 13.2 | 18.3 | 15.4 | 22.0 | 20.4 | 16.1 | 14.5 | 3.6 | 7.6 |
| 16 | 6.7 | 7.5 | 11.3 | 12.9 | 17.8 | 15.2 | 22.5 | 20.5 | 16.5 | 14.4 | 2.8 | 7.5 |
| 17 | 5.6 | 7.5 | 10.0 | 12.6 | 17.2 | 14.9 | 21.8 | 21.1 | 16.9 | 14.1 | 2.4 | 7.5 |
| 18 | 4.8 | 7.5 | 9.6 | 12.1 | 16.4 | 15.4 | 20.5 | 21.2 | 17.4 | 14.8 | 2.5 | 7.9 |
| 19 | 4.3 | 7.1 | 9.8 | 11.8 | 15.9 | 16.5 | 21.2 | 21.7 | 17.8 | 15.3 | 3.4 | 8.6 |
| 20 | 3.9 | 7.1 | 8.9 | 11.9 | 16.3 | 17.4 | 20.8 | 20.7 | 18.1 | 15.3 | 4.8 | 9.0 |
| 21 | 3.5 | 7.3 | 8.3 | 12.7 | 16.6 | 17.1 | 19.6 | 19.2 | 18.5 | 15.1 | 6.3 | 9.8 |
| 22 | 4.1 | 7.2 | 8.4 | 12.9 | 17.4 | 17.4 | 19.7 | 19.2 | 18.4 | 14.4 | 8.5 | 10.1 |
| 23 | 4.5 | 6.7 | 9.1 | 12.2 | 18.1 | 18.3 | 19.5 | 19.3 | 17.9 | 14.0 | 8.6 | 10.0 |
| 24 | 4.2 | 7.2 | 9.7 | 12.2 | 17.5 | 18.6 | 18.5 | 19.3 | 17.8 | 13.7 | 9.1 | 9.2 |
| 25 | 3.6 | 7.8 | 10.8 | 12.1 | 16.8 | 18.7 | 18.3 | 19.5 | 17.5 | 13.2 | 9.9 | 8.3 |
| 26 | 3.1 | 7.2 | 10.7 | 11.5 | 16.9 | 18.9 | 19.0 | 20.1 | 17.3 | 12.8 | 10.9 | 8.4 |
| 27 | 3.0 | 6.9 | 10.3 | 11.3 | 16.5 | 18.3 | 19.7 | 20.7 | 16.9 | 12.4 | 11.4 | 8.4 |
| 28 | 4.1 | 7.4 | 10.6 | 11.6 | 15.8 | 18.4 | 20.7 | 20.5 | 16.3 | 12.5 | 11.5 | 8.1 |
| 29 | 5.8 | — | 10.3 | 12.8 | 15.7 | 18.3 | 21.2 | 20.0 | 15.8 | 13.3 | 10.4 | 7.2 |
| 30 | 6.5 | — | 10.0 | 14.7 | 15.8 | 18.5 | 21.2 | 19.3 | 15.3 | 13.9 | 7.1 | 4.9 |
| 31 | 6.5 | — | 9.7 | — | 16.7 | — | 21.5 | 18.6 | — | 14.0 | — | 2.7 |
| MEAN | 5.1 | 5.2 | 9.7 | 12.3 | 15.9 | 17.3 | 20.7 | 20.5 | 17.2 | 14.4 | 8.7 | 7.8 |
| MAX | 8.0 | 7.8 | 11.3 | 14.7 | 18.3 | 18.9 | 22.5 | 22.4 | 18.5 | 16.1 | 13.6 | 10.7 |
| MIN | 2.4 | 0.0 | 7.0 | 10.1 | 13.3 | 14.9 | 18.3 | 18.6 | 15.3 | 12.4 | 2.4 | 2.7 |



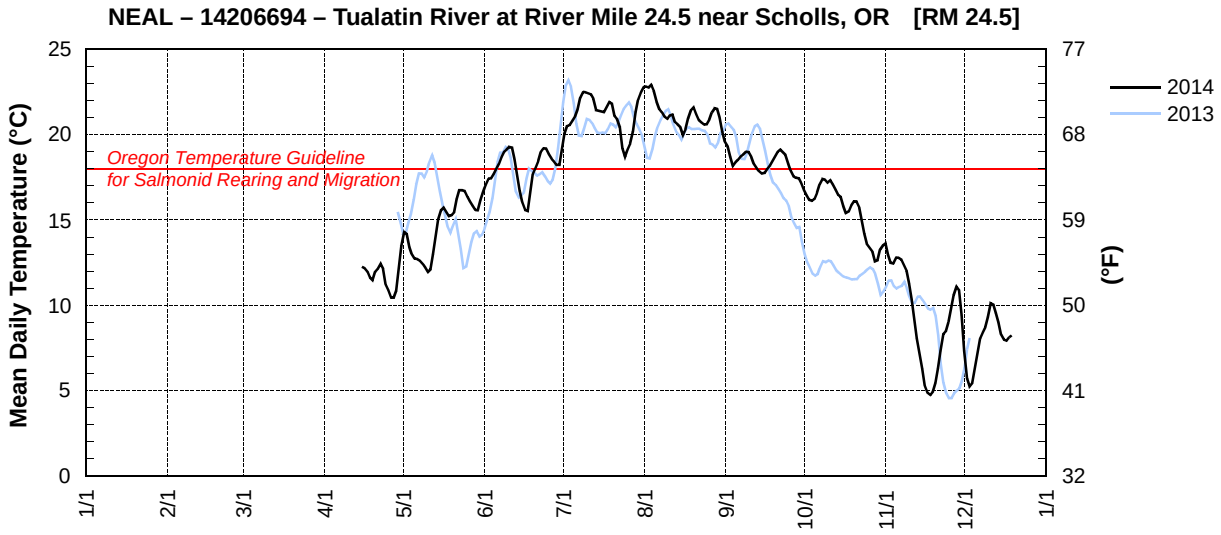
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

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

LATITUDE: 452406 LONGITUDE: 1225338

| Day | 2014 Mean Daily Water Temperature in Degrees Celsius | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | JAN | FEB | MAR | APR* | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| 1 | | | | | 13.5 | 16.6 | 19.2 | 22.8 | 19.6 | 16.8 | 13.0 | 4.8 |
| 2 | | | | | 14.3 | 17.1 | 20.1 | 22.8 | 19.3 | 16.5 | 12.5 | 4.1 |
| 3 | | | | | 14.2 | 17.4 | 20.5 | 22.8 | 18.7 | 16.2 | 12.6 | 4.3 |
| 4 | | | | | 13.4 | 17.4 | 20.6 | 22.9 | 18.2 | 16.1 | 13.1 | 5.4 |
| 5 | | | | | 13.0 | 17.7 | 20.8 | 22.6 | 18.4 | 16.3 | 13.7 | 7.1 |
| 6 | | | | | 12.7 | 18.0 | 21.1 | 21.9 | 18.5 | 16.6 | 13.9 | 8.2 |
| 7 | | | | | 12.7 | 18.3 | 21.5 | 21.5 | 18.7 | 17.1 | 12.9 | 8.3 |
| 8 | | | | | 12.6 | 18.7 | 22.2 | 21.3 | 18.9 | 17.4 | 11.4 | 8.3 |
| 9 | | | | | 12.5 | 19.0 | 22.5 | 21.1 | 19.0 | 17.4 | 11.0 | 9.5 |
| 10 | | | | | 12.2 | 19.1 | 22.5 | 20.9 | 19.0 | 17.2 | 10.8 | 11.1 |
| 11 | | | | | 11.9 | 19.3 | 22.4 | 21.1 | 18.7 | 16.2 | 9.0 | 10.5 |
| 12 | | | | | 12.1 | 19.2 | 22.4 | 21.2 | 18.3 | 15.5 | 5.7 | 10.1 |
| 13 | | | | | 13.0 | 18.6 | 22.1 | 20.8 | 18.0 | 14.9 | 4.3 | 9.4 |
| 14 | | | | | 14.0 | 17.6 | 21.4 | 20.6 | 17.9 | 15.4 | 4.6 | 8.4 |
| 15 | | | | 12.3 | 15.0 | 16.7 | 21.4 | 20.5 | 17.7 | 14.7 | 3.9 | 7.5 |
| 16 | | | | 12.3 | 15.6 | 16.0 | 21.4 | 20.0 | 17.8 | 14.2 | 3.2 | 7.4 |
| 17 | | | | 12.2 | 15.7 | 15.6 | 21.3 | 20.3 | 18.0 | 14.4 | 3.1 | 7.5 |
| 18 | | | | 12.0 | 15.5 | 15.5 | 21.6 | 20.9 | 18.2 | 15.1 | 3.1 | 8.0 |
| 19 | | | | 11.6 | 15.2 | 16.6 | 21.9 | 21.4 | 18.4 | 15.6 | 4.0 | 8.9 |
| 20 | | | | 11.5 | 15.3 | 17.7 | 21.8 | 21.6 | 18.7 | 15.7 | 5.4 | 9.1 |
| 21 | | | | 12.0 | 15.5 | 18.1 | 21.1 | 21.2 | 19.0 | 14.9 | 6.9 | 10.4 |
| 22 | | | | 12.1 | 16.2 | 18.5 | 20.9 | 20.9 | 19.1 | 14.5 | 9.1 | 10.6 |
| 23 | | | | 12.4 | 16.7 | 19.0 | 20.4 | 20.7 | 19.0 | 14.0 | 9.0 | 10.3 |
| 24 | | | | 12.1 | 16.7 | 19.2 | 19.2 | 20.6 | 18.8 | 13.7 | 9.6 | 9.0 |
| 25 | | | | 11.2 | 16.7 | 19.2 | 18.7 | 20.6 | 18.3 | 13.3 | 10.7 | 8.5 |
| 26 | | | | 10.9 | 16.4 | 18.8 | 19.1 | 20.9 | 17.9 | 12.9 | 11.7 | 8.6 |
| 27 | | | | 10.4 | 16.1 | 18.6 | 19.5 | 21.3 | 17.6 | 12.1 | 11.8 | 8.7 |
| 28 | | | | 10.5 | 15.8 | 18.4 | 20.2 | 21.6 | 17.5 | 12.8 | 11.7 | 8.1 |
| 29 | | — | | 10.9 | 15.6 | 18.2 | 21.3 | 21.5 | 17.4 | 13.5 | 9.9 | 7.4 |
| 30 | | — | | 12.1 | 15.6 | 18.2 | 22.1 | 21.0 | 17.1 | 14.1 | 6.5 | 4.3 |
| 31 | | — | | — | 16.2 | — | 22.5 | 20.2 | — | 13.9 | — | 2.6 |
| MEAN | | | | | 14.6 | 17.9 | 21.1 | 21.3 | 18.4 | 15.1 | 8.9 | 7.9 |
| MAX | | | | | 16.7 | 19.3 | 22.5 | 22.9 | 19.6 | 17.4 | 13.9 | 11.1 |
| MIN | | | | | 11.9 | 15.5 | 18.7 | 20.0 | 17.1 | 12.1 | 3.1 | 2.6 |

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



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

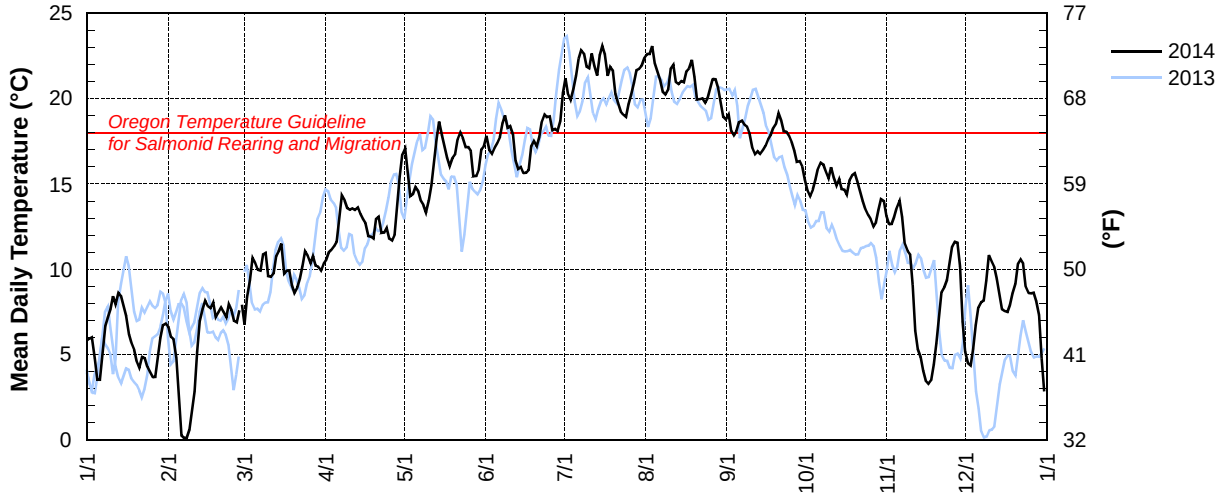
**STATION NUMBER 14206950 FANNO CREEK AT DURHAM, OR**

LATITUDE: 452413 LONGITUDE: 1224513

**Water Temperature, degrees Celsius, Calendar Year January to December 2014 Daily Mean Values**

| Day | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 5.8 | 6.6 | 7.9 | 10.3 | 16.8 | 17.2 | 20.3 | 22.4 | 18.8 | 15.3 | 13.1 | 5.2 |
| **2** | 6.0 | 6.0 | 6.8 | 10.6 | 17.1 | 17.8 | 21.2 | 22.6 | 19.1 | 14.6 | 12.7 | 4.5 |
| **3** | 6.0 | 5.9 | 8.4 | 11.0 | 15.8 | 17.0 | 20.3 | 22.6 | 18.1 | 14.3 | 12.7 | 4.4 |
| **4** | 4.8 | 4.8 | 9.4 | 11.1 | 14.3 | 16.8 | 19.9 | 23.1 | 17.9 | 14.7 | 13.1 | 5.4 |
| **5** | 3.5 | 2.4 | 10.7 | 11.4 | 14.4 | 17.1 | 20.6 | 22.1 | 18.1 | 15.2 | 13.7 | 6.7 |
| **6** | 3.5 | 0.3 | 10.4 | 11.6 | 14.8 | 17.4 | 21.3 | 21.6 | 18.6 | 15.9 | 14.0 | 7.8 |
| **7** | 4.9 | 0.1 | 10.0 | 12.9 | 14.6 | 17.8 | 22.3 | 21.1 | 18.7 | 16.3 | 13.1 | 8.1 |
| **8** | 6.7 | 0.1 | 9.9 | 14.3 | 14.0 | 18.5 | 22.9 | 20.4 | 18.5 | 16.1 | 11.5 | 8.2 |
| **9** | 7.2 | 0.6 | 10.9 | 14.0 | 13.8 | 19.0 | 22.6 | 20.3 | 18.4 | 15.7 | 11.1 | 9.4 |
| **10** | 7.7 | 1.7 | 11.0 | 13.6 | 13.3 | 18.3 | 21.9 | 20.6 | 18.0 | 15.3 | 10.9 | 10.9 |
| **11** | 8.4 | 2.9 | 9.6 | 13.5 | 14.0 | 18.4 | 21.8 | 21.8 | 17.1 | 16.0 | 9.1 | 10.4 |
| **12** | 8.0 | 5.2 | 9.6 | 13.6 | 14.9 | 17.9 | 22.7 | 22.0 | 16.7 | 15.4 | 6.4 | 10.1 |
| **13** | 8.6 | 7.0 | 9.8 | 13.5 | 16.2 | 16.4 | 21.9 | 21.0 | 16.9 | 14.9 | 5.3 | 9.4 |
| **14** | 8.4 | 7.7 | 10.8 | 13.6 | 17.6 | 15.9 | 21.4 | 20.9 | 16.8 | 15.3 | 4.9 | 8.5 |
| **15** | 7.9 | 8.2 | 11.1 | 13.3 | 18.7 | 16.0 | 22.5 | 21.0 | 17.0 | 14.7 | 4.1 | 7.7 |
| **16** | 7.3 | 7.9 | 11.5 | 12.9 | 17.9 | 15.7 | 23.1 | 21.0 | 17.3 | 14.7 | 3.5 | 7.6 |
| **17** | 6.2 | 7.7 | 9.8 | 12.7 | 17.2 | 15.7 | 22.6 | 21.6 | 17.6 | 14.4 | 3.3 | 7.5 |
| **18** | 5.7 | 8.1 | 9.9 | 12.0 | 16.5 | 15.8 | 21.3 | 21.8 | 17.9 | 15.3 | 3.5 | 7.9 |
| **19** | 5.3 | 7.2 | 9.9 | 11.9 | 16.1 | 17.2 | 21.9 | 22.3 | 18.3 | 15.5 | 4.4 | 8.6 |
| **20** | 4.6 | 7.5 | 9.1 | 11.8 | 16.5 | 17.5 | 21.7 | 21.3 | 18.6 | 15.6 | 5.7 | 9.2 |
| **21** | 4.2 | 7.8 | 8.6 | 13.0 | 16.7 | 17.2 | 20.3 | 20.0 | 19.1 | 15.2 | 7.2 | 10.3 |
| **22** | 4.9 | 7.5 | 8.9 | 13.1 | 17.7 | 17.7 | 19.8 | 20.0 | 18.7 | 14.6 | 8.7 | 10.6 |
| **23** | 4.8 | 7.2 | 9.5 | 12.1 | 18.1 | 18.7 | 19.2 | 20.0 | 18.1 | 14.0 | 9.0 | 10.3 |
| **24** | 4.3 | 8.0 | 10.2 | 12.2 | 17.7 | 19.1 | 19.1 | 19.8 | 18.1 | 13.5 | 9.4 | 9.0 |
| **25** | 4.0 | 7.6 | 11.0 | 12.4 | 17.2 | 18.9 | 18.9 | 20.0 | 17.8 | 13.2 | 10.4 | 8.6 |
| **26** | 3.7 | 7.0 | 10.8 | 11.8 | 17.2 | 19.0 | 19.7 | 20.6 | 17.5 | 13.0 | 11.3 | 8.6 |
| **27** | 3.7 | 6.9 | 10.4 | 11.7 | 16.9 | 18.2 | 20.2 | 21.2 | 17.0 | 12.5 | 11.6 | 8.6 |
| **28** | 4.8 | 7.6 | 10.8 | 12.0 | 15.5 | 18.2 | 20.9 | 21.1 | 16.3 | 12.8 | 11.6 | 8.2 |
| **29** | 6.0 | — | 10.2 | 13.8 | 15.5 | 18.1 | 21.7 | 20.6 | 16.3 | 13.5 | 10.2 | 7.3 |
| **30** | 6.7 | — | 10.2 | 15.5 | 15.9 | 18.7 | 21.8 | 19.8 | 16.0 | 14.1 | 6.9 | 4.8 |
| **31** | 6.8 | — | 10.0 | — | 17.0 | — | 21.9 | 18.9 | — | 14.0 | — | 2.9 |
| **MEAN** | 5.8 | 5.6 | 9.9 | 12.6 | 16.1 | 17.6 | 21.2 | 21.1 | 17.8 | 14.7 | 9.1 | 7.9 |
| **MAX** | 8.6 | 8.2 | 11.5 | 15.5 | 18.7 | 19.1 | 23.1 | 23.1 | 19.1 | 16.3 | 14.0 | 10.9 |
| **MIN** | 3.5 | 0.1 | 6.8 | 10.3 | 13.3 | 15.7 | 18.9 | 18.9 | 16.0 | 12.5 | 3.3 | 2.9 |

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



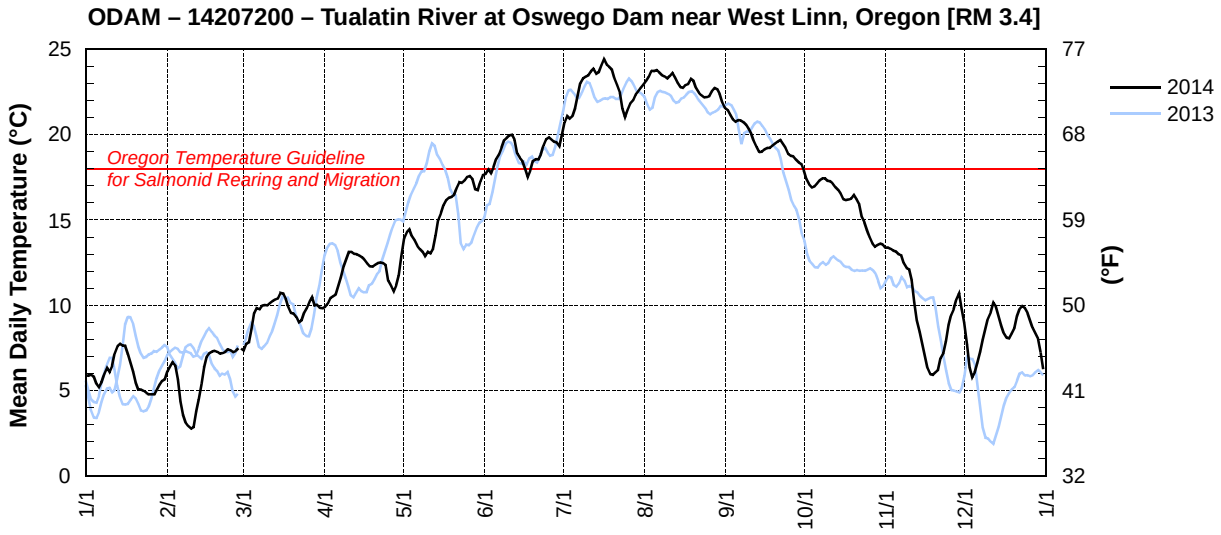
UNITED STATES DEPARTMENT OF THE INTERIOR – GEOLOGICAL SURVEY — OREGON WATER SCIENCE CENTER

**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 2014 Daily Mean Values**

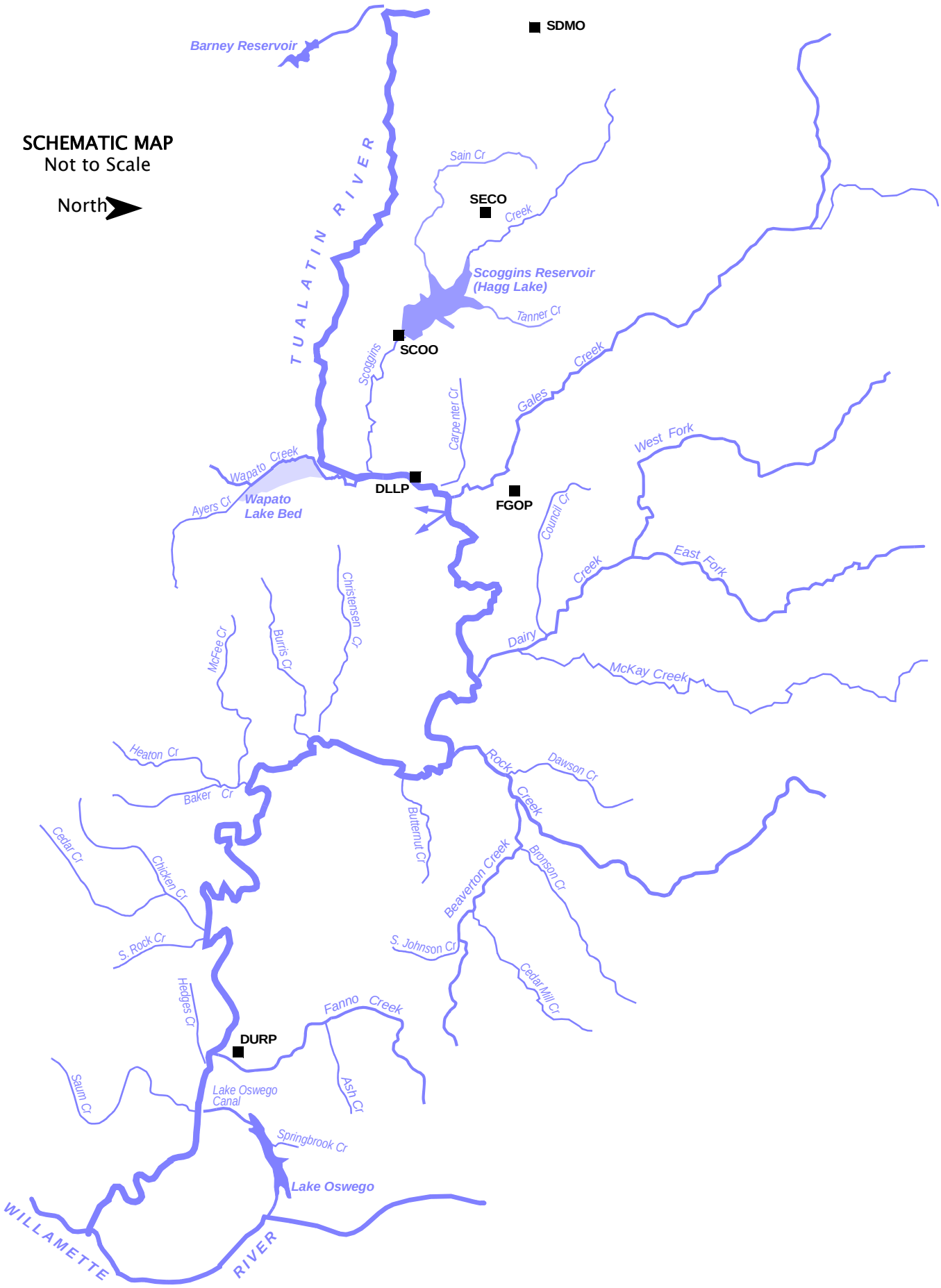
| Day | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 5.9 | 6.1 | 7.5 | 9.8 | 12.9 | 17.7 | 20.0 | 23.0 | 21.6 | 17.9 | 13.4 | 9.0 |
| **2** | 5.9 | 6.4 | 7.4 | 9.9 | 14.0 | 17.7 | 20.7 | 23.2 | 21.4 | 17.4 | 13.4 | 7.7 |
| **3** | 6.0 | 6.7 | 7.7 | 10.1 | 14.3 | 18.0 | 21.1 | 23.4 | 21.2 | 17.1 | 13.3 | 6.4 |
| **4** | 5.8 | 6.5 | 7.8 | 10.4 | 14.5 | 17.8 | 20.9 | 23.7 | 20.9 | 16.9 | 13.2 | 5.8 |
| **5** | 5.4 | 5.7 | 8.6 | 10.6 | 14.0 | 18.1 | 21.1 | 23.7 | 20.8 | 17.0 | 13.1 | 6.1 |
| **6** | 5.2 | 4.4 | 9.5 | 10.6 | 13.8 | 18.6 | 21.6 | 23.8 | 20.9 | 17.1 | 13.0 | 6.6 |
| **7** | 5.5 | 3.6 | 9.9 | 11.1 | 13.5 | 18.8 | 22.3 | 23.6 | 20.8 | 17.3 | 13.0 | 7.3 |
| **8** | 6.0 | 3.1 | 9.8 | 11.6 | 13.3 | 19.3 | 23.0 | 23.5 | 20.8 | 17.5 | 12.5 | 8.0 |
| **9** | 6.4 | 2.9 | 10.0 | 12.3 | 13.2 | 19.7 | 23.3 | 23.4 | 20.6 | 17.5 | 12.2 | 8.6 |
| **10** | 6.1 | 2.8 | 10.0 | 12.7 | 12.9 | 19.8 | 23.4 | 23.3 | 20.3 | 17.3 | 12.1 | 9.2 |
| **11** | 6.5 | 2.9 | 10.0 | 13.1 | 13.2 | 20.0 | 23.5 | 23.5 | 20.0 | 17.3 | 11.5 | 9.6 |
| **12** | 7.2 | 3.8 | 10.1 | 13.1 | 13.1 | 20.0 | 23.7 | 23.6 | 19.6 | 17.1 | 10.2 | 10.2 |
| **13** | 7.6 | 4.5 | 10.3 | 13.0 | 13.3 | 19.7 | 23.9 | 23.3 | 19.3 | 16.9 | 9.1 | 9.9 |
| **14** | 7.8 | 5.4 | 10.4 | 13.0 | 14.1 | 18.9 | 23.6 | 23.0 | 19.0 | 16.8 | 8.5 | 9.4 |
| **15** | 7.6 | 6.4 | 10.4 | 12.9 | 15.0 | 18.7 | 23.7 | 22.8 | 19.0 | 16.5 | 7.7 | 8.9 |
| **16** | 7.6 | 7.0 | 10.7 | 12.8 | 15.4 | 18.5 | 24.1 | 22.7 | 19.2 | 16.2 | 7.0 | 8.3 |
| **17** | 7.1 | 7.2 | 10.7 | 12.7 | 15.9 | 18.0 | 24.4 | 22.9 | 19.2 | 16.2 | 6.4 | 8.1 |
| **18** | 6.6 | 7.3 | 10.4 | 12.5 | 16.2 | 17.5 | 24.1 | 23.0 | 19.2 | 16.2 | 6.0 | 8.1 |
| **19** | 6.1 | 7.3 | 9.9 | 12.3 | 16.3 | 17.9 | 24.0 | 23.3 | 19.4 | 16.3 | 5.9 | 8.4 |
| **20** | 5.5 | 7.3 | 9.6 | 12.3 | 16.4 | 18.5 | 23.8 | 23.2 | 19.5 | 16.5 | 6.1 | 8.7 |
| **21** | 5.1 | 7.2 | 9.5 | 12.4 | 16.5 | 18.6 | 23.3 | 22.7 | 19.6 | 16.2 | 6.2 | 9.4 |
| **22** | 5.1 | 7.2 | 9.3 | 12.5 | 16.9 | 18.5 | 22.9 | 22.5 | 19.7 | 15.9 | 6.9 | 9.8 |
| **23** | 5.0 | 7.3 | 9.0 | 12.5 | 17.2 | 18.9 | 22.5 | 22.3 | 19.5 | 15.2 | 7.2 | 10.0 |
| **24** | 4.9 | 7.4 | 9.1 | 12.5 | 17.2 | 19.4 | 21.5 | 22.2 | 19.2 | 14.9 | 7.9 | 9.8 |
| **25** | 4.8 | 7.4 | 9.6 | 12.4 | 17.3 | 19.7 | 21.0 | 22.2 | 18.9 | 14.4 | 8.8 | 9.5 |
| **26** | 4.8 | 7.3 | 9.8 | 11.5 | 17.5 | 19.9 | 21.5 | 22.3 | 18.8 | 14.0 | 9.4 | 9.1 |
| **27** | 4.8 | 7.3 | 10.2 | 11.1 | 17.6 | 19.7 | 21.8 | 22.6 | 18.7 | 13.6 | 9.8 | 8.7 |
| **28** | 5.1 | 7.5 | 10.5 | 10.8 | 17.4 | 19.6 | 22.0 | 22.8 | 18.5 | 13.4 | 10.4 | 8.4 |
| **29** | 5.4 | — | 10.0 | 11.2 | 16.8 | 19.6 | 22.4 | 22.7 | 18.4 | 13.5 | 10.7 | 8.0 |
| **30** | 5.6 | — | 10.0 | 11.8 | 16.7 | 19.3 | 22.6 | 22.4 | 18.3 | 13.6 | 9.8 | 7.2 |
| **31** | 5.7 | — | 9.9 | — | 17.3 | — | 22.7 | 21.9 | — | 13.6 | — | 6.3 |
| **MEAN** | 5.9 | 5.9 | 9.6 | 11.8 | 15.3 | 18.9 | 22.6 | 23.0 | 19.7 | 16.0 | 9.8 | 8.4 |
| **MAX** | 7.8 | 7.5 | 10.7 | 13.1 | 17.6 | 20.0 | 24.4 | 23.8 | 21.6 | 17.9 | 13.4 | 10.2 |
| **MIN** | 4.8 | 2.8 | 7.4 | 9.8 | 12.9 | 17.5 | 20.0 | 21.9 | 18.3 | 13.4 | 5.9 | 5.8 |



# Appendix H

# Precipitation Data

# PRECIPITATION MONITORING STATIONS — LOCATIONS



## PRECIPITATION SITES — ALPHABETICAL LISTING BY SITE CODE

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

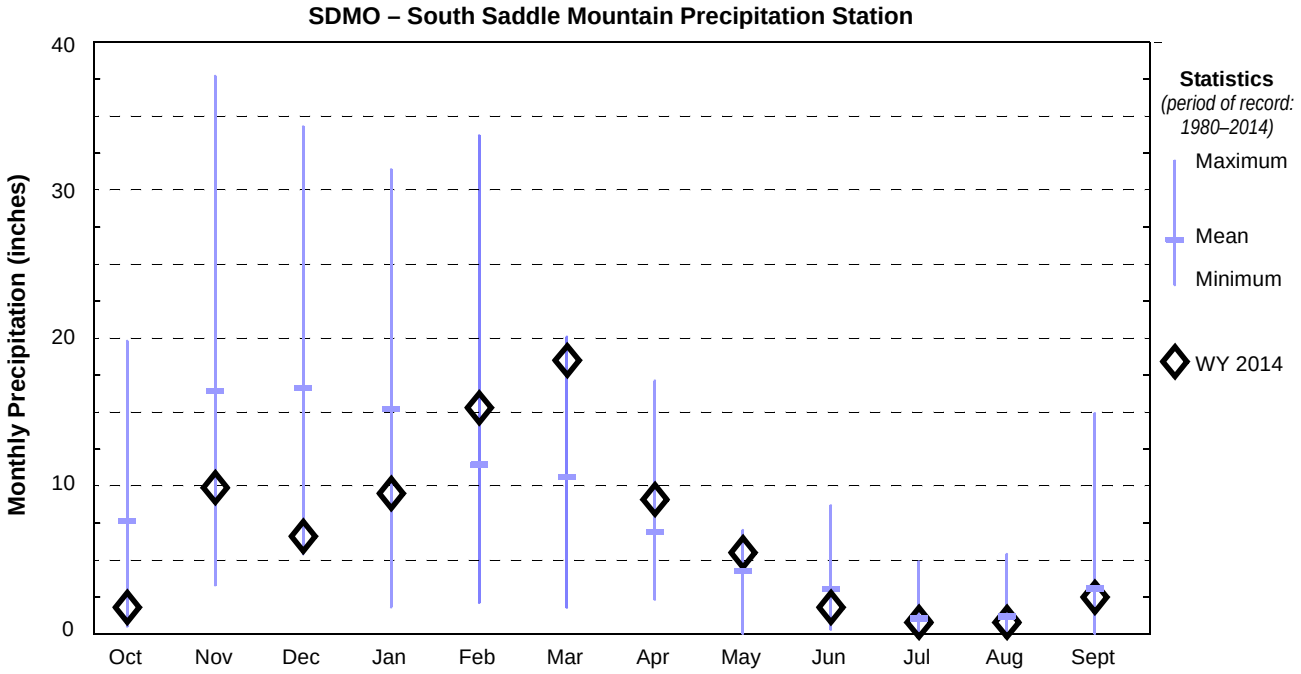
## SDMO – SOUTH SADDLE MOUNTAIN PRECIPITATION STATION

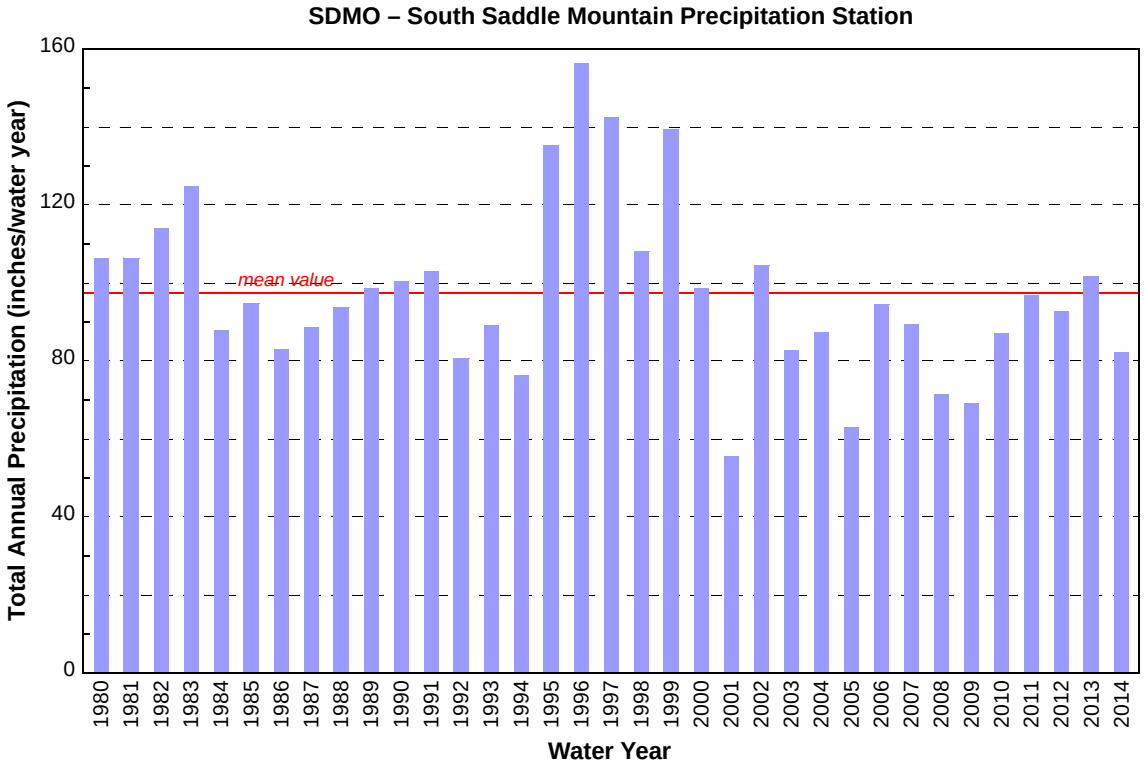
Elevation: 3250 ft
Latitude: 45 31 48 Longitude: 123 22 12

Source Agency: Natural Resources Conservation Service
http://www.wcc.nrcs.usda.gov/cgibin/tab.pl?state=OR

| Water Year* | Total Monthly Precipitation (inches) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| **1980** | 10.8 | 7.5 | 19.2 | 19.3 | 11.2 | 10.1 | 6.5 | 6.4 | 8.7 | 1.0 | 0.6 | 4.9 |
| **1981** | 4.2 | 19.3 | 26.8 | 5.2 | 18.6 | 7.5 | 7.9 | 4.1 | 7.2 | 0.4 | 0.7 | 4.4 |
| **1982** | 13.0 | 14.9 | 26.6 | 19.3 | 17.2 | 7.5 | 7.2 | 0.0 | 2.0 | 1.1 | 1.9 | 3.3 |
| **1983** | 13.4 | 16.7 | 21.5 | 17.3 | 15.2 | 11.5 | 7.1 | 4.3 | 4.7 | 4.9 | 3.4 | 4.7 |
| **1984** | 1.7 | 23.3 | 11.8 | 8.3 | 12.6 | 8.1 | 6.3 | 6.4 | 3.8 | 0.6 | 1.1 | 3.8 |
| **1985** | 11.4 | 28.6 | 12.9 | 1.8 | 10.2 | 11.8 | 4.8 | 1.5 | 4.3 | 0.2 | 1.4 | 5.9 |
| **1986** | 12.2 | 11.1 | 5.4 | 15.8 | 13.4 | 7.2 | 5.7 | 3.2 | 1.1 | 1.4 | 0.2 | 6.2 |
| **1987** | 5.3 | 20.2 | 11.1 | 17.1 | 7.7 | 16.0 | 2.3 | 4.9 | 1.1 | 1.7 | 0.2 | 0.9 |
| **1988** | 0.7 | 10.8 | 22.2 | 14.1 | 9.6 | 15.0 | 7.8 | 6.1 | 2.4 | 2.0 | 0.3 | 2.7 |
| **1989** | 2.5 | 28.5 | 11.4 | 14.9 | 10.2 | 17.4 | 5.3 | 2.8 | 1.7 | 1.9 | 2.0 | 0.0 |
| **1990** | 5.8 | 9.6 | 8.6 | 31.4 | 20.8 | 7.0 | 6.4 | 3.3 | 4.9 | 0.4 | 0.8 | 1.5 |
| **1991** | 11.4 | 18.7 | 10.0 | 12.7 | 12.7 | 12.1 | 15.3 | 4.4 | 2.7 | 1.0 | 1.2 | 0.6 |
| **1992** | 2.8 | 14.4 | 11.8 | 19.1 | 8.8 | 1.8 | 10.5 | 2.4 | 1.2 | 1.4 | 1.1 | 5.3 |
| **1993** | 6.8 | 13.8 | 16.2 | 10.8 | 3.3 | 12.4 | 13.7 | 6.4 | 3.2 | 1.6 | 0.9 | 0.0 |
| **1994** | 2.7 | 3.3 | 18.8 | 11.0 | 15.2 | 9.3 | 5.5 | 3.6 | 4.2 | 0.9 | 0.5 | 1.2 |
| **1995** | 14.7 | 20.9 | 31.0 | 19.7 | 13.5 | 14.8 | 6.8 | 1.5 | 4.3 | 3.0 | 1.3 | 3.7 |
| **1996** | 8.5 | 34.8 | 21.7 | 21.2 | 32.6 | 6.0 | 17.1 | 6.4 | 2.0 | 1.2 | 1.0 | 3.7 |
| **1997** | 11.6 | 16.9 | 34.3 | 17.2 | 7.3 | 20.1 | 8.3 | 5.9 | 5.3 | 2.1 | 2.6 | 10.7 |
| **1998** | 19.8 | 15.3 | 9.3 | 24.2 | 14.7 | 10.4 | 3.3 | 6.1 | 1.6 | 0.2 | 0.4 | 2.7 |
| **1999** | 7.7 | 25.9 | 28.7 | 20.3 | 33.7 | 12.9 | 2.8 | 5.0 | 0.9 | 0.2 | 1.3 | 0.0 |
| **2000** | 6.1 | 23.6 | 18.6 | 17.7 | 10.1 | 6.3 | 2.9 | 4.9 | 6.0 | 0.1 | 0.6 | 1.6 |
| **2001** | 4.3 | 5.6 | 9.2 | 5.5 | 4.8 | 6.2 | 6.1 | 5.2 | 3.3 | 1.4 | 3.1 | 0.7 |
| **2002** | 6.6 | 23.0 | 20.3 | 21.7 | 7.5 | 10.7 | 7.6 | 2.9 | 3.6 | 0.2 | 0.3 | 0.1 |
| **2003** | 0.5 | 5.8 | 17.2 | 21.5 | 5.4 | 19.5 | 7.5 | 2.3 | 0.3 | 0.3 | 0.4 | 1.9 |
| **2004** | 9.4 | 12.1 | 13.5 | 15.0 | 8.7 | 5.4 | 4.4 | 4.9 | 2.7 | 0.1 | 5.4 | 5.7 |
| **2005** | 7.4 | 5.0 | 10.9 | 9.3 | 2.1 | 11.0 | 6.5 | 5.8 | 2.2 | 1.0 | 0.4 | 1.4 |
| **2006** | 9.4 | 12.4 | 18.2 | 29.8 | 6.1 | 7.3 | 3.5 | 3.0 | 2.0 | 0.7 | 0.0 | 2.1 |
| **2007** | 1.9 | 37.7 | 15.1 | 9.0 | 10.3 | 4.9 | 3.7 | 0.5 | 2.0 | 0.9 | 1.1 | 2.1 |
| **2008** | 7.7 | 9.5 | 21.9 | 11.5 | 4.7 | 7.6 | 4.9 | 1.1 | 2.3 | 0.3 | 2.4 | 0.0 |
| **2009** | 6.6 | 11.9 | 10.7 | 11.5 | 4.4 | 7.1 | 4.8 | 7.0 | 0.8 | 0.5 | 1.3 | 2.4 |
| **2010** | 7.8 | 15.5 | 9.2 | 14.5 | 8.5 | 9.7 | 7.2 | 4.8 | 5.0 | 0.5 | 0.5 | 3.8 |
| **2011** | 9.1 | 14.1 | 19.1 | 12.3 | 8.2 | 13.8 | 10.0 | 5.1 | 1.7 | 1.3 | 0.1 | 1.8 |
| **2012** | 5.8 | 14.6 | 12.2 | 17.3 | 9.6 | 18.0 | 5.9 | 5.0 | 3.7 | 0.2 | 0.0 | 0.3 |
| **2013** | 14.8 | 19.4 | 19.4 | 4.8 | 5.9 | 5.6 | 6.1 | 6.5 | 2.0 | 0.3 | 1.9 | 14.9 |
| **2014** | 1.8 | 9.9 | 6.6 | 9.5 | 15.3 | 18.5 | 9.1 | 5.5 | 1.8 | 0.8 | 0.8 | 2.5 |
| **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 | 14.9 |
| **MEAN** | 7.61 | 16.42 | 16.61 | 15.19 | 11.43 | 10.59 | 6.88 | 4.26 | 3.05 | 1.03 | 1.18 | 3.07 |

*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: 1980–2014)
Maximum
Mean
Minimum
WY 2014


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
2012
2013
2014
Water Year

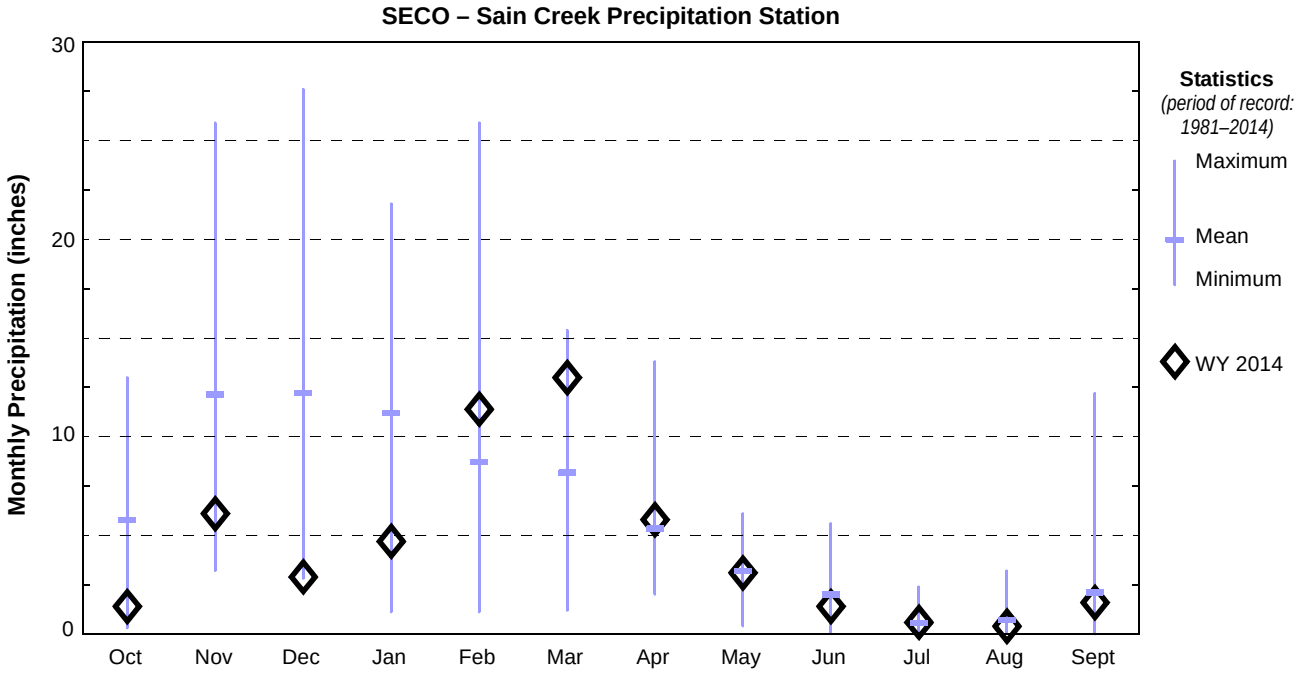
## SECO – SAIN CREEK PRECIPITATION STATION

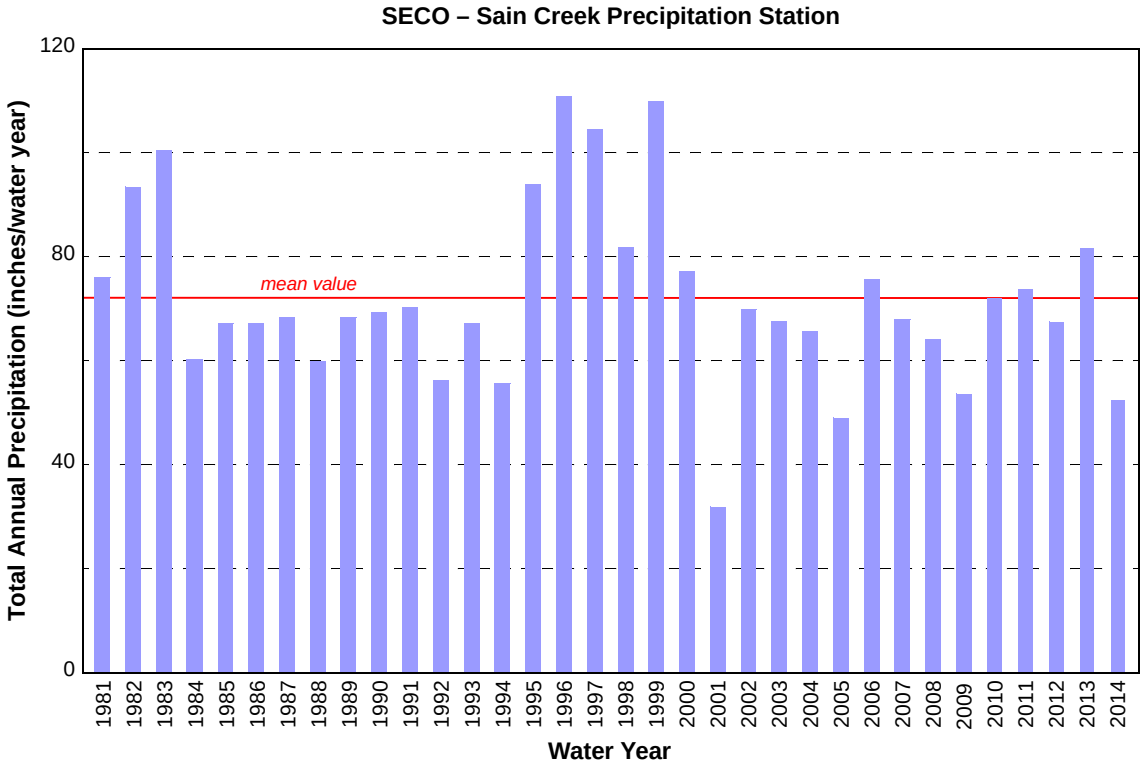
Elevation: 2000 ft
Latitude: 45 31 12 Longitude: 123 16 48

Source Agency: Natural Resources Conservation Service
http://www.wcc.nrcs.usda.gov/cgibin/tab.pl?state=OR

| Water Year* | Total Monthly Precipitation (inches) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| **1981** | 2.3 | 13.5 | 17.8 | 5.8 | 12.8 | 5.3 | 6.0 | 3.6 | 5.6 | 0.0 | 0.2 | 3.0 |
| **1982** | 10.3 | 11.8 | 20.8 | 13.2 | 14.9 | 7.9 | 6.4 | 0.7 | 2.0 | 1.1 | 1.9 | 2.4 |
| **1983** | 11.1 | 11.4 | 17.0 | 15.5 | 17.3 | 14.5 | 6.3 | 2.5 | 3.1 | 1.6 | 0.0 | 0.1 |
| **1984** | 1.4 | 16.7 | 3.5 | 3.5 | 12.1 | 9.1 | 2.5 | 5.3 | 3.3 | 0.0 | 0.0 | 2.8 |
| **1985** | 10.4 | 22.6 | 7.0 | 1.1 | 4.0 | 7.9 | 4.3 | 1.4 | 3.5 | 0.1 | 1.6 | 3.2 |
| **1986** | 9.3 | 4.9 | 2.8 | 13.2 | 15.1 | 2.9 | 5.2 | 6.1 | 0.2 | 1.0 | 0.2 | 6.3 |
| **1987** | 4.5 | 15.3 | 8.4 | 12.4 | 6.4 | 12.3 | 3.6 | 3.3 | 0.4 | 1.2 | 0.2 | 0.3 |
| **1988** | 0.7 | 6.8 | 15.8 | 12.2 | 2.8 | 9.1 | 4.4 | 4.0 | 2.0 | 0.7 | 0.0 | 1.4 |
| **1989** | 1.3 | 21.5 | 7.4 | 9.1 | 7.3 | 11.6 | 3.7 | 1.7 | 1.9 | 0.9 | 1.7 | 0.1 |
| **1990** | 4.5 | 6.2 | 5.8 | 21.8 | 14.5 | 6.4 | 3.2 | 2.6 | 2.5 | 0.3 | 0.7 | 0.8 |
| **1991** | 8.4 | 10.9 | 6.1 | 7.4 | 9.1 | 8.3 | 12.9 | 2.8 | 2.1 | 0.8 | 0.8 | 0.5 |
| **1992** | 2.5 | 9.7 | 8.4 | 12.2 | 6.7 | 1.2 | 9.2 | 1.1 | 1.1 | 0.6 | 0.4 | 3.1 |
| **1993** | 5.0 | 9.3 | 11.9 | 8.9 | 2.0 | 8.8 | 9.9 | 5.7 | 2.7 | 2.4 | 0.5 | 0.0 |
| **1994** | 1.7 | 4.5 | 12.7 | 8.5 | 10.7 | 5.9 | 4.2 | 3.1 | 2.4 | 0.1 | 0.2 | 1.6 |
| **1995** | 13.0 | 13.4 | 16.6 | 16.0 | 9.3 | 11.2 | 5.2 | 1.9 | 2.9 | 1.1 | 0.8 | 2.5 |
| **1996** | 6.6 | 24.6 | 15.7 | 15.3 | 21.9 | 3.4 | 13.8 | 4.8 | 1.4 | 0.4 | 0.4 | 2.6 |
| **1997** | 8.4 | 12.7 | 27.6 | 13.3 | 4.7 | 13.7 | 5.6 | 4.8 | 3.4 | 0.4 | 1.9 | 8.1 |
| **1998** | 13.0 | 12.0 | 6.4 | 19.8 | 12.0 | 8.5 | 2.5 | 5.1 | 0.8 | 0.0 | 0.2 | 1.5 |
| **1999** | 5.6 | 20.5 | 22.3 | 16.1 | 25.9 | 11.1 | 2.0 | 4.0 | 1.0 | 0.2 | 1.2 | 0.0 |
| **2000** | 4.6 | 18.3 | 15.4 | 13.5 | 8.5 | 5.3 | 2.6 | 3.8 | 4.0 | 0.0 | 0.2 | 0.9 |
| **2001** | 2.9 | 3.7 | 6.4 | 3.2 | 3.1 | 3.7 | 3.7 | 2.4 | 1.1 | 0.3 | 1.2 | 0.2 |
| **2002** | 3.8 | 16.7 | 13.3 | 14.9 | 5.1 | 6.6 | 5.1 | 2.0 | 2.0 | 0.1 | 0.0 | 0.3 |
| **2003** | 0.3 | 7.8 | 16.5 | 15.8 | 4.3 | 14.1 | 5.9 | 1.4 | 0.0 | 0.0 | 0.0 | 1.5 |
| **2004** | 5.8 | 7.3 | 12.0 | 12.2 | 7.6 | 3.9 | 4.7 | 2.3 | 2.0 | 0.2 | 3.2 | 4.4 |
| **2005** | 5.6 | 3.2 | 8.3 | 8.4 | 1.1 | 8.5 | 4.9 | 5.3 | 2.5 | 0.4 | 0.2 | 0.6 |
| **2006** | 9.1 | 10.4 | 14.7 | 21.8 | 3.7 | 6.9 | 3.3 | 3.1 | 1.5 | 0.2 | 0.0 | 0.9 |
| **2007** | 1.8 | 25.9 | 12.0 | 6.1 | 9.5 | 4.0 | 3.2 | 0.4 | 1.1 | 1.2 | 0.9 | 1.9 |
| **2008** | 4.7 | 7.5 | 20.0 | 11.2 | 5.0 | 7.5 | 4.5 | 0.5 | 0.6 | 0.6 | 1.9 | 0.0 |
| **2009** | 5.8 | 7.4 | 11.3 | 7.9 | 3.0 | 5.9 | 2.9 | 5.3 | 0.8 | 0.0 | 1.3 | 2.0 |
| **2010** | 6.2 | 12.5 | 7.7 | 13.0 | 7.2 | 8.2 | 6.7 | 3.3 | 4.1 | 0.1 | 0.2 | 2.7 |
| **2011** | 7.0 | 10.1 | 16.1 | 7.3 | 6.6 | 12.3 | 7.7 | 2.6 | 1.4 | 1.4 | 0.0 | 1.3 |
| **2012** | 4.8 | 10.2 | 7.7 | 13.4 | 6.5 | 15.4 | 4.0 | 2.7 | 2.0 | 0.1 | 0.3 | 0.3 |
| **2013** | 12.3 | 16.8 | 16.6 | 2.1 | 4.0 | 3.5 | 5.3 | 5.9 | 1.2 | 0.2 | 1.5 | 12.2 |
| **2014** | 1.4 | 6.1 | 2.9 | 4.7 | 11.4 | 13.0 | 5.8 | 3.1 | 1.4 | 0.6 | 0.4 | 1.6 |
| **MIN** | 0.3 | 3.2 | 2.8 | 1.1 | 1.1 | 1.2 | 2.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| **MAX** | 13.0 | 25.9 | 27.6 | 21.8 | 25.9 | 15.4 | 13.8 | 6.1 | 5.6 | 2.4 | 3.2 | 12.2 |
| **MEAN** | 5.77 | 12.12 | 12.20 | 11.20 | 8.71 | 8.17 | 5.33 | 3.19 | 2.00 | 0.54 | 0.71 | 2.09 |

*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:
1981–2014)
Maximum
Mean
Minimum
WY 2014


SECO – Sain Creek Precipitation Station
Total Annual Precipitation (inches/water year)
120
80
40
0
mean value
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Water Year

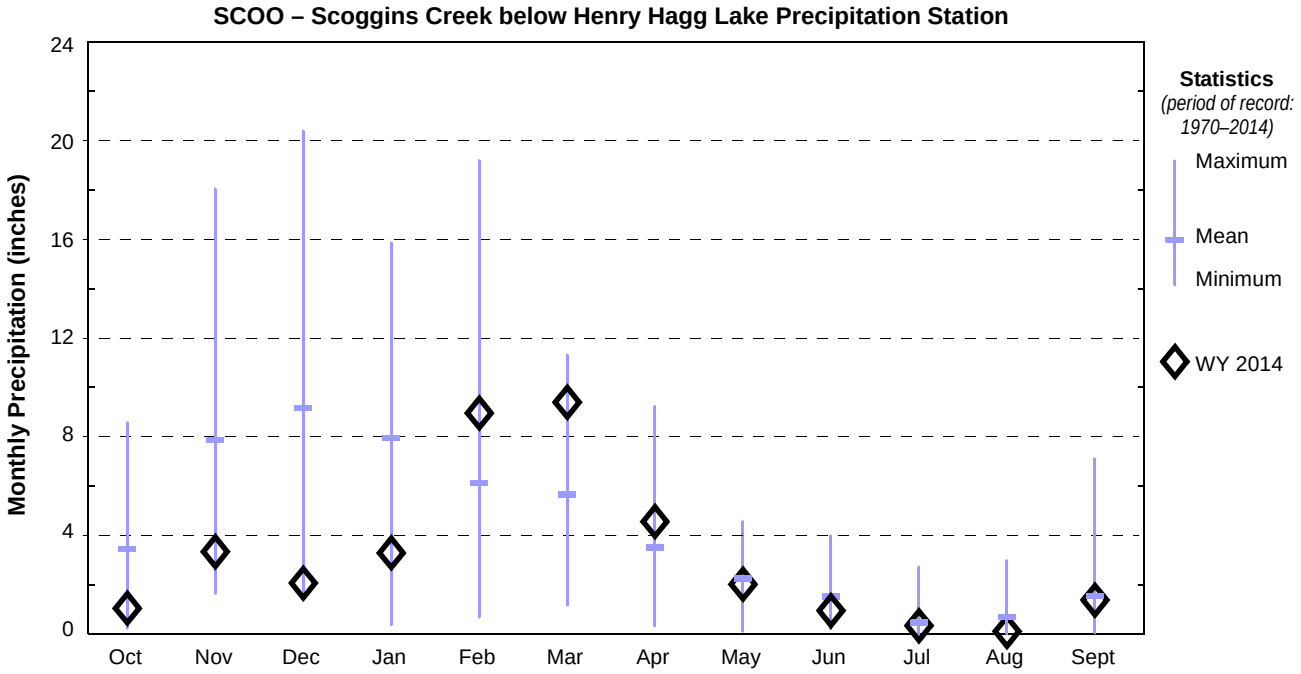
## SCOO – SCOGGINS CREEK BELOW HENRY HAGG LAKE PRECIPITATION STATION

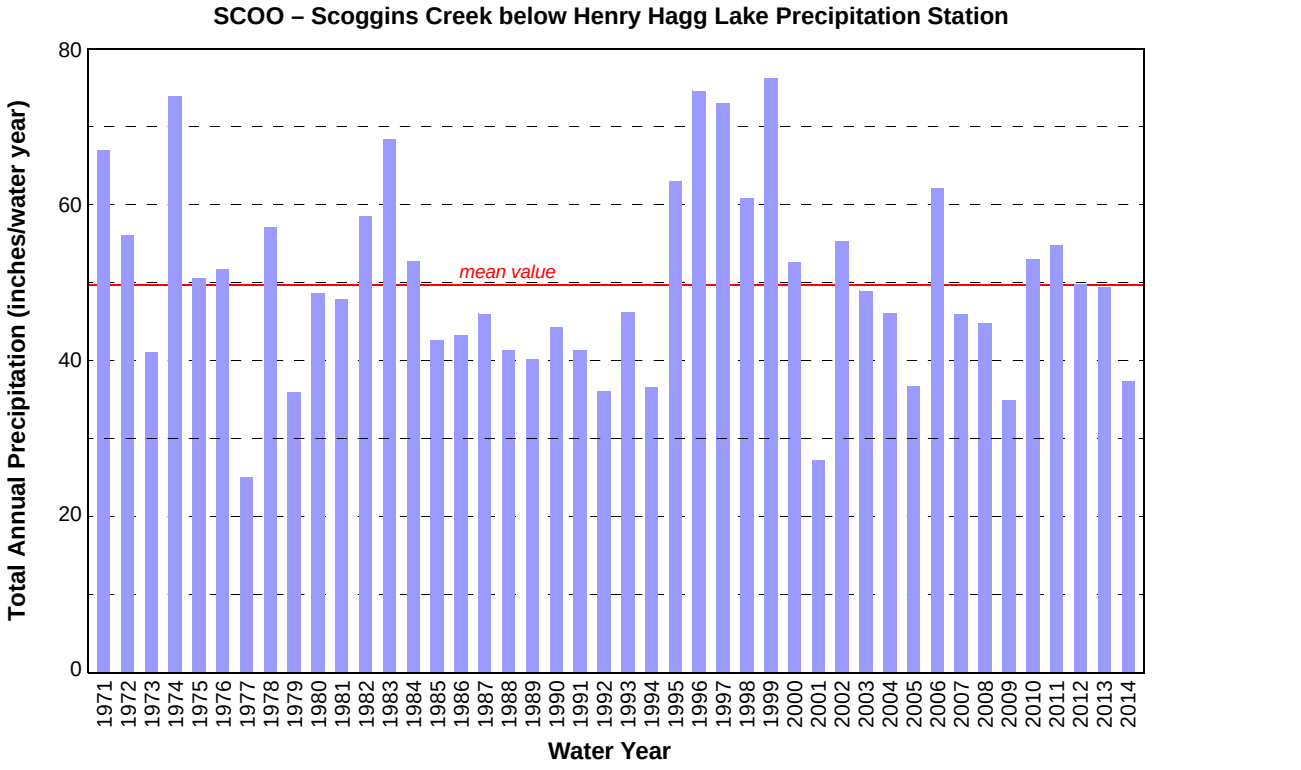
Elevation: 187.5 ft
Latitude: 45 28 10 Longitude: 123 11 56

Source Agency: Tualatin Valley Irrigation District
data not available online

| Water Year* | Total Monthly Precipitation (inches) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| **1970** | | | 8.53 | 15.85 | 6.30 | 3.47 | 3.49 | 1.27 | 0.77 | 0.01 | 0.00 | 1.10 |
| **1971** | 4.40 | 6.86 | 16.85 | 10.82 | 5.60 | 10.30 | 3.96 | 1.54 | 2.03 | 0.14 | 0.52 | 3.92 |
| **1972** | 4.02 | 8.68 | 12.12 | 10.20 | 5.05 | 6.79 | 3.92 | 0.92 | 0.58 | 0.28 | 0.25 | 3.12 |
| **1973** | 0.72 | 6.31 | 12.28 | 6.44 | 2.36 | 3.75 | 2.15 | 1.19 | 1.37 | 0.04 | 0.86 | 3.54 |
| **1974** | 3.82 | 18.05 | 14.64 | 12.46 | 7.92 | 9.31 | 3.98 | 1.31 | 0.86 | 1.38 | 0.02 | 0.06 |
| **1975** | 1.33 | 8.02 | 9.94 | 10.45 | 8.11 | 5.71 | 2.00 | 2.12 | 0.67 | 0.47 | 1.72 | 0.03 |
| **1976** | 6.69 | 6.38 | 9.50 | 7.68 | 8.25 | 5.98 | 1.81 | 1.63 | 0.48 | 0.70 | 1.80 | 0.69 |
| **1977** | 1.26 | 1.65 | 1.54 | 1.05 | 3.37 | 5.33 | 0.32 | 2.50 | 1.11 | 0.41 | 2.99 | 3.42 |
| **1978** | 2.76 | 8.11 | 13.47 | 7.92 | 6.66 | 2.47 | 5.04 | 2.95 | 1.00 | 0.65 | 2.11 | 3.94 |
| **1979** | 0.81 | 4.29 | 3.77 | 3.16 | 9.75 | 3.30 | 2.83 | 2.99 | 0.68 | 0.15 | 1.71 | 2.42 |
| **1980** | 6.69 | 4.25 | 9.21 | 8.30 | 7.13 | 4.09 | 4.38 | 1.10 | 1.81 | 0.22 | 0.05 | 1.37 |
| **1981** | 1.76 | 8.71 | 11.80 | 3.60 | 6.07 | 3.22 | 2.88 | 2.67 | 3.14 | 0.08 | 0.06 | 3.77 |
| **1982** | 5.55 | 6.77 | 13.00 | 7.21 | 8.43 | 4.85 | 6.45 | 0.51 | 1.41 | 0.37 | 1.46 | 2.49 |
| **1983** | 5.82 | 6.90 | 13.00 | 8.13 | 13.46 | 9.93 | 2.88 | 1.54 | 2.10 | 2.73 | 1.19 | 0.67 |
| **1984** | 1.34 | 15.16 | 7.91 | 3.09 | 7.92 | 4.81 | 4.05 | 3.95 | 3.34 | 0.00 | 0.00 | 1.13 |
| **1985** | 5.16 | 14.86 | 4.88 | 0.37 | 4.03 | 5.22 | 1.50 | 0.73 | 2.58 | 0.41 | 0.68 | 2.17 |
| **1986** | 4.48 | 4.55 | 2.93 | 9.23 | 8.42 | 4.13 | 2.57 | 2.65 | 0.59 | 1.07 | 0.00 | 2.60 |
| **1987** | 3.43 | 7.85 | 5.96 | 8.19 | 6.67 | 8.51 | 1.80 | 2.10 | 0.31 | 0.79 | 0.11 | 0.23 |
| **1988** | 0.23 | 3.09 | 12.51 | 9.46 | 1.67 | 4.50 | 3.32 | 2.78 | 2.59 | 0.15 | 0.09 | 0.89 |
| **1989** | 0.27 | 12.19 | 4.64 | 4.61 | 4.59 | 8.21 | 1.26 | 1.63 | 0.89 | 0.48 | 0.83 | 0.55 |
| **1990** | 2.74 | 4.39 | 3.52 | 13.00 | 8.87 | 2.60 | 2.20 | 3.01 | 2.02 | 0.26 | 1.18 | 0.49 |
| **1991** | 4.35 | 4.49 | 3.87 | 4.69 | 4.72 | 5.38 | 9.03 | 2.29 | 1.44 | 0.22 | 0.54 | 0.23 |
| **1992** | 1.80 | 6.31 | 5.74 | 7.72 | 4.66 | 1.16 | 5.63 | 0.09 | 0.71 | 0.42 | 0.35 | 1.47 |
| **1993** | 2.84 | 5.94 | 8.85 | 6.25 | 1.21 | 5.40 | 6.71 | 3.95 | 2.26 | 2.59 | 0.17 | 0.04 |
| **1994** | 1.21 | 1.92 | 9.97 | 6.47 | 7.71 | 3.41 | 2.49 | 0.96 | 1.30 | 0.00 | 0.13 | 0.98 |
| **1995** | 4.94 | 9.30 | 11.54 | 12.00 | 5.36 | 7.88 | 4.53 | 1.47 | 2.44 | 0.58 | 1.01 | 1.89 |
| **1996** | 3.70 | 12.24 | 12.17 | 11.53 | 13.61 | 2.81 | 9.23 | 4.49 | 1.59 | 0.58 | 0.34 | 2.32 |
| **1997** | 5.44 | 8.73 | 20.40 | 10.71 | 2.98 | 9.22 | 3.38 | 2.68 | 3.34 | 0.29 | 1.28 | 4.52 |
| **1998** | 8.57 | 9.32 | 4.41 | 14.18 | 9.08 | 6.26 | 2.31 | 4.56 | 0.96 | 0.24 | 0.00 | 0.91 |
| **1999** | 4.51 | 15.20 | 13.27 | 11.84 | 19.20 | 6.25 | 1.77 | 2.15 | 0.93 | 0.08 | 0.96 | 0.06 |
| **2000** | 3.13 | 12.68 | 9.50 | 9.02 | 6.51 | 4.08 | 1.40 | 2.94 | 2.26 | 0.03 | 0.19 | 0.81 |
| **2001** | 3.24 | 3.08 | 5.11 | 2.30 | 2.36 | 3.05 | 2.19 | 2.20 | 1.79 | 0.23 | 1.12 | 0.52 |
| **2002** | 3.28 | 12.10 | 11.86 | 11.36 | 4.11 | 5.84 | 2.79 | 1.58 | 1.46 | 0.13 | 0.19 | 0.57 |
| **2003** | 0.73 | 4.37 | 13.26 | 9.33 | 4.20 | 9.29 | 5.17 | 0.86 | 0.20 | 0.01 | 0.62 | 0.86 |
| **2004** | 3.34 | 5.26 | 9.92 | 8.84 | 5.96 | 3.11 | 3.12 | 1.63 | 0.90 | 0.00 | 2.01 | 2.00 |
| **2005** | 4.60 | 2.75 | 4.95 | 4.92 | 0.70 | 7.73 | 3.34 | 4.52 | 1.99 | 0.38 | 0.39 | 0.38 |
| **2006** | 5.54 | 8.57 | 12.92 | 15.72 | 4.10 | 6.13 | 3.63 | 2.96 | 1.53 | 0.15 | 0.00 | 0.75 |
| **2007** | 0.83 | 17.64 | 7.76 | 4.37 | 6.42 | 2.79 | 2.15 | 0.90 | 0.76 | 0.69 | 0.58 | 0.99 |
| **2008** | 3.91 | 4.68 | 13.42 | 8.69 | 3.30 | 5.03 | 2.50 | 0.92 | 1.25 | 0.02 | 0.98 | 0.09 |
| **2009** | 2.89 | 6.29 | 4.58 | 6.36 | 2.20 | 4.13 | 1.99 | 3.95 | 0.76 | 0.21 | 0.66 | 0.82 |
| **2010** | 3.73 | 8.95 | 5.11 | 10.29 | 5.16 | 5.72 | 5.79 | 3.20 | 3.04 | 0.36 | 0.05 | 1.54 |
| **2011** | 4.53 | 7.24 | 12.96 | 4.99 | 4.78 | 9.67 | 5.35 | 2.96 | 0.78 | 1.11 | 0.00 | 0.35 |
| **2012** | 2.29 | 8.12 | 3.93 | 9.33 | 4.53 | 11.32 | 2.99 | 2.94 | 3.98 | 0.25 | 0.02 | 0.04 |
| **2013** | 6.95 | 9.95 | 11.78 | 1.19 | 2.35 | 2.61 | 1.93 | 3.79 | 0.94 | 0.00 | 0.79 | 7.10 |
| **2014** | 1.04 | 3.33 | 2.06 | 3.28 | 8.96 | 9.39 | 4.56 | 2.01 | 0.94 | 0.33 | 0.10 | 1.37 |
| **MIN** | 0.23 | 1.65 | 1.54 | 0.37 | 0.70 | 1.16 | 0.32 | 0.09 | 0.20 | 0.00 | 0.00 | 0.03 |
| **MAX** | 8.57 | 18.05 | 20.40 | 15.85 | 19.20 | 11.32 | 9.23 | 4.56 | 3.98 | 2.73 | 2.99 | 7.10 |
| **MEAN** | 3.42 | 7.85 | 9.14 | 7.92 | 6.11 | 5.65 | 3.48 | 2.25 | 1.51 | 0.44 | 0.67 | 1.54 |

*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)
24
20
16
12
8
4
0
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
Statistics
(period of record: 1970–2014)
Maximum
Mean
Minimum
WY 2014


SCOO – Scoggins Creek below Henry Hagg Lake Precipitation Station
Total Annual Precipitation (inches/water year)
80
60
40
20
0
mean value
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Water Year

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

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

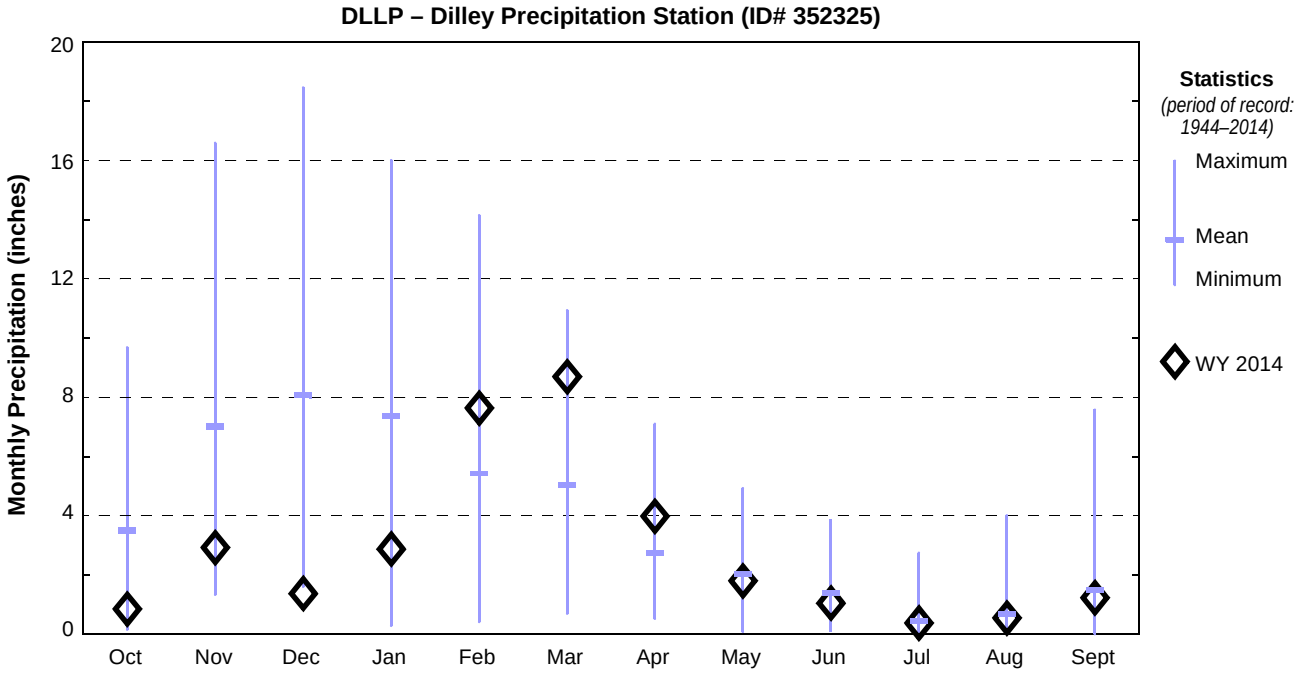
Source Agency: Western Climatic Data Center
www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?or2325

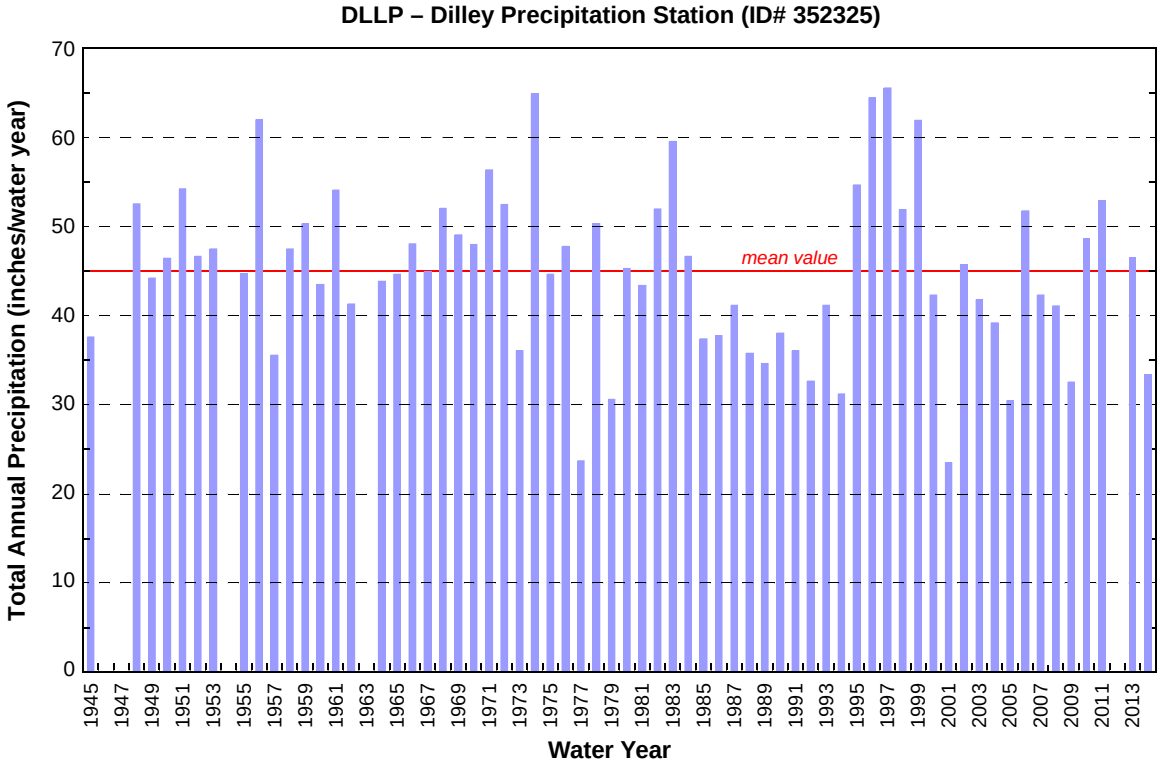
| Water Year* | Total Monthly Precipitation (inches) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| **1944** | | | 4.08 | 5.12 | 3.98 | 3.22 | 3.93 | 0.94 | 0.74 | 1.06 | 0.20 | 2.80 |
| **1945**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

## 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 |
| **2011** | 4.00 | 7.00 | 13.55 | 5.63 | 4.36 | 8.93 | 4.62 | 2.47 | 0.84 | 0.98 | 0.07 | 0.42 |
| **2012** | 2.56 | 8.00 | | | | 10.95 | 2.54 | 2.3 | 2.48 | 0.41 | 0.07 | 0.04 |
| **2013** | 5.85 | 8.87 | 11.15 | 1.49 | 2.17 | 2.38 | 1.66 | 3.66 | 1.17 | 0.00 | 0.54 | 7.57 |
| **2014** | 0.85 | 2.92 | 1.37 | 2.87 | 7.64 | 8.69 | 3.98 | 1.80 | 1.05 | 0.37 | 0.54 | 1.23 |
| **MIN** | 0.14 | 1.32 | 1.60 | 0.27 | 0.41 | 0.69 | 0.51 | 0.07 | 0.07 | 0.00 | 0.00 | 0.00 |
| **MAX** | 9.68 | 16.59 | 18.46 | 16.01 | 14.15 | 10.95 | 7.09 | 4.92 | 3.88 | 2.74 | 4.01 | 7.57 |
| **MEAN** | 3.48 | 7.01 | 8.05 | 7.36 | 5.43 | 5.03 | 2.72 | 2.02 | 1.38 | 0.44 | 0.67 | 1.48 |

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



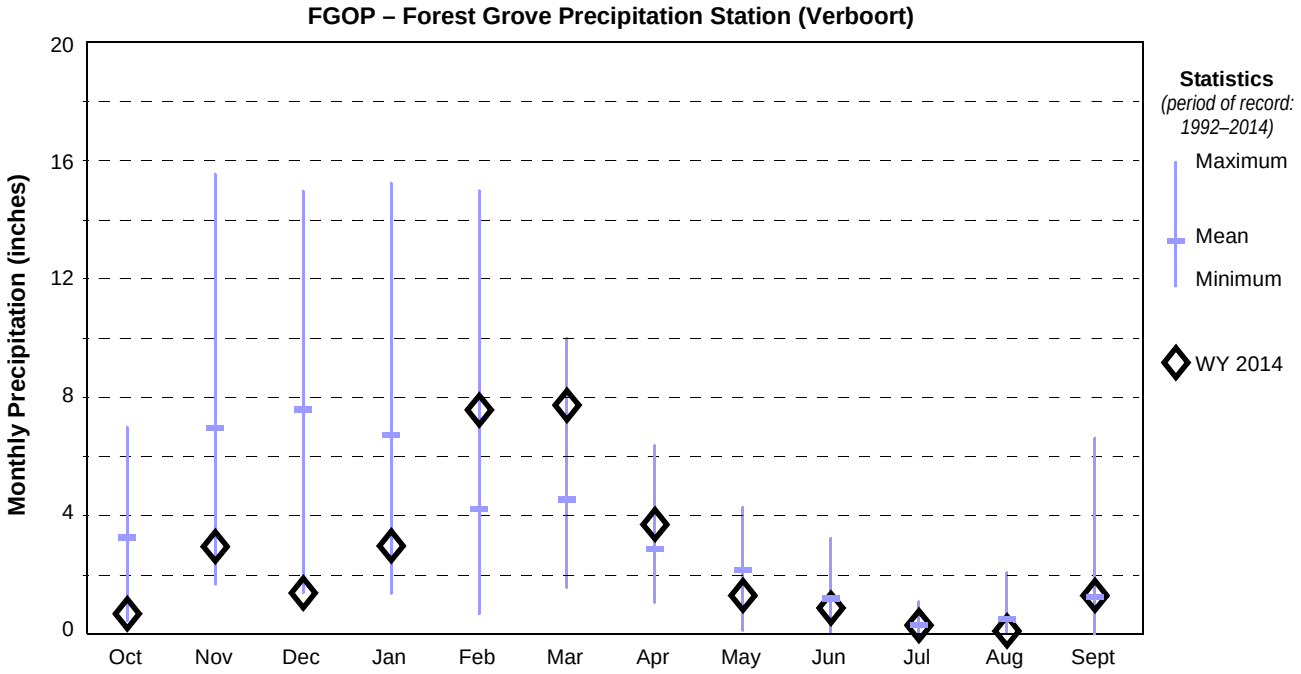
## FGOP – FOREST GROVE PRECIPITATION STATION (VERBOORT)

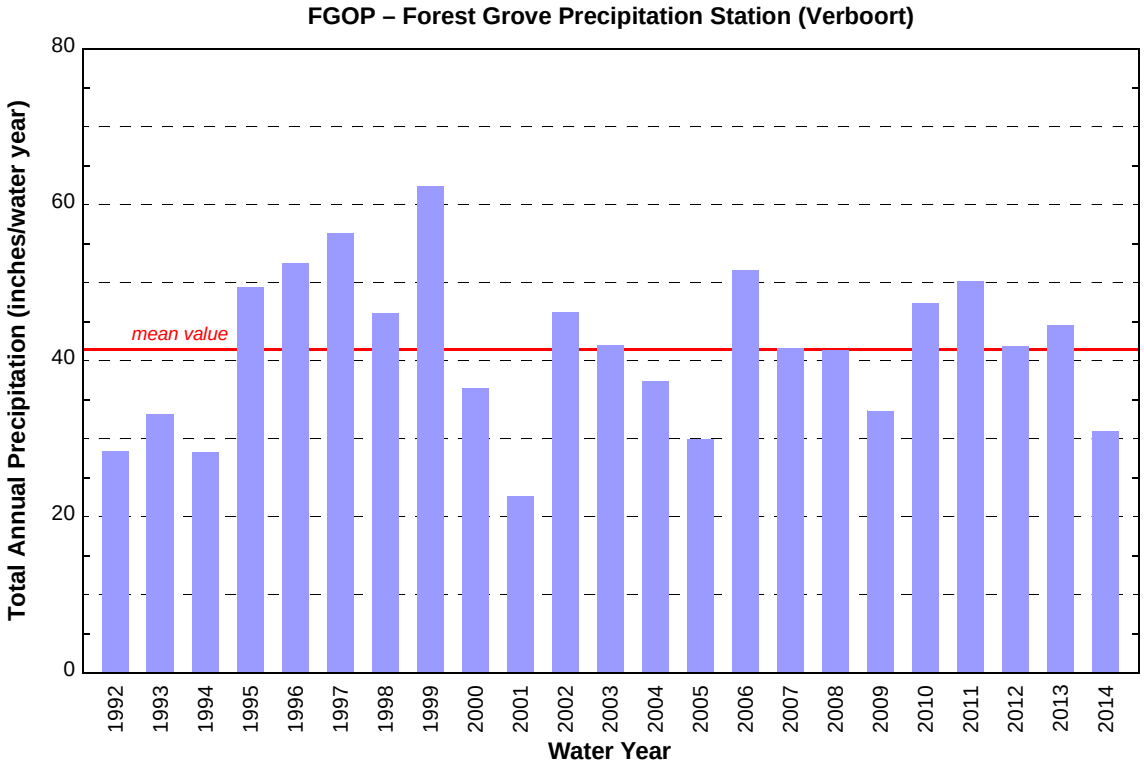
Elevation: 180 ft
Latitude: 45 33 11 Longitude: 123 05 01

Source Agency: US Bureau of Reclamation – Agrimet
http://www.usbr.gov/pn/agrimet/wxdata.html

| Water Year* | Total Monthly Precipitation (inches) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| **1992** | 1.50 | 5.10 | 3.68 | 5.93 | 3.56 | 1.56 | 4.35 | 0.10 | 0.94 | 0.26 | 0.28 | 1.08 |
| **1993** | 2.41 | 4.17 | 6.00 | 3.20 | 2.22 | 4.15 | 4.88 | 4.22 | 0.57 | 1.09 | 0.14 | 0.00 |
| **1994** | 1.08 | 1.68 | 7.61 | 4.95 | 5.75 | 2.34 | 1.49 | 1.31 | 1.04 | 0.02 | 0.23 | 0.77 |
| **1995** | 6.26 | 7.51 | 7.56 | 9.72 | 4.05 | 5.78 | 3.09 | 1.57 | 1.23 | 0.53 | 0.50 | 1.62 |
| **1996** | 3.08 | 11.72 | 8.55 | 9.06 | 3.63 | 2.33 | 6.37 | 4.14 | 0.85 | 0.48 | 0.26 | 1.99 |
| **1997** | 4.53 | 7.99 | 14.96 | 7.64 | 1.78 | 7.76 | 3.27 | 1.83 | 1.80 | 0.18 | 1.32 | 3.25 |
| **1998** | 6.99 | 7.08 | 3.47 | 9.12 | 7.20 | 4.57 | 1.44 | 4.28 | 1.06 | 0.07 | 0.00 | 0.80 |
| **1999** | 3.44 | 13.67 | 9.83 | 9.65 | 14.97 | 5.39 | 1.69 | 1.68 | 0.98 | 0.35 | 0.66 | 0.02 |
| **2000** | 2.78 | 7.84 | 5.89 | 7.72 | 3.99 | 2.37 | 1.05 | 2.06 | 1.58 | 0.09 | 0.13 | 0.92 |
| **2001** | 3.08 | 2.63 | 4.30 | 1.66 | 1.74 | 2.13 | 1.68 | 1.07 | 2.11 | 0.44 | 1.15 | 0.63 |
| **2002** | 2.79 | 11.22 | 9.74 | 9.30 | 3.45 | 4.60 | 1.61 | 1.16 | 1.20 | 0.20 | 0.03 | 0.90 |
| **2003** | 0.43 | 3.02 | 12.24 | 10.06 | 3.18 | 6.19 | 5.13 | 0.55 | 0.07 | 0.00 | 0.35 | 0.73 |
| **2004** | 3.49 | 4.62 | 7.87 | 6.09 | 5.23 | 1.93 | 2.55 | 1.10 | 0.81 | 0.00 | 2.08 | 1.50 |
| **2005** | 3.80 | 2.78 | 4.38 | 2.47 | 0.67 | 6.00 | 2.60 | 4.08 | 1.56 | 0.21 | 0.11 | 1.28 |
| **2006** | 4.32 | 7.44 | 11.35 | 15.24 | 2.15 | 4.38 | 2.19 | 2.91 | 0.69 | 0.20 | 0.07 | 0.58 |
| **2007** | 0.95 | 15.55 | 8.57 | 3.88 | 4.24 | 2.45 | 2.12 | 0.78 | 0.59 | 0.57 | 0.50 | 1.32 |
| **2008** | 3.14 | 4.51 | 13.01 | 8.81 | 2.70 | 4.13 | 2.46 | 0.71 | 0.78 | 0.01 | 0.97 | 0.11 |
| **2009** | 2.66 | 5.69 | 4.73 | 6.06 | 1.91 | 3.69 | 1.77 | 3.43 | 1.17 | 0.13 | 1.06 | 1.28 |
| **2010** | 3.78 | 7.70 | 5.34 | 7.44 | 4.78 | 5.28 | 4.24 | 3.37 | 3.23 | 0.51 | 0.23 | 1.46 |
| **2011** | 4.39 | 7.42 | 11.53 | 5.08 | 5.52 | 7.35 | 4.38 | 2.37 | 0.62 | 1.05 | 0.00 | 0.48 |
| **2012** | 2.75 | 8.28 | 2.66 | 7.25 | 4.17 | 10.00 | 2.16 | 2.15 | 2.22 | 0.08 | 0.08 | 0.02 |
| **2013** | 6.25 | 9.20 | 9.56 | 1.36 | 2.24 | 2.08 | 1.67 | 3.36 | 1.44 | 0.00 | 0.78 | 6.63 |
| **2014** | 0.68 | 2.96 | 1.39 | 2.98 | 7.57 | 7.73 | 3.70 | 1.30 | 0.87 | 0.29 | 0.10 | 1.30 |
| **MIN** | 0.43 | 1.68 | 1.39 | 1.36 | 0.67 | 1.56 | 1.05 | 0.10 | 0.07 | 0.00 | 0.00 | 0.00 |
| **MAX** | 6.99 | 15.55 | 14.96 | 15.24 | 14.97 | 10.00 | 6.37 | 4.28 | 3.23 | 1.09 | 2.08 | 6.63 |
| **MEAN** | 3.24 | 6.95 | 7.57 | 6.72 | 4.20 | 4.53 | 2.86 | 2.15 | 1.19 | 0.29 | 0.48 | 1.25 |

*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:
1992–2014)
Maximum
Mean
Minimum
WY 2014


FGOP – Forest Grove Precipitation Station (Verboort)
Total Annual Precipitation (inches/water year)
80
60
40
20
0
mean value
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Water Year

## DURP – DURHAM WASTEWATER TREATMENT PLANT PRECIPITATION STATION

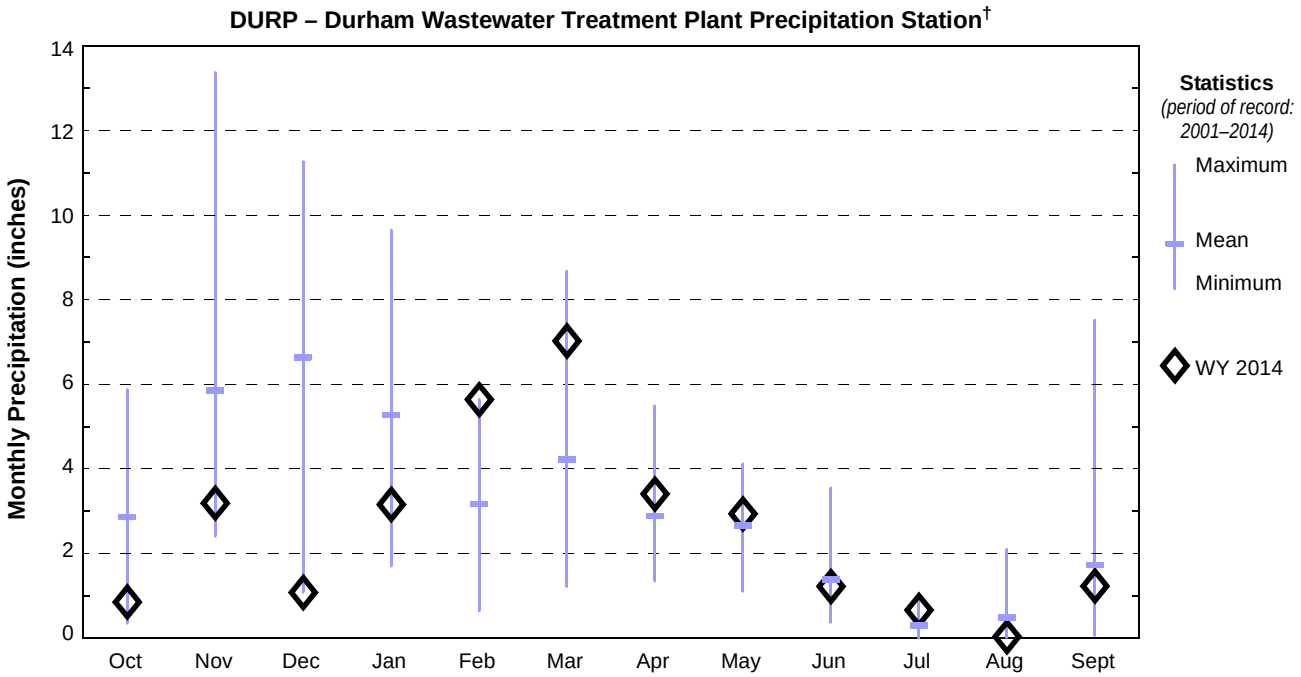
Elevation: 140 ft | Source Agency: US Geological Survey
Latitude: 45 23 59 Longitude: 122 45 45 | http://or.water.usgs.gov/cgi-bin/grapher/table_setup.pl

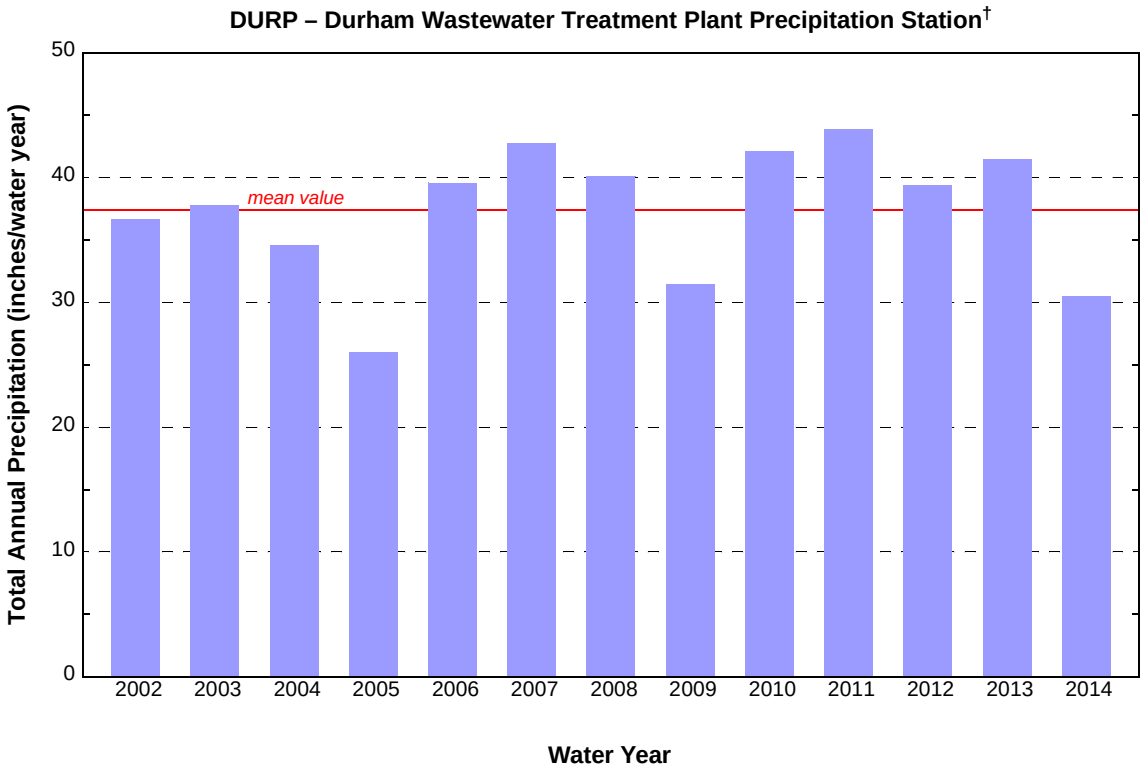
| Water Year* | Total Monthly Precipitation (inches)† | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCT | NOV[a] | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| **2001** | | | | | | | | | 1.46 | 0.76 | 0.74 | 0.69 |
| **2002** | 3.76 | 6.93 | 5.85 | 5.42 | 3.42 | 3.49 | 2.08 | 1.60 | 1.27 | 0.47 | 0.20 | 2.16 |
| **2003** | 0.35 | 2.55 | 10.36 | 8.13 | 3.19 | 4.72 | 5.49 | 1.30 | 0.37 | 0.00 | 0.38 | 0.94 |
| **2004** | 2.51 | 4.71 | 8.94 | 4.83 | 4.69 | 1.22 | 1.34 | 1.10 | 1.32 | 0.01 | 2.11 | 1.82 |
| **2005** | 3.10 | 2.41 | 3.70 | 1.71 | 0.64 | 3.52 | 3.06 | 4.07 | 1.59 | 0.37 | 0.03 | 1.75 |
| **2006** | 2.90 | 5.83 | 9.73 | 9.65 | 2.07 | 2.73 | 2.09 | 2.97 | 0.92 | 0.01 | 0.02 | 0.64 |
| **2007** | 1.14 | 13.38 | 7.54 | 3.59 | 5.51 | 3.24 | 2.58 | 1.62 | 0.87 | 0.54 | 0.71 | 1.98 |
| **2008** | 3.85 | 4.13 | 11.27 | 6.90 | 2.37 | 4.35 | 2.80 | 1.58 | 1.15 | 0.10 | 1.27 | 0.33 |
| **2009** | 3.23 | 5.44 | 3.72 | 5.49 | 1.90 | 3.13 | 1.83 | 3.72 | 0.80 | 0.09 | 0.74 | 1.38 |
| **2010** | 3.29 | 6.32 | 4.68 | 6.30 | 3.37 | 4.80 | 3.45 | 3.91 | 3.55 | 0.30 | 0.04 | 2.06 |
| **2011** | 4.24 | 5.69 | 8.95 | 4.34 | 4.33 | 6.44 | 4.37 | 2.89 | 1.17 | 0.94 | 0.00 | 0.49 |
| **2012** | 2.09 | 7.05 | 2.72 | 7.37 | 3.14 | 8.68 | 2.75 | 2.61 | 2.60 | 0.27 | 0.00 | 0.06 |
| **2013** | 5.88 | 8.32 | 7.71 | 1.65 | 0.92 | 1.51 | 2.05 | 4.12 | 1.06 | 0.00 | 0.72 | 7.52 |
| **2014** | 0.85 | 3.19 | 1.08 | 3.16 | 5.64 | 7.04 | 3.42 | 2.94 | 1.22 | 0.66 | 0.03 | 1.23 |
| **MIN** | 0.35 | 2.41 | 1.08 | 1.65 | 0.64 | 1.22 | 1.34 | 1.10 | 0.37 | 0.00 | 0.00 | 0.06 |
| **MAX** | 5.88 | 13.38 | 11.27 | 9.65 | 5.64 | 8.68 | 5.49 | 4.12 | 3.55 | 0.94 | 2.11 | 7.52 |
| **MEAN** | 2.86 | 5.84 | 6.63 | 5.27 | 3.17 | 4.22 | 2.87 | 2.65 | 1.38 | 0.29 | 0.48 | 1.72 |

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

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

[a]Rainfall data from the USGS rain gage at Conestoga School was used for missing values at the Durham WWTP rain gage for 12 days in November 2012 and 3 days in April 2014




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

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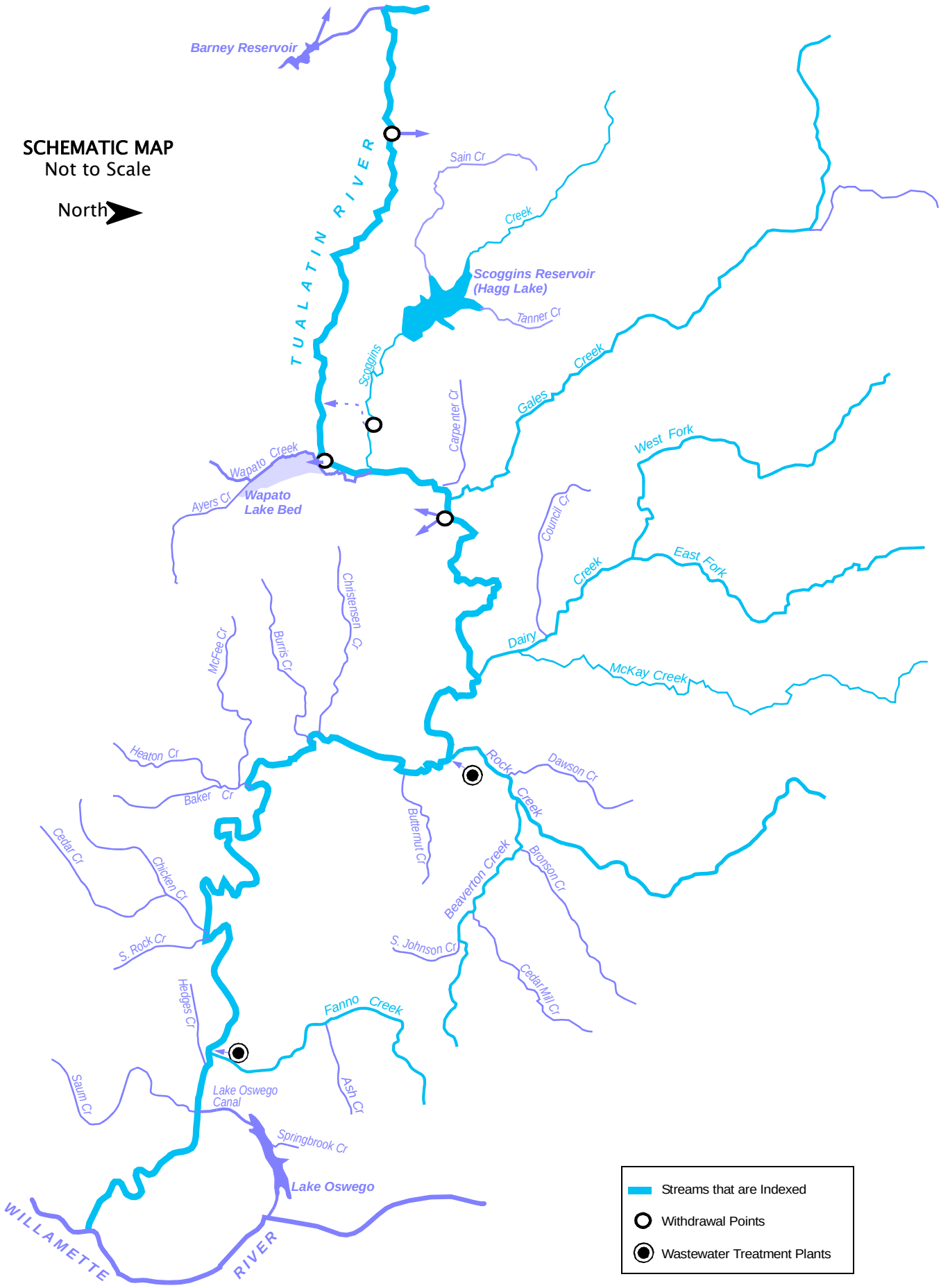
# Appendix I

# River Mile Indices

# STREAMS INDEXED



## 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<br>(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.<br>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 | | Oswego Canal Diversion | | |
| | LB | River Elevation Recording Gage #14206990, Headgate, and<br>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<br>(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 | | Southern Pacific RR Bridge | | |
| | RB | Tualatin River at Tualatin Elevation Recording Station #14206956<br>(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 | | US Hwy. 99W Bridge (Pacific Highway) | | |
| | LB | 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 | | Shamberg Bridge (Elsner Road) | | |
| | RB | 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)<br>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<br>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<br>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)<br>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)<br>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<br>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<br>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<br>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)<br>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)<br>Rated Staff Gage for Stream Flow |
| 2.30 | | Southern Pacific RR Crossing |
| 4.32 | | Glencoe Road Bridge (County Road A–146½)<br>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)<br>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)<br>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)<br>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)<br>Rated Staff Gage for Stream Flow |
| 8.55 | | East Fork Dairy Creek at Mountaindale, OR – Former USGS Gage #14205500 (10/40–9/51)<br>Drainage Area = 43.0 square miles |
| 9.62 | | NW Uebel Road Bridge (County Road 304) |
| 12.50 | | Murphy Lane Bridge (Private)<br>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)<br>***ISWR:*** C–59527 5/25/66 |
| 16.52 | RB | Denny Creek (HUC: 02114003000480080210)<br>***ISWR:*** C–59526 5/25/66 |
| 16.56 | | Bacona Road Bridge (County Road 422)<br>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)<br>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)<br>City of Banks to SE |
| 7.70 | | State Hwy 47 Bridge – Rated Staff Gage for Stream Flow<br>West Fork Dairy Creek at Banks, OR –Former USGS Gage #14205000 (10/40 – 9/43)<br>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)<br>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<br>***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<br>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)<br>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)<br>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)<br>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)<br>Community of Glenwood<br>***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)<br>***ISWR:* C–59514 5/25/66** |
| 21.60 | LB | North Fork Gales Creek (HUC: 02114003000560320)<br>***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)<br>Drainage Area = 43.3 square miles |
| 4.80 | | Scoggins Creek below Henry Hagg Lake, near Gaston, OR – USGS Gage #14202980 (1/1975 –present)<br>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)<br>Drainage Area = 15.9 square miles |
| 10.52 | LB | Parson Creek (HUC: 02114003000640240) |
| 15.50 | LB | Fisher Creek (HUC: 02114003000640300) |