

2018 Water Year Report

Summary of Thurston County Precipitation, Groundwater, Stream and
Lake Data from October 2017 to September 2018

**Thurston County Community Planning and Economic Development
Water Planning**



April 2019

Acknowledgements

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List of Monitoring Stations and their Basin Codes

Stream and Lake	Precipitation	Groundwater
10a: Eaton Creek @ Yelm Hwy	05u: Yelm WRF	DP1: 5013 Donnelly Dr SE
10b: Lake St. Clair	10u: Meridian Rd	DP2: 3986 Woodlawn Dr SE
14a: Spurgeon Creek	11u: NOAA Olympia Airport ¹	DP3: 5535 Donnelly Dr SE
17a: Chambers Creek @ Rich Road Bridge	<i>11w: Rainier Transfer Station</i>	ECY1: 5143 Windermere Dr SE
17b: Chambers Ditch @ Wilderness	<i>11z: Rainier Fire Station 4</i>	ECY2: 5535 Donnelly Dr SE
18a: Woodland Creek @ Pleasant Glade Rd.	13u: Lake Lawrence	ET1: 8538 9th Way SE
18b: Long Lake Level	18u: Lacey Fire Dist. 3 Fire Station	HFB-01: 628 Hidden Forest Dr SE
<i>18c: Hicks Lake²</i>	18w: WARC TC	HFB-02: 524 Hidden Forest Dr SE
20a: Woodard Creek @ 36th Ave.	20u: Southbay Firestation	HFB-03: 8836 6th Way SE
24a: McLane Creek	23u: Percival Creek, Bldg 4	LRS11a: 9605 Tilley Rd S
32b: Green Cove Creek @ Butler Cove FS	24u: McLane FS Wx	<i>LRS12: 9411 SW Kimmie St</i>
44a: Black Lake Ditch @ Belmore Rd	27u: Boston Harbor	<i>LRS1a: 6841 Foster Dr SW</i>
<i>45a: Black River @ 110th Ave</i>	33x: Griffin FS 13-2	LRS7a: 3804 93rd Ave SW
52a: Salmon Creek @ Littlerock Rd.	45u: Littlerock	<i>LRS8: 8943 Walter Ct SW</i>
53a: Scott Lake Culvert	45w: Rochester Drop Box	<i>LRS8a: 8925 Walter Court SW (2017)</i>
54a: Beaver Creek	55u: Tenino	<i>LRS9: 2729 93rd Ave SW (Lathrop)</i>
55a: Scatter Creek @ James Rd.	59u: Bloody Run USGS	MW1: 10415 Littlerock Rd SW
65a: Prairie Creek @ Old Highway 99	60u: Bucoda USGS	MW2: 10415 Littlerock Rd SW
	65u: Grand Mound	MW3a: 3623 104TH Ave SW (Jones)
	69u: Summit Lake	MW5: 800 93rd Ave SE
		SCMW_1: Leon St. SW
		SCMW_2: Pendleton and 180th
		SCMW_3: 201st and Old HW 99
		SCMW_4: Edinger Morris and Florence
		SCMW_5: 183rd Ave
		SCMW_6: Loganberry
		SCMW_7: Leitner and 180th
		SCMW_8: Old HW 99 and Violet Prairie
		SLB-1: Scott Lake, Trevue Ave SW & Scott Creek Dr SW
		SLB-2: Scott Lake, 11746 Scott Creek Dr SW
		SSW1: Stuart St Well
		TWB1: Huskey Way SE & Carpenter Rd SE
		TWB10: Choker Ct & Bobcat Dr SE
		TWB11: 315 Ranger Dr SE
		TWB2: 6731 Kinwood St SE
		TWB3: 7309 Husky Way SE
		TWB4: 7653 Husky Way SE
		TWB5: 404 Choker St SE
		TWB6: Husky Way SE & Wildcat St SE
		TWB7: 454 Cougar St SE
		TWB8: 455 Bulldog St SE

Brown Italic = Site Retired in 2018

Green Italic = Site Added in 2018

Gray Background = ILMA Site

¹ NOAA runs the Olympia Airport weather station; TC Water Planning records the data and uses it in analysis.

² The level on Hicks Lake has been monitored by a volunteer for many years. In 2018 the volunteer data were entered into the central water database and new data are being recorded as they are reported.

Executive Summary- Water Year 2018

Activities

In Water Year 2017 (October 1, 2017 through September 30, 2018) Thurston County Water Planning maintained a total of 74 monitoring stations.

Table 1: WY 2018 Station Summary

Type	Count
Weather and Atmosphere ³	16
Surface Water (Stream and Lake) ⁴	17
Groundwater	41
Total (2018)	74

One stream gauging station was relocated (Black River), one precipitation station was relocated (Rainier), and three monitoring wells were taken over by Tumwater.

In 2018 Water Planning continued installing telemetered stations that can relay data to a central database without the need for a physical field visit. Weather stations at Summit Lake and Rainier, the new groundwater monitoring well at Walter Court, and stream gauges at Black Lake Ditch and Eaton Creek were all upgraded with telemetered equipment; the planned telemetry at Deschutes Falls Park was delayed due to lack of cell signal. A grant from the Chehalis River Basin Flood Authority will enable telemetry at 7 precipitation stations and 4 stream gauges.

Year In Review

Fall 2017 had about average temperatures through December, which were cooler than fall 2016. In January and February 2018 the temperature increased to well above normal, before falling to much colder than normal temperatures in March, with a correspondingly high number of days with freezing temperatures. Thereafter temperatures were about normal for time of year, except for a spike of high temperatures in August of 2018.

Water Year 2018 was a return to normal precipitation patterns after the abnormally wet years of 2016 and 2017. From October 2017 through April 2018 rainfall was either the same as or greater than average. After April rainfall mostly ceased, and total precipitation accumulation for the water year was within an inch or two of average.

Streams during WY 2018 generally followed precipitation trends, with discharges increasing throughout the winter and into the spring. Most streams had average to above average total discharges. Discharges at Salmon Creek and Green Cove tapered off in May to minimal volumes, while Eaton, Spurgeon, Woodland, and Woodard creeks continued to discharge significant volumes through the end of the year.

³ In addition to the 16 stations maintained by TC Water Planning, two USGS precipitation stations were funded by TC Water Planning in 2018, and data were retrieved from the Olympia Airport every month, for a total of 19 stations.

⁴ In addition to the 17 stream and lake monitoring stations maintained by TC Water Planning in 2018, there was one volunteer station (Hicks Lake), and the Thurston County Environmental Health program, funded by TC Water Planning, monitored additional streams as described in their Annual Report.

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Groundwater levels in WY 2018 started higher than normal because of the back-to-back wet years of 2016 and 2017. However, peak groundwater levels were lower than the previous year and near the historic average, and groundwater levels were lower on September 30, 2018 than they were at the same time in 2017.

Background and Introduction

The Thurston County Water Resources, Environmental Monitoring Program (EMP) is responsible for installing, maintaining and collecting data from 74 monitoring stations placed throughout Thurston County to measure atmospheric conditions, streamflow, and groundwater and lake levels. This report contains mostly data relating to volumes and quantities of water; it does not discuss chemical, physical, or biological parameters of the waters of the County. The Thurston County Environmental Health Division (TCEH) collects and presents chemical and biological parameter data as their major contribution to this annual report. Those data are available as a supplemental report in conjunction with this document.

Of the 74 stations mentioned above, six are part of an Inter-local Monitoring Agreement (ILMA) between Thurston County and the Cities of Lacey, Tumwater, and Olympia (TCEH monitors several stream sites that are not part of this report for water quality parameters under the ILMA). Monitoring under the ILMA began in the early 1990s and has provided our partnership with millions of data records since its inception. The data are used to gauge the condition of our water resources in the northern part of Thurston County and within the jurisdictions of the cooperative partners. The cost of the ILMA is divided between the partners based on the number and type of equipment that is located within their respective boundaries. These data are useful not only for evaluating the general health of our systems, but also for engineering and flow modeling for basin and critical areas planning and regulatory issues.

In addition to the ILMA, Thurston County also maintains a larger program called the General Environmental Monitoring (GEM) Program. This concurrent program contains the majority of the stations that are deployed throughout Thurston County. This program has grown steadily since its founding in 2000. The purpose of the wider GEM program is to evaluate *all* aspects of the water cycle countywide to include atmospheric conditions, streamflow stages and volumes, and groundwater and lake levels. The data collected from both the ILMA and the GEM are maintained by Thurston County and provided to our partners and the public online.

This report is prepared to provide a summary of findings for Water Year 2018. Thurston County has elected to include both the ILMA data and the GEM data together in this summary report to provide a complete picture of the water cycle in Thurston County from the clouds to the Sound and what the water does on its journey.

This report is a summary of WY 2018. It also contains long term records where the period of record provides a wider perspective on the subject water year. Running averages and daily summaries are used as comparison values for many sites to compare and contrast this water year with historic values. The data presented in this report, as well as all other, more detailed datasets, are available upon request.

The Environmental Monitoring Program maintains a dashboard of current and historical data at <https://www.thurstoncountywa.gov/sw/Pages/monitoring-dashboard.aspx>. This dashboard contains long term records of daily averages, and the latest data from the County's five telemetered sites.

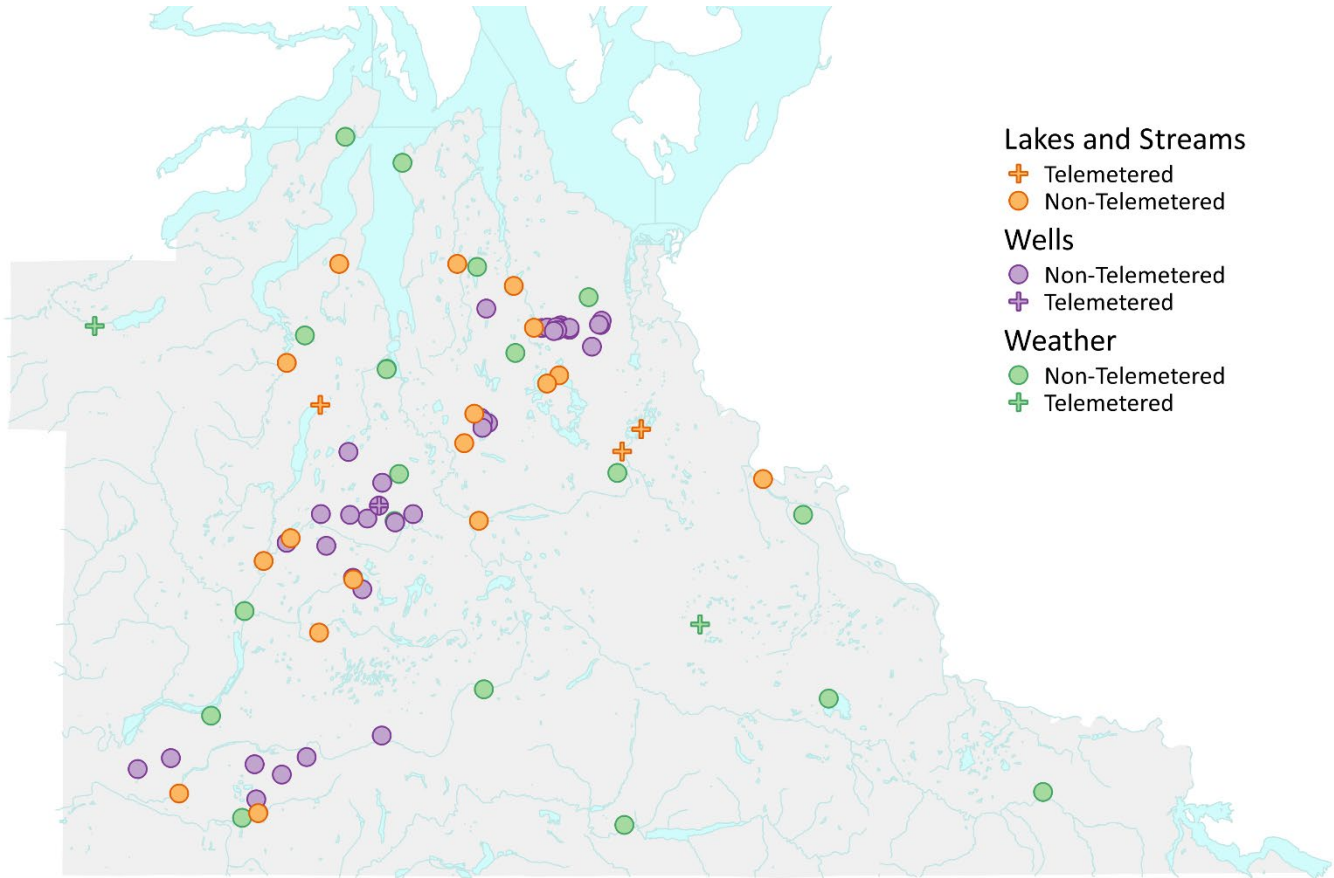
General

In WY 2018 (October 1, 2017 – September 30, 2018), Community Planning and Economic Development Water Planning collected data from 74 monitoring sites across Thurston County.

Below is a map of the locations and type of monitoring stations we currently have active in the field as of January 1, 2019. [Table 1](#) identifies the type and number of each station.

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Figure 1: All Monitoring Sites Map



By late 2018 six sites were reporting data remotely over the cell network (telemetered): the Summit Lake and Rainier weather stations; Lake St. Clair, Eaton Creek, and Black Lake Ditch surface water gauging sites; and the LRS-08a monitoring well off of Walter Court.

Table 2: WY 2018 Station Summary

Type	Count
Weather and Atmosphere ⁵	16
Surface Water (Stream and Lake) ⁶	17
Groundwater	41
Total (2018)	74

⁵ In addition to the 16 stations maintained by TC Water Planning, two USGS precipitation stations were funded by TC Water Planning in 2018, and data were retrieved from the Olympia Airport every month, for a total of 19 stations.

⁶ In addition to the 17 stream and lake monitoring stations maintained by TC Water Planning in 2018, there was one volunteer station (Hicks Lake), and the Thurston County Environmental Health program, funded by TC Water Planning, monitored additional streams as described in their Annual Report.

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Chehalis Basin Telemetry Project

In 2018 the Chehalis River Basin Flood Authority approved an approximately \$50,000 grant to Thurston County for telemetry upgrades at 7 weather stations and 4 stream stations, plus the IT work required to push those data into their computer systems. As of October 1, 2018 the contracts were still being finalized; all the work for that grant will be completed in water year 2019.

Weather and Atmospheric Monitoring

Stations and Equipment

Thurston County monitors weather at 19 sites. Some sites were established as recently as 2017; others have data extending back to 1988. NOAA has maintained records at the Olympia airport since 1955. The oldest records date back to 1898 from Priest Point Park in Olympia. We employ several types of sensors to collect a multitude of atmospheric parameters. The most common type of precipitation station collects rainfall and temperature. Several locations collect multiple parameters including barometric pressure, solar radiation, wind speed and direction. Two stations also calculate and report irradiance and evapotranspiration (ET). One of the multi-parameter stations, Thurston County Building 4 West Olympia (23u), reports real time data online as part of the DavisNet worldwide weather station network.

In 2017, Thurston County began deploying automated weather stations with telemetry. This feature allows the weather stations in the field to report their data back to the central database autonomously. By the end of WY 2018 the Summit Lake (69u) and Rainier Fire Station 4 (11z) sites were operating with telemetry.

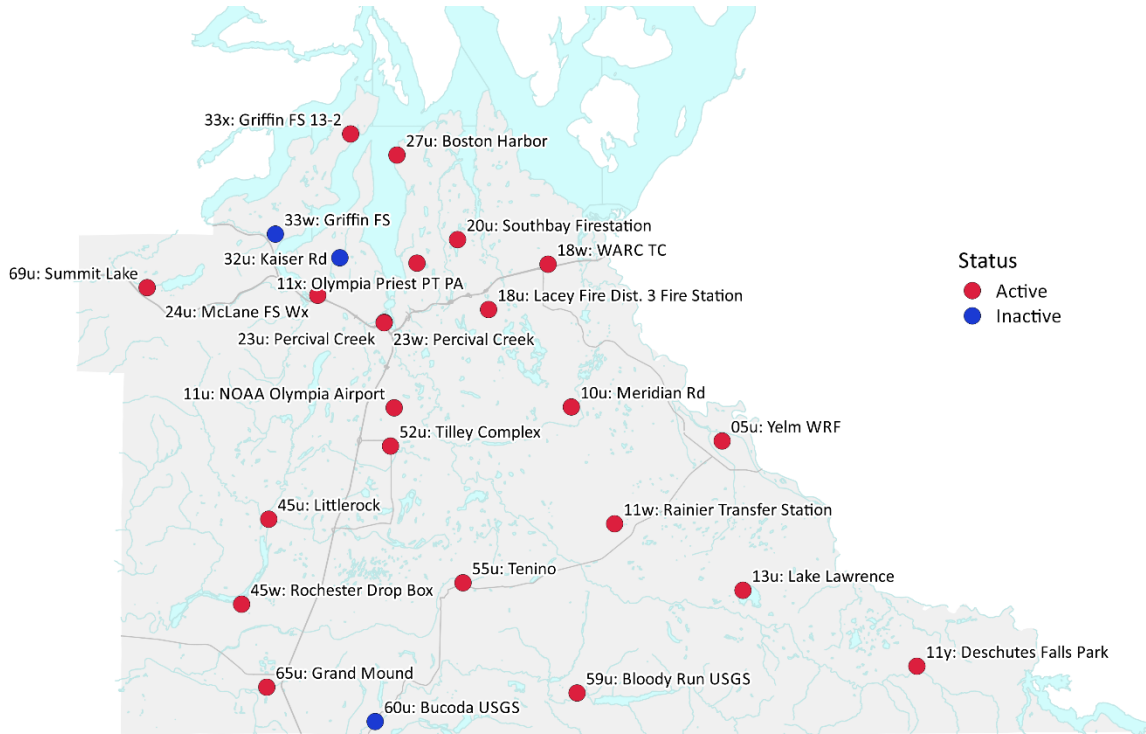
The Rainier Drop Box station (11w) was retired and replaced with the Rainier Fire Station 4 station in May of 2018 due to vandalism. While the original equipment continued to function, the original site was considered too insecure to continue with monitoring. The old Onset equipment was replaced with new Campbell Scientific and Sierra Wireless equipment.

Thurston County also negotiated with Bucoda to install a new weather station on an open parcel adjacent to City Hall. This weather station will replace two USGS operated stations that are currently financially supported by the County – Bloody Run (59u) and Bucoda (60u).

Finally, the County successfully applied for a grant from the Chehalis River Basin Flood Authority for \$50,000. This grant will allow the County to purchase telemetry equipment for seven rain stations and four stream gauges in and around the Chehalis River basin, and contract with an IT company to expand the capabilities of the County's GData water data management system.

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Figure 2: Weather Stations Map



Temperature

Warm January, Colder March, Normal Remainder of Year

Temperatures from October through December of 2017 were unremarkable, staying near normal values. January was unusually warm, with very few days dropping below freezing and mean temperatures well above normal. That trend reversed in February and especially March, with mean temperatures below normal and a much higher than normal number of days with sub-freezing temperatures.

Temperature – The winter of 2016-17 was the coldest on record for the Olympia area in over 30 years. October 1, 2016 through April 30, 2017 recorded 28 days below freezing ($\leq 32^{\circ}\text{F}$) at the Olympia Regional Airport (several more days in outlying areas of Thurston County). Freezing days is just one measure of cold; the average air temperature was also persistently low. Daytime highs in October through mid-March 2017 were on average several degrees below normal.

Figure 3: Mean Temperatures at Olympia Airport

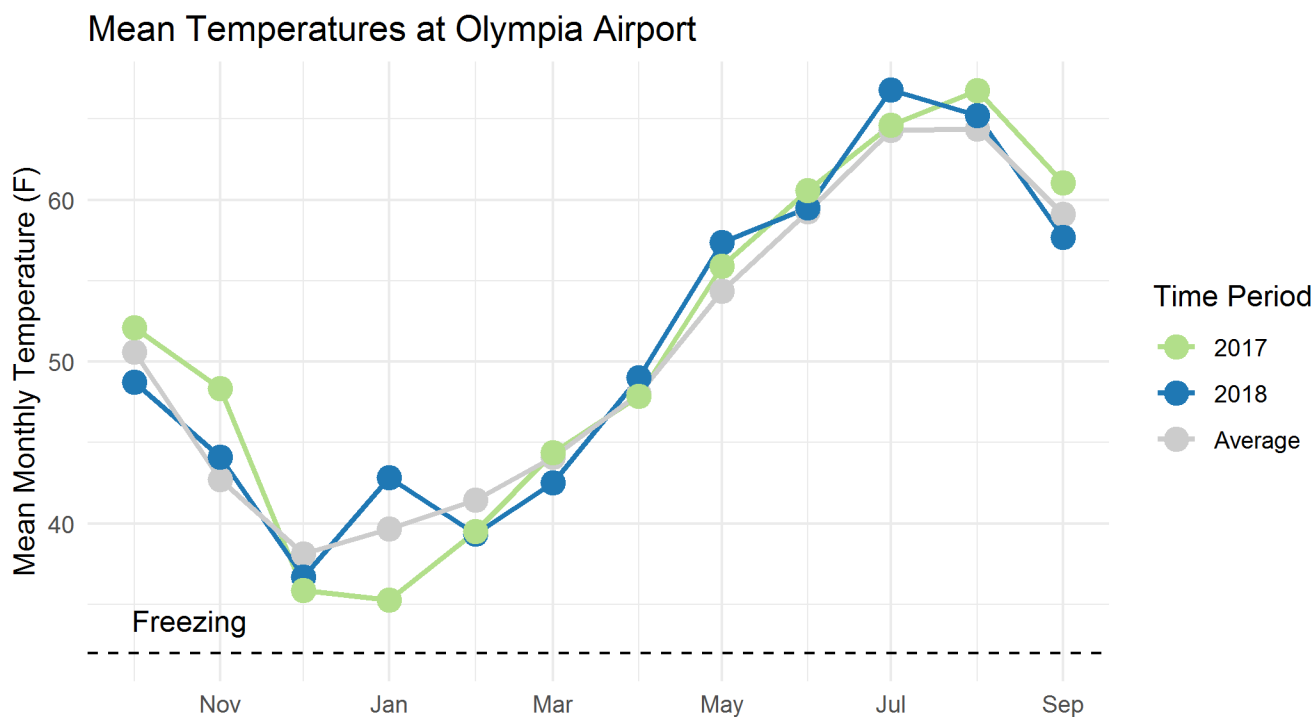
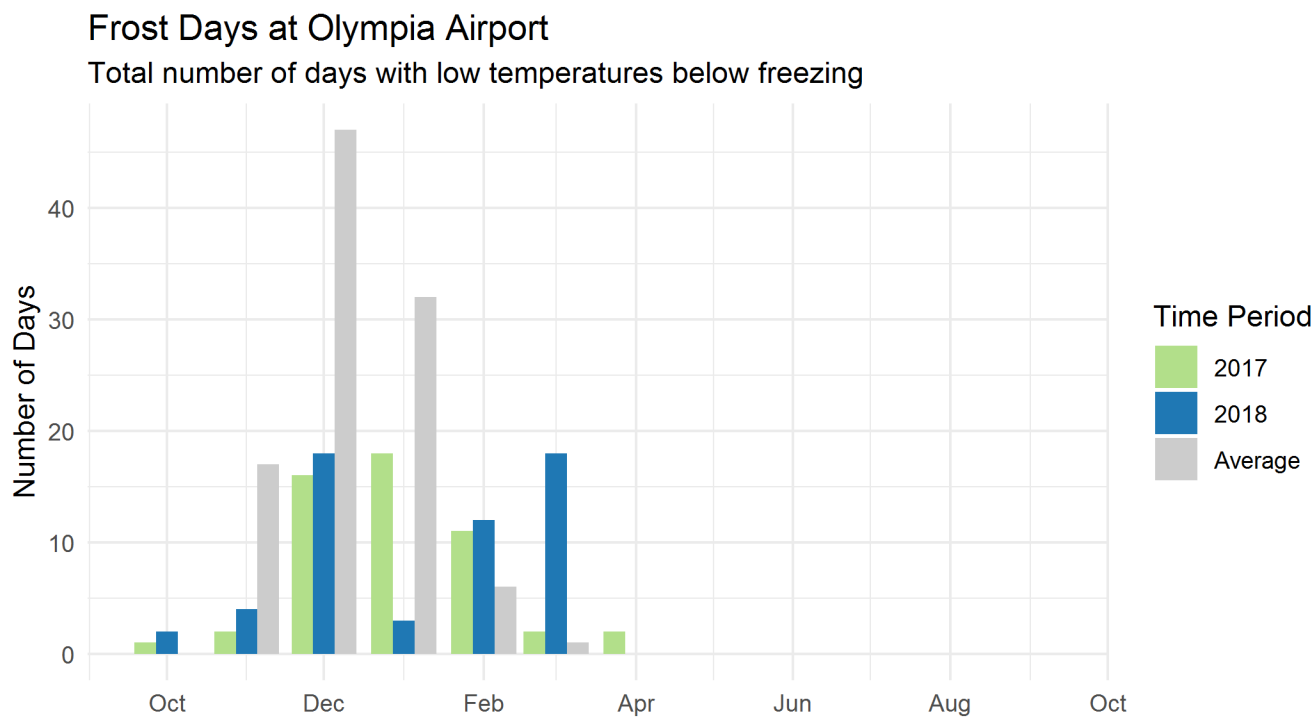


Figure 4: Frost Days at Olympia Airport



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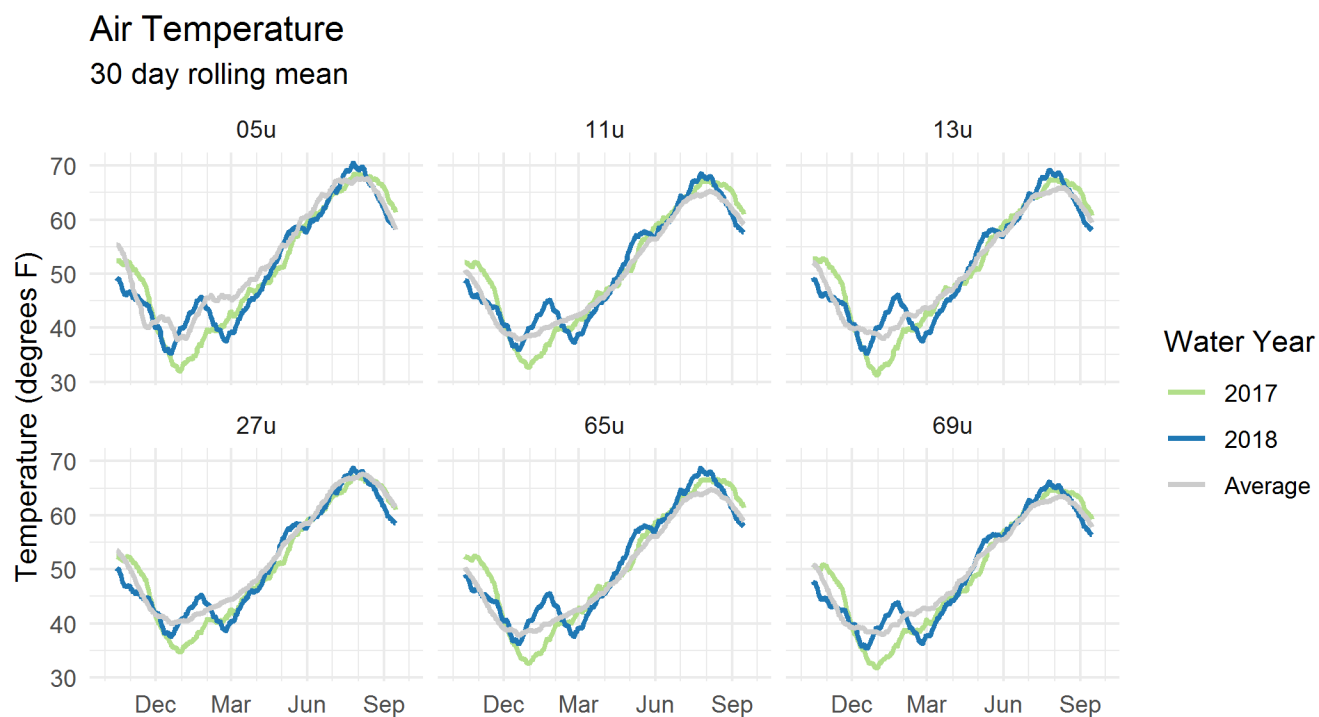
Table 3: Air Temperature Summaries

Weather Station	Mean	Minimum	Maximum
05u: Yelm WRF	51.5	13.0	95.8
10u: Meridian Rd	51.2	15.6	94.3
11u: NOAA Olympia Airport	50.9	15.1	95.0
13u: Lake Lawrence	51.2	14.2	94.8
18u: Lacey Fire Dist. 3 Fire Station	52.4	20.0	98.9
18w: WARC TC	52.3	21.1	95.6
20u: Southbay Firestation	51.8	21.0	97.7
23u: Percival Creek, Bldg 4	52.4	23.4	95.8
24u: McLane FS Wx	51.8	18.9	98.1
27u: Boston Harbor	51.7	22.9	95.6
33x: Griffin FS 13-2	51.7	23.6	96.6
45u: Littlerock	50.8	12.8	98.0
45w: Rochester Drop Box	50.9	16.5	99.6
55u: Tenino	50.7	13.4	96.1
65u: Grand Mound	51.1	14.1	96.3
69u: Summit Lake	49.6	17.0	97.6

The coldest temperature recorded at the Olympia airport was 15 degrees F above zero; around the county, minimum temperatures ranged from 13 degrees F (Yelm) to 23.5 degrees F (Percival Creek and Griffin Fire Station). These temperatures range from normal for USDA Zone 8a, which covers most of Thurston County, to warm even for USDA Zone 8b, which covers just the northernmost Puget Sound coastline. The warmer locations tended toward costal (northern), urban, and low elevation locations, all of which tend to raise daily minimum temperatures. Normal to warm temperatures tend to protect plants from frost damage, but may also lead to increased insect predation.

Maximum temperatures were higher in water year 2018 compared to 2017 and to the average of previous years. Temperatures peaked in the mid- to high-90s in August. Such high heats can stress plants and increase water consumption.

Figure 5: Air Temperatures at Select Weather Stations



Precipitation

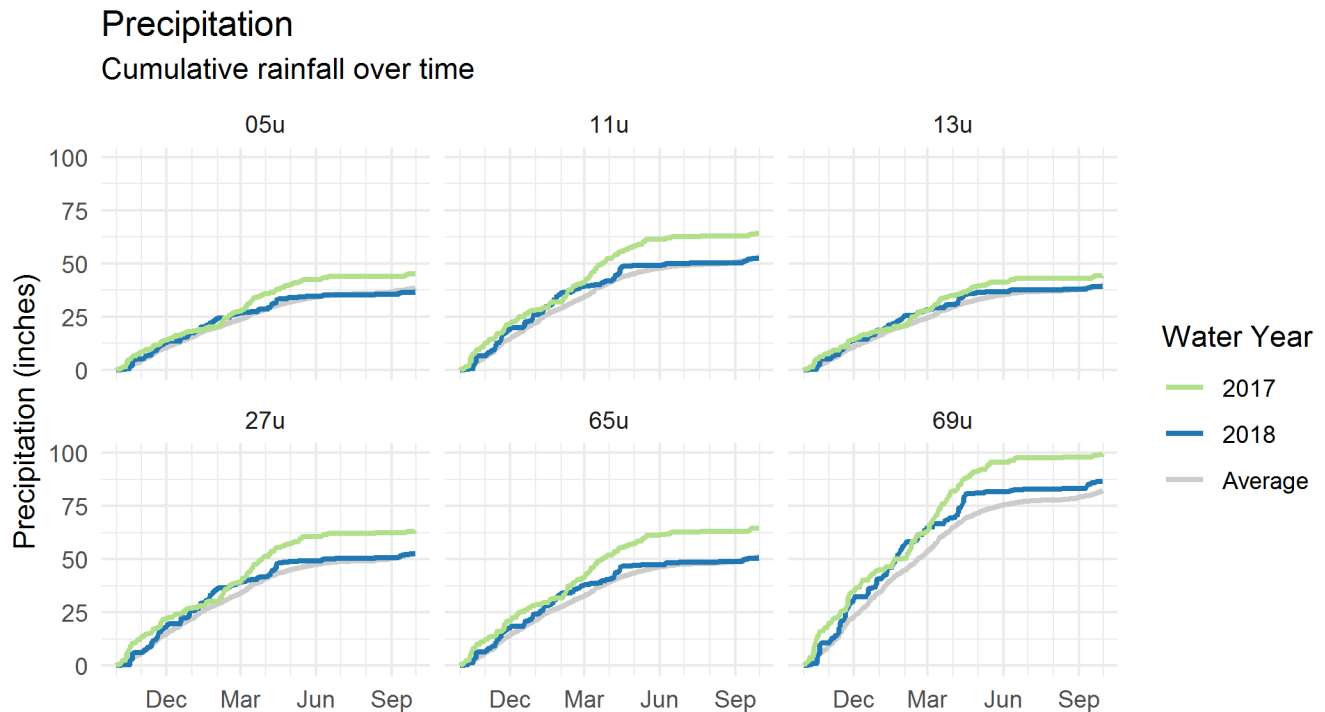
Compared with the wet years of 2016 and 2017, 2018 constituted a return to normal precipitation patterns throughout the county. Every weather station recorded less cumulative rainfall in 2018 than in 2017, and only Summit Lake recorded appreciably more rainfall in 2018 than average.

Table 4: WY 2018 Total Rainfall

Site Name	Rain (inches)
05u: Yelm WRF	36.63
10u: Meridian Road	45.80
11u: NOAA Olympia Airport	52.39
13u: Lake Lawrence	39.35
18u: Lacey Fire Dist. 3	49.91
18w: WARC TC	43.73
20u: South Bay Firestation	45.79
23u: Percival Creek, Bldg. 4	53.62
24u: McLane Firestation	67.71
27u: Boston Harbor	52.36
33x: Griffin Firestation 13-2	50.35
45u: Littlerock	67.30
45w: Rochester Drop Box	51.00
55u: Tenino	51.21
59u: Bloody Run USGS	42.55
65u: Grand Mound	50.59
69u: Summit Lake	86.62

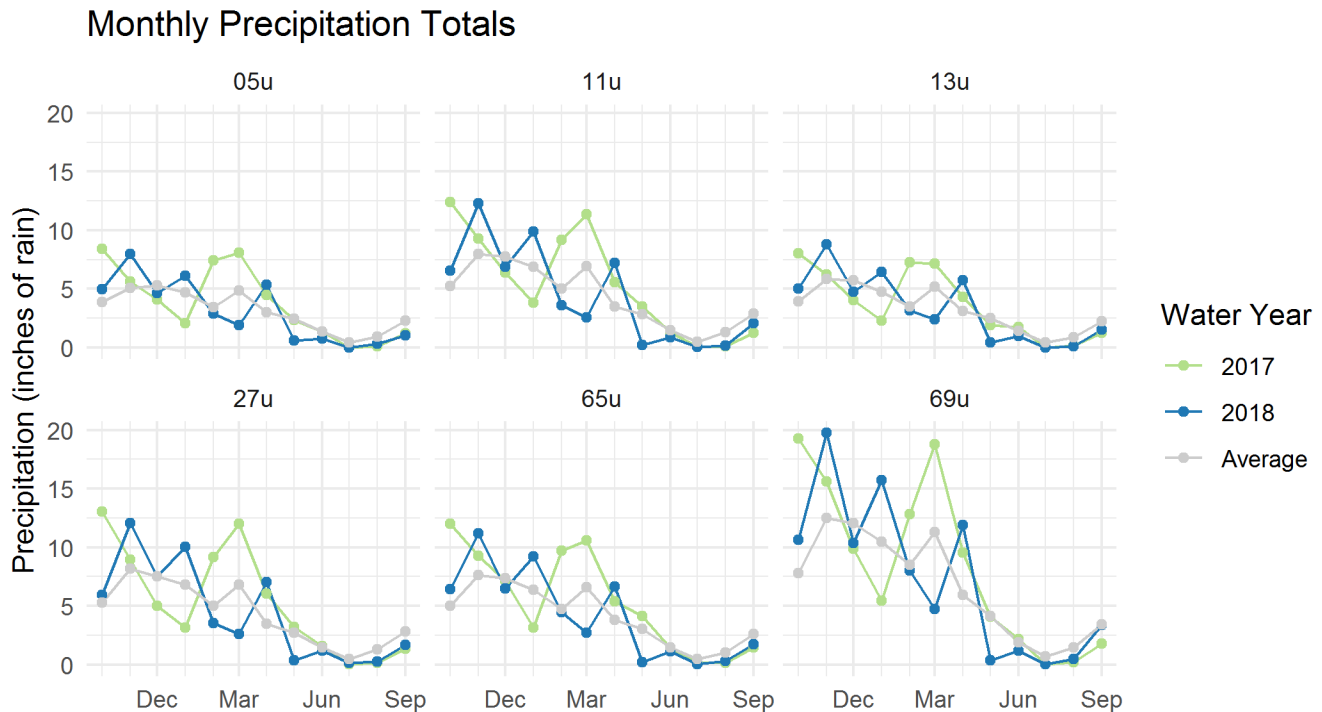
As with most water years, the south and east of the county was generally drier than the north and west. 69u, the Summit Lake gauge, was much wetter than most other gauges throughout the county (86 inches in WY 2018), demonstrating the ability of the Black Hills to extract a lot of moisture out of the air as it travels east. The Summit Lake gauge has historically been the highest recorded rainfall station in the County. By the time storms arrive near Yelm (05u) and Rainier (11w), much of the water has already precipitated, leaving those areas drier than the rest of the county. Station 45u (Littlerock) has significantly more precipitation than station 45w (Rochester), despite a distance of only 5.5 miles between them, demonstrating the complexity of the precipitation patterns around the Black Hills and the Chehalis River gap on the west side of the county.

Figure 6: Cumulative Precipitation at Select Weather Stations



While WY 2018 started with less rainfall than 2017, by early February every site had experienced more cumulative rainfall in 2018 than at the equivalent point in 2017. After that rainfall tapered off; even the mid-April influx of precipitation wasn't enough to lift any of the sites to 2017 levels, and by the end of September every site had accumulated 10 to 20 fewer inches of rain than the previous year.

Figure 7: Monthly Precipitation at Select Stations



The monthly graphs show that the months of March and May in 2018 were particularly dry compared to the long term average. November, January, and April were particularly wet, however, and the combination of three wet and two dry months together lead to cumulative rainfall close to the long term average.

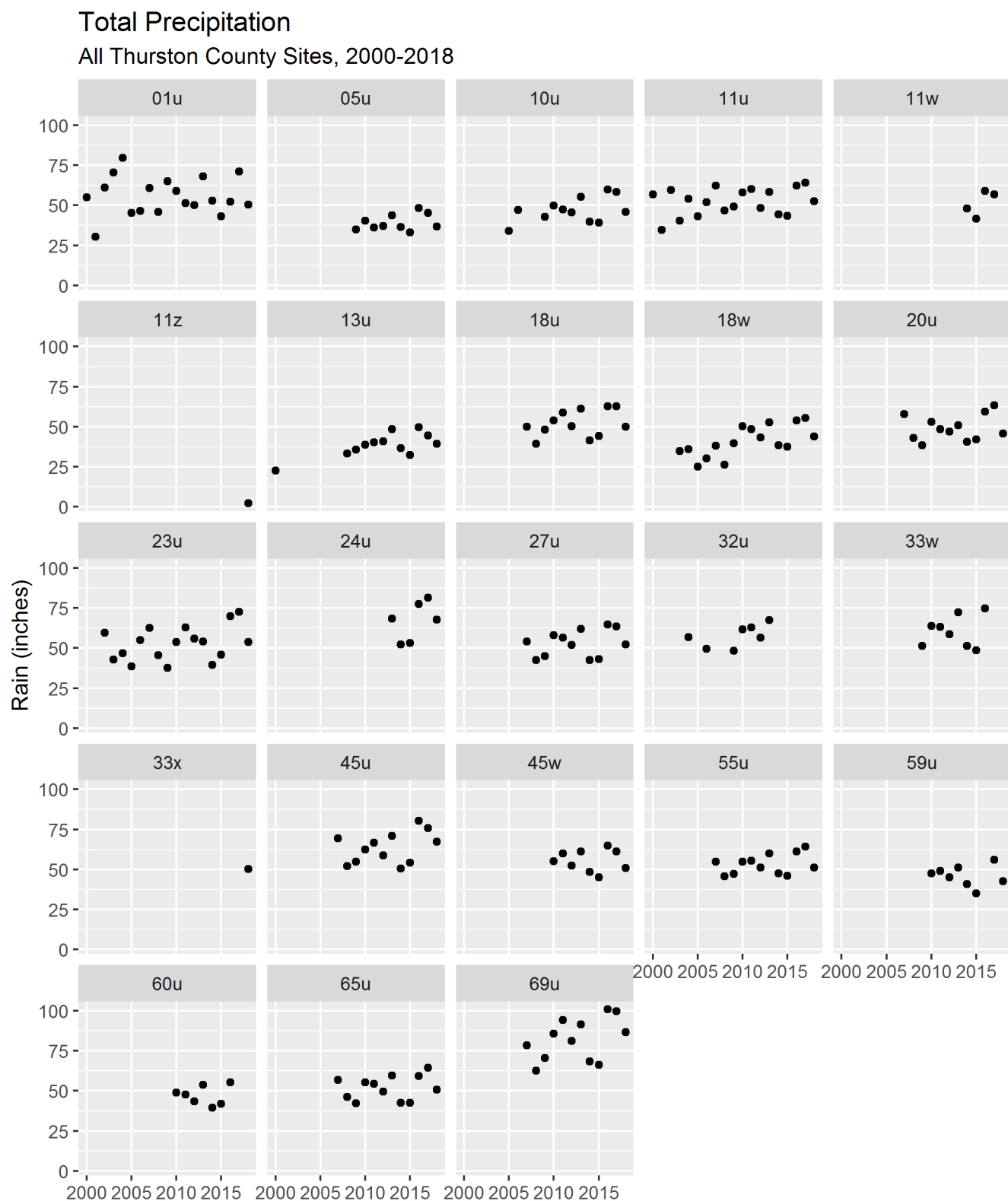
Interestingly, the summers of both 2017 and 2018 were dry compared to long term averages. Dry summers have little impact on cumulative rainfall statistics, since little rain falls in June through September even in wet years, but they could have significant impacts on water consumption, plant stress, and minimum flows in streams.

Figure 7 also reveals a trend of increased rainfall in March, which can be observed in the long term averages. In 2017 this wet March effect was evident. In 2018, by contrast, March was drier than both the long term average and the preceding month.

While WY 2018 was neither wet nor dry, over the past 20 years the total annual volume of rain in Thurston County has been increasing. The trend is most obvious at sites 18w (Waste and Recovery Center in Lacey) and 69u (Summit Lake) in Figure 8, but it is apparent at most locations across the county, although it is not statistically significant⁷.

⁷ When a linear regression is applied with annual cumulative rainfall as the dependent variable and water year as the independent variable, the p-statistic for most sites is greater than 0.05.

Figure 8: Total Historical Precipitation at All Stations



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No Organized Atmospheric Rivers (AR) again in WY 2018

An atmospheric River is a mode of water vapor transport from the tropics into the mid and upper latitudes. They can contain several times more water than is transported by the Amazon River in a given period of time. They occur on the west coast of most continents and are responsible for a large percentage of annual rainfall in many locations. The entire west coast of North America from Southern California to Alaska is within range of AR precipitation events.

In the past, most winter seasons in the Pacific Northwest saw at least one AR event. However, the last AR to reach Thurston County was in 2009. That event was responsible for severe river flooding equivalent to the 1% annual chance (100 year) storm event. It also caused major landslide activity in Thurston County.

In WY 2018 there were two major rain events of just under three inches at the Olympia Airport; one on October 21, 2017, and another on April 14, 2018, neither of which qualified as an AR (in 2009 the Airport received 5 inches of rain the day of the AR). Our rainfall distribution continues to be spread out much more broadly in smaller events between October and April.

The Table below summarizes the average monthly values for the parameters indicated as recorded at the Olympia Regional Airport between January 1, 1951 and March 1, 2019.

Table 5: Olympia Climate Averages

Climate Olympia - Washington						°F
	Jan	Feb	Mar	Apr	May	Jun
Average high in °F:	46	49	54	59	65	71
Average low in °F:	34	33	35	38	43	48
Av. precipitation in inch:	7.83	5.28	5.28	3.54	2.32	1.77
Days with precipitation:	-	-	-	-	-	-
Hours of sunshine:	-	-	-	-	-	-
Average snowfall in inch:	2	5	1	0	0	0
	Jul	Aug	Sep	Oct	Nov	Dec
Average high in °F:	77	78	72	60	50	44
Average low in °F:	51	51	46	40	36	33
Av. precipitation in inch:	0.63	0.94	1.69	4.61	8.62	7.44
Days with precipitation:	-	-	-	-	-	-
Hours of sunshine:	-	-	-	-	-	-
Average snowfall in inch:	0	0	0	0	1	3

Taken from www.usclimatedata.com March 2019

Streamflow

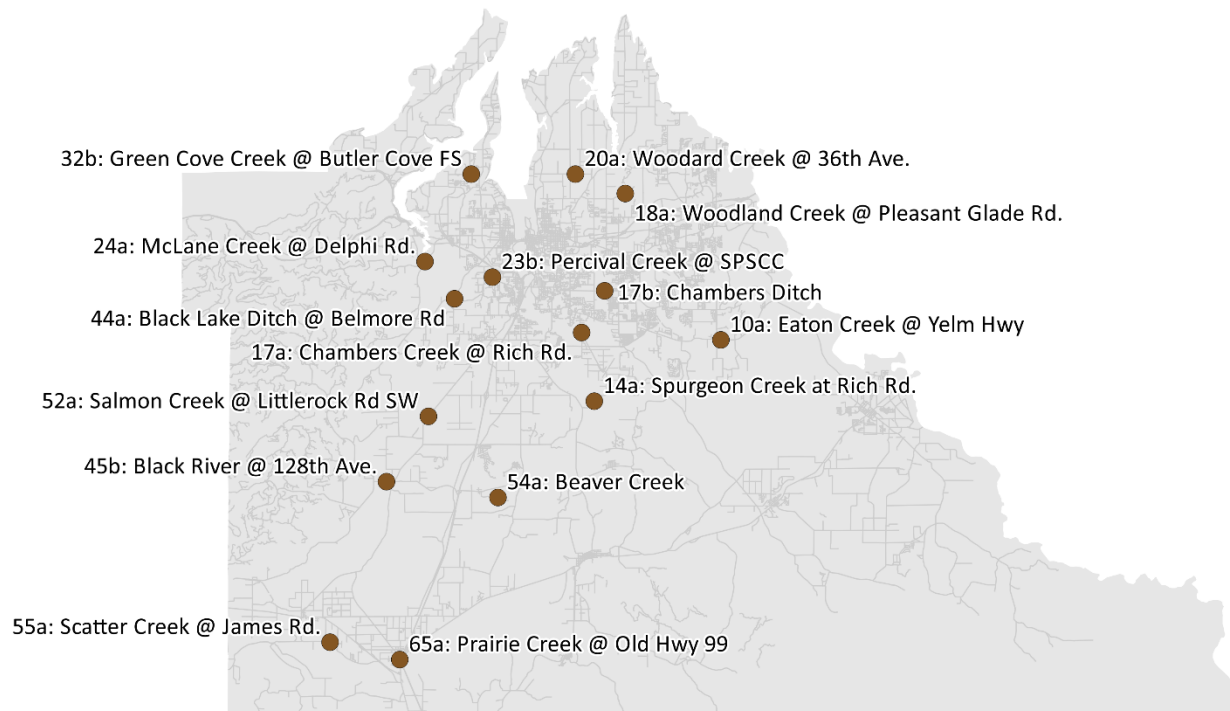
General

In general, streamflows respond to seasonal rainfall more than groundwater or lake water levels, which respond to longer-term trends. The streams in Thurston County rely on baseflows from groundwater, and therefore do not see the rise in flows during the spring and summer months that are typical from snow pack fed streams. None of the streams that the County monitors have year-round reliance on snow melt.

The urbanized and sub urbanized basins that host the ILMA streams derive their flows from both baseflow (groundwater) and surface runoff from precipitation. The dominant component of these streams depend on the time of year. In general, small streams are fed predominantly by groundwater between June and early October. After the first significant rain events occur, generally in early to mid-October, a combination of groundwater and surface water combine to produce seasonally higher flows that persist during the wet months.

Many of the ILMA streams are in the more urbanized areas of north Thurston County, and in many cases they react quite quickly to urban runoff. Streams that are located in less urbanized areas of the County show a much lower propensity for sharp distribution curves and show a much more metered reaction to rainfall because of the buffering effects of pervious surface such as fields and forests.

Figure 9: All GEM and ILMA Stream Monitoring Sites



Inter-Local Monitoring Agreement Streams

The 2015 – 2018 Interlocal Monitoring Agreement contains funding for five streamflow stations listed in Table 6: ILMA Streams below. These streams have been monitored almost continually since the late 1980s or early 1990s as part of the ILMA and its predecessor agreements.

Table 6: ILMA Streams

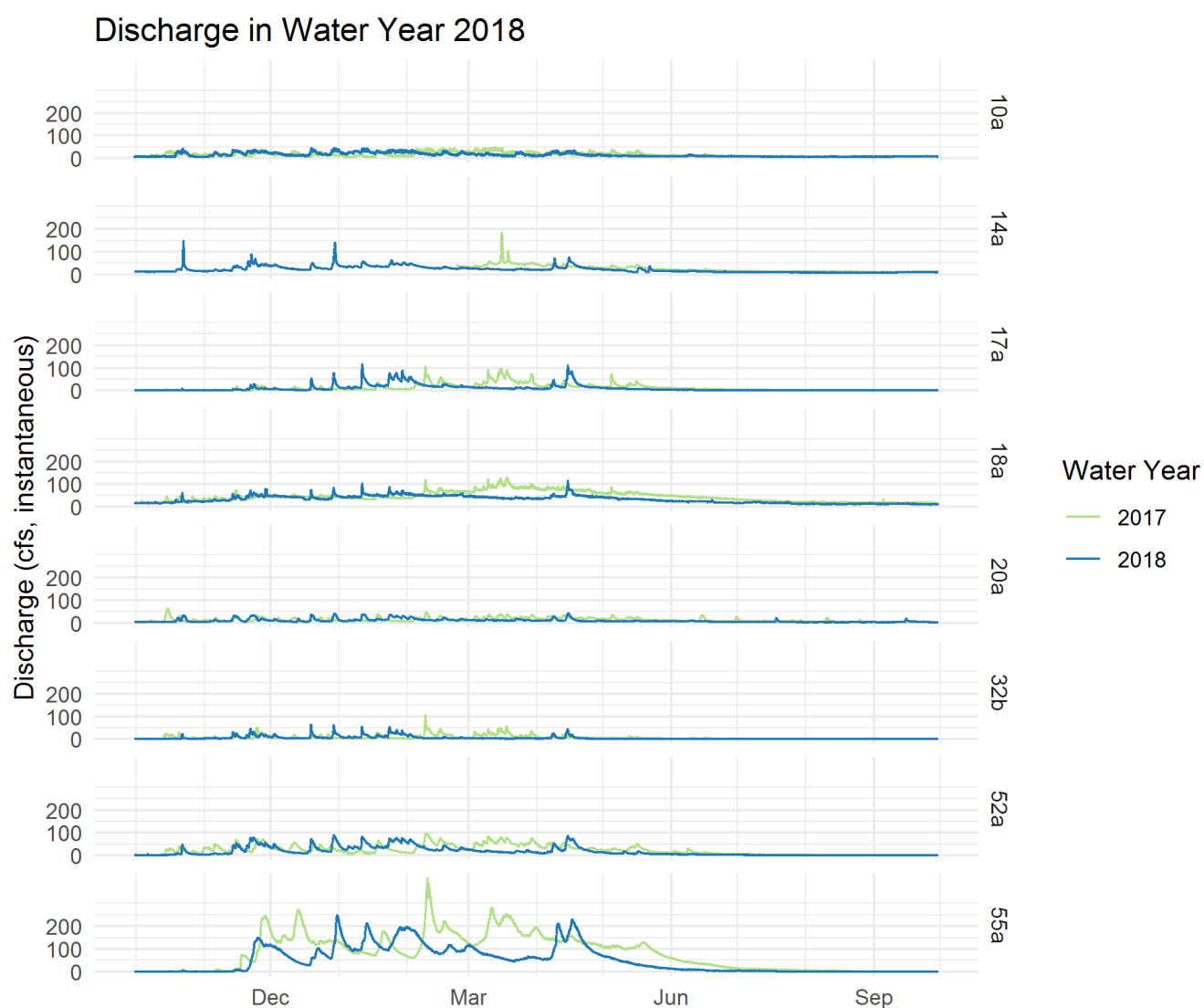
Streamflow Station	2015 – 2018 Contributing ILMA Partners	Comments
17a - Chambers Creek	Thurston County	Nearly 20 yr record
18a - Woodland Creek	Lacey/Thurston County	20+ yr record
20a - Woodard Creek	Thurston County	20+ yr record
32b - Green Cove Creek	Thurston County	Nearly 20 yr record
44a – Black Lake Ditch outlet	Tumwater/Thurston County	Nearly 15 yr record

Water Year 2018 Observations of Streamflow

Across the county discharges from streams peak at about the same time, and recede at about the same time, despite sometimes significant differences in total volumes. In WY 2018 there were major discharges in late November/early December, several through January and February, and two in April. In Scatter Creek at James Road (55a) these discharges resulted in days or weeks of discharges in excess of 100 cubic feet per second (cfs), whereas flashier creeks with lower total discharge volumes like Woodland Creek at Pleasant Glade (18a) never discharged as great of volumes, and receded to baseflow more quickly.

Some streams exhibit anomalous behaviors along their hydrograph. Spurgeon Creek (14a) has unusually high discharges in late October and again in mid-June. The origin of these discharges has not been determined (yet), but is likely due to upstream releases of water as culverts under roads are cleared. Similarly, Chambers Creek (17a) experiences intermittent blockages, which can disrupt the hydrograph.

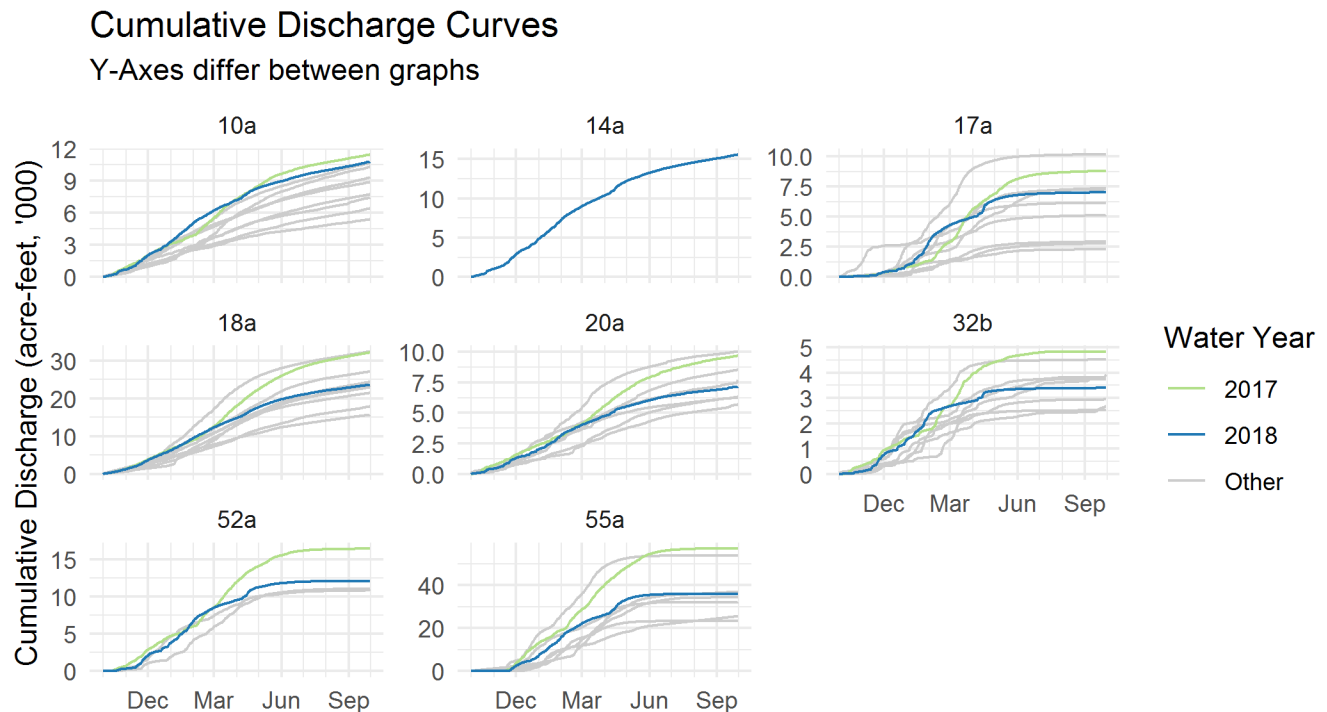
Figure 10: WY 2018 Stream Discharges



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The stream flow volumes measured between October 1, 2017 and September 30, 2018 are mostly similar to their long term averages. Early in the water year cumulative discharges (the running sum total of water volume discharged) were high across the county, driven by higher than normal November rainfall volumes. By late winter/early spring cumulative discharges settled into the normal range, where they stayed for the rest of the year.

Figure 11: WY 2018 Cumulative Stream Discharge Curves



The obvious standout in Figure 11 is Eaton Creek (10a), which ended WY 2018 having discharged more total water than in almost any other water year unlike every other creek (and despite 2018 being an average year for total rainfall). Long term data for Spurgeon Creek (14a; data not presented here) presents a similar picture of increasing total discharges over time; as the two creeks share headwaters, this similarity probably has a common underlying cause, which is as yet undetermined.

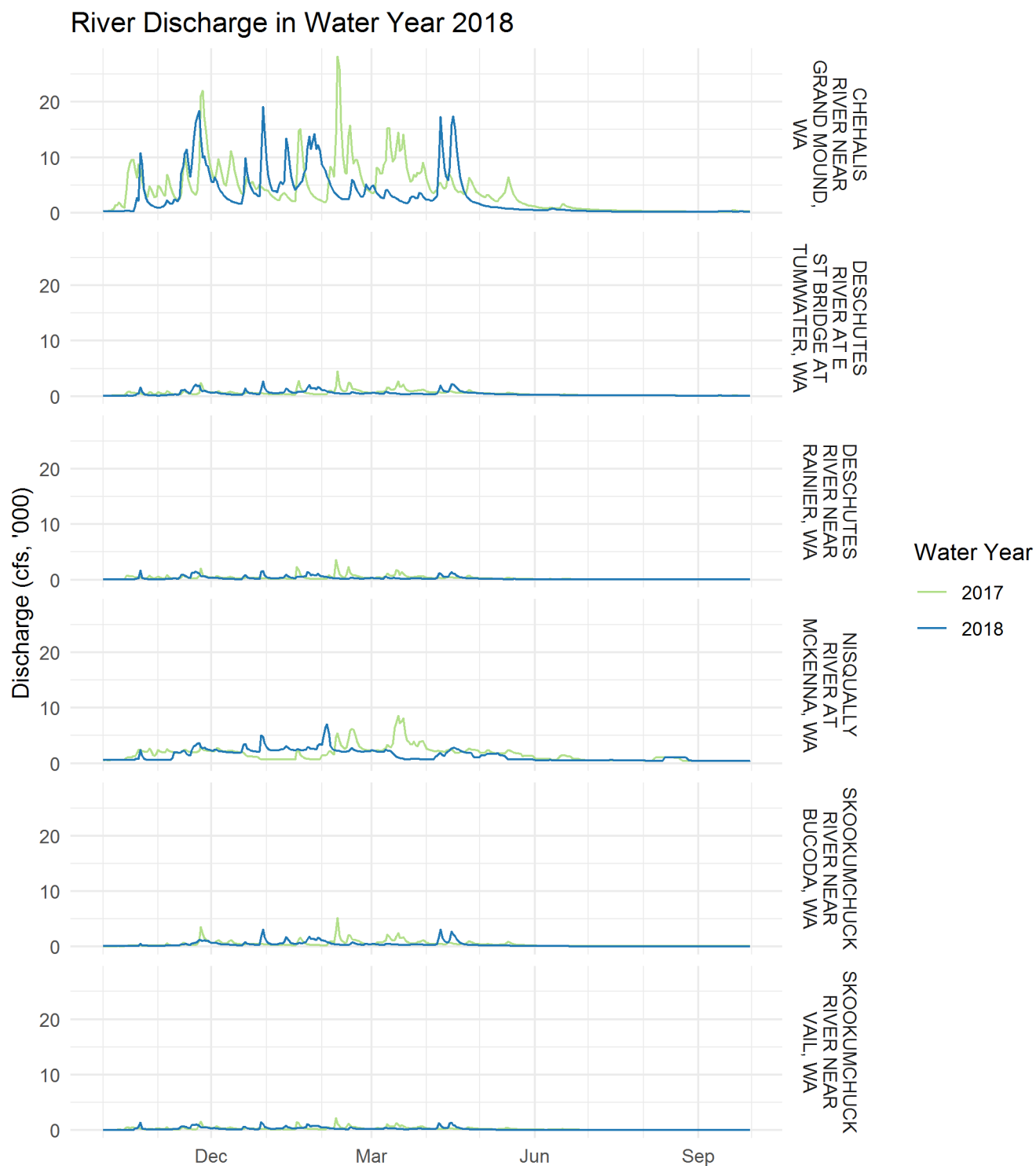
Rivers

Rivers have flows greater than 100 cubic feet per second on average. The larger rivers observed or recorded by Thurston County include the Deschutes, Black, Skookumchuck, Chehalis, and Nisqually rivers. These rivers generally have flows over the threshold that is safe for our field staff to monitor, and therefore we report streamflow data from the U.S. Geological Survey. The Black River at Littlerock is the only exception to this case and is actively waded by field staff if safe to do so.

The Nisqually and Chehalis Rivers define the eastern and southwestern borders of the County respectively. Of these, the Nisqually River is the only one that has a consistent year round input from high Cascade Mountain snowpack, and therefore reflects snowmelt in its baseflow, especially in the summer months. The Chehalis River and its tributaries (mainly the Skookumchuck River) have generally low to medium elevation sources, and therefore groundwater or lake contributions are the primary baseflow constituents.

The Nisqually is also mostly controlled by two dams, the La Grande and Alder dams; in Figure 12 below an artificial restriction on March 2018 and a release in July 2018 are both apparent. The Chehalis and Deschutes are mostly unrestricted, and the dam on the Skookumchuck is situated sufficiently far upstream that it has less obvious impacts on flow when compared to the Nisqually.

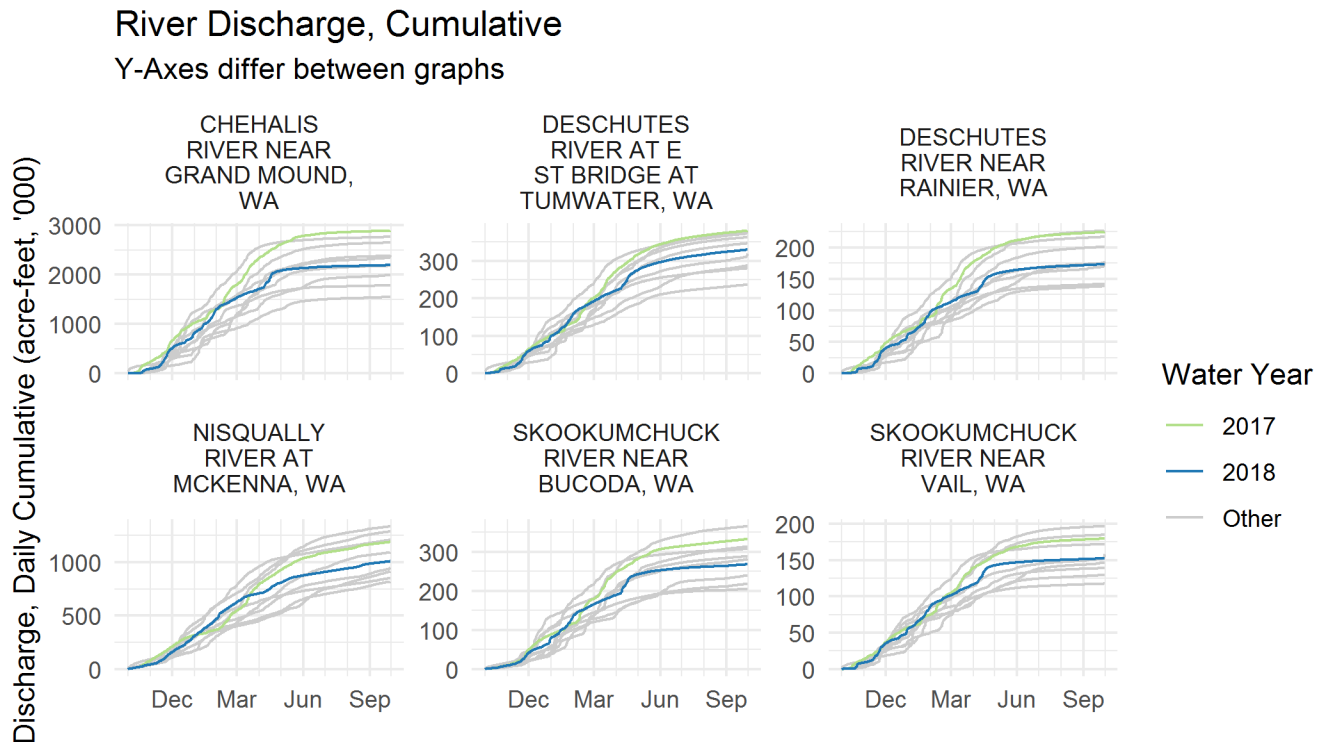
Figure 12: WY 2018 River Discharges



The extreme differences between the rivers in volume of water discharged makes it difficult to compare between them in Figure 12. The Chehalis River discharges a much greater volume of water than the Deschutes,

Nisqually, and Skookumchuck. In the cumulative discharge graphs in Figure 13 below the y-axes are normalized, so it is easier to compare annual trends between rivers, but the total volumes of water differ between the subgraphs.

Figure 13: WY 2018 Cumulative River Discharge Curves



At all of the river measurement points water year 2018 ends with a moderate total volume of water discharged, neither high nor low relative to the long-term average. In the Chehalis River cumulative discharge is nearly flat after May, indicating that summer flows are an insignificant percent of the total volume of water discharge. In the Deschutes at Tumwater there is a positive slope all summer long, demonstrating that summer flows are a more important part of that system.

The cumulative discharges of the Chehalis, Deschutes, and Skookumchuck all jump rapidly in April, which accords with the dual peak discharges in that month recorded in Figure 12. In the Nisqually those peaks are muted, and indeed in Figure 13 there is a much smoother overall cumulative discharge graph in water year 2018; this is the result of storing water in the reservoirs during rain events and slowly discharging the resulting volume during dry periods and the summer.

Water Temperature

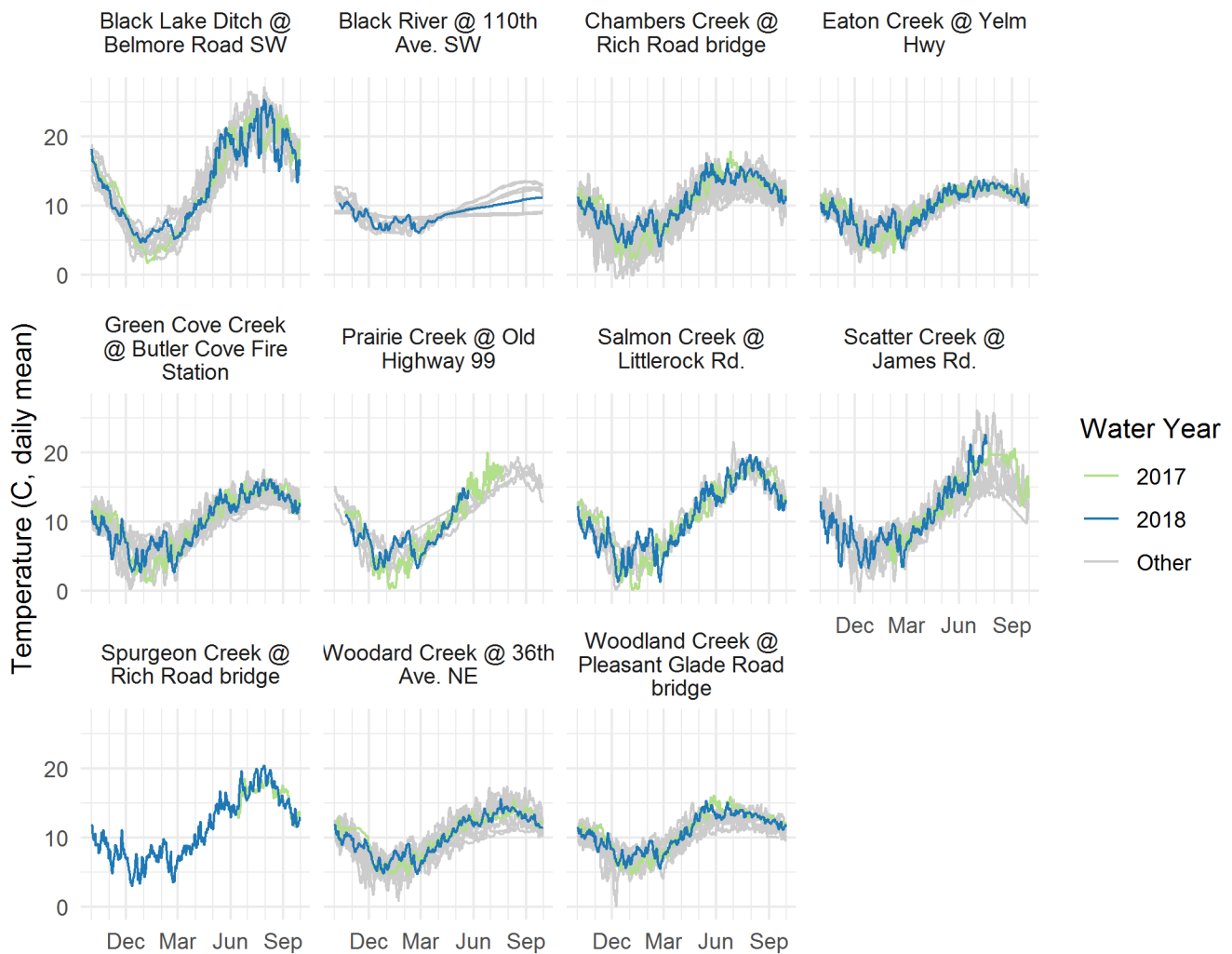
At most stream sites water temperature is recorded by the same device that records stage; sometimes this means that the water temperature is recorded several feet below the surface. Because of this, the continuous water temperature data collected by Thurston County, while valuable, is not always precise; sometimes it reflects near-surface temperatures, and sometimes it reflects temperatures several inches or feet below the surface.

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The range of water temperatures was similar in WY 2018 to WY 2017, and to previous WYs. One standout trend was an increase in temperatures at all sites in January relative to average conditions. That corresponds with an increase in air temperatures (Figure 5), which would be expected to drive increased stream temperatures. It also coincides with a significant rain event (Figure 10) in January which would normally drive water temperatures down (as winter rain tends to be colder than groundwater); it is possible that abnormally warm air temperatures also warmed the rain, which further increased water temperatures.

Figure 14: Stream Temperatures

Stream Water Temperatures



While stream temperature profiles are similar year after year, with temperatures rising in the spring and summer and falling in the fall and winter, there are some key differences in and amongst the sites. Eaton (10a), Woodard (20a), Green Cove (32b), Chambers (17a) and Woodland (18a) creeks all tend to have lower summer peak temperatures than Black Lake Ditch (44a), Salmon Creek (52a), Scatter Creek (55a) and Prairie (65a) creeks. Creeks with lower summer temperatures tend to be groundwater-dominated systems; creeks with higher

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temperatures are usually flashier and more dominated by surface runoff. Two additional possible influences are waterbodies immediately upstream, like lakes or wetlands, that warm the water before it discharges to the stream (Black Lake Ditch and Spurgeon Creek), and dried-out stilling wells in ephemeral streams that occasionally result in sensors recording the air, which is warmer, rather than water, which is cooler (Prairie Creek and Scatter Creek).

One important caveat to these data is that they reflect only the high-rate 15-minute monitoring performed by Water Planning; Thurston County Environmental Health has monthly data that extend back much further, and may reflect long-term trends that are not yet captured by the high-rate data.

Groundwater

General

Groundwater is an important driver of many surface water systems, including streams and lakes.

Peak groundwater elevations in WY 2018 were generally lower than in WY 2017.

Groundwater Levels for the 2018 Water Year (Salmon Creek Basin)

Thirteen of the forty-one actively monitored Thurston County groundwater monitoring wells are located south of Tumwater in the Salmon Creek Basin. At the end of WY 2018 Thurston County stopped monitoring three of these Salmon Creek wells (LRS-01a, LRS-09, and LRS-12) because they were in areas annexed by Tumwater.

The Salmon Creek area is affected by high groundwater throughout the winter months in most years. There are some areas within the basin that experience flooding annually, and each year there has been an approximately 1 in 20 chance of the groundwater flooding basin wide.

The last widespread flood event occurred in March of 2009. The flood of record by which the Salmon Creek Basin Plan was implemented was based on a major flood event that occurred only ten years before that event, in March 1999. Building and general development requirements within the Basin were modified in response to the 1999 flood. The groundwater data collected by Thurston County is used to calculate flood elevations on prospective parcels in relation to the 1999 flood elevations recorded at the indicator well locations. Figure 15 below is a current map of the location of the groundwater wells in the Salmon Creek Basin.

Figure 15: Salmon Creek Groundwater Wells Map

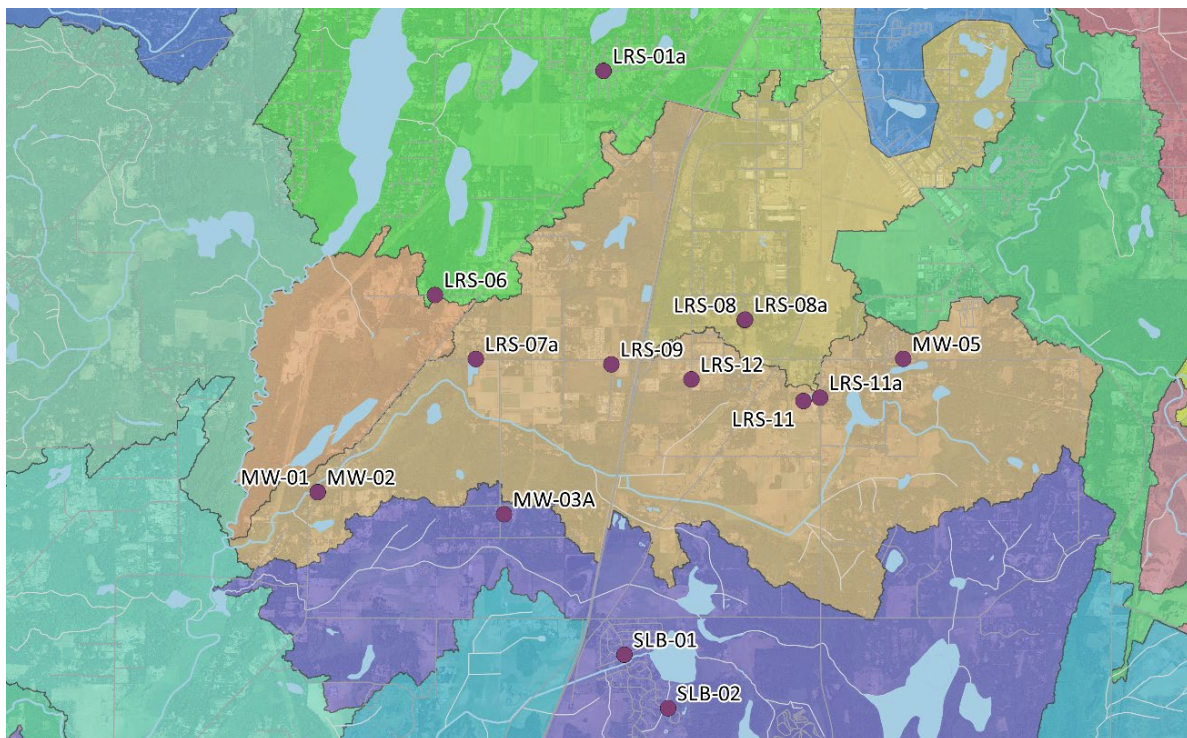
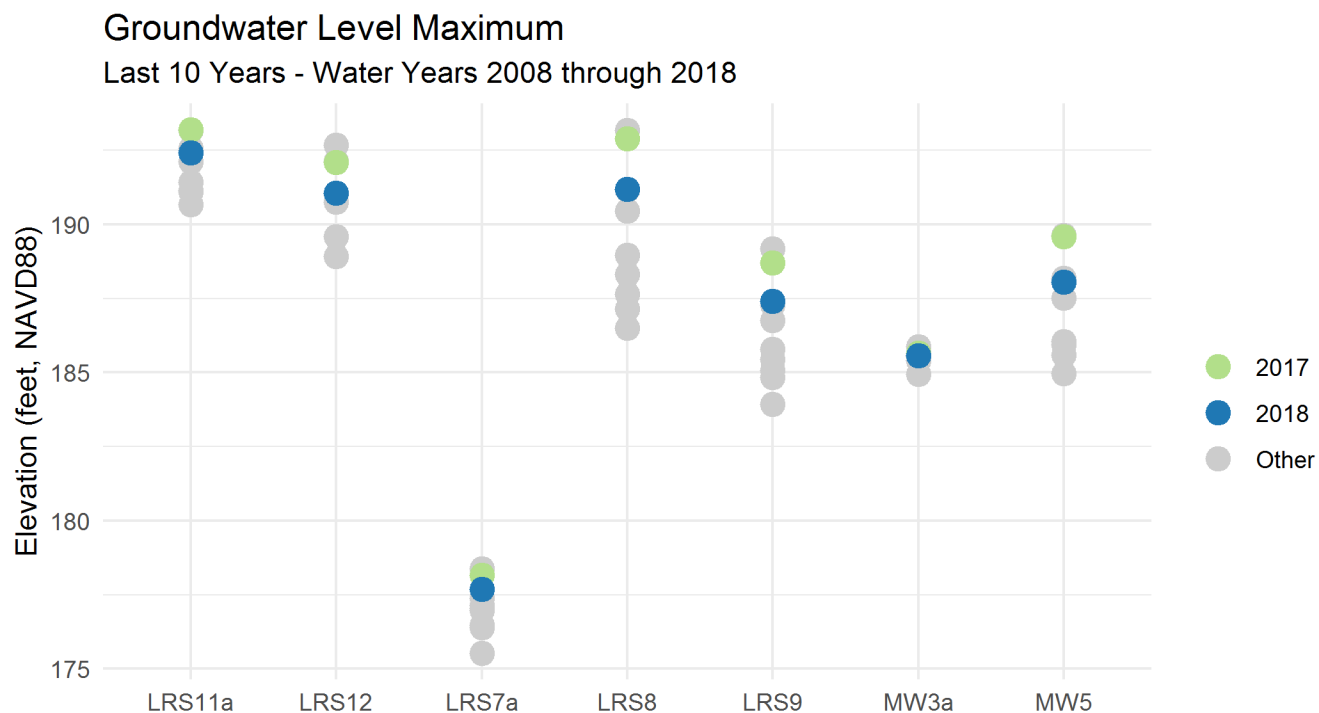
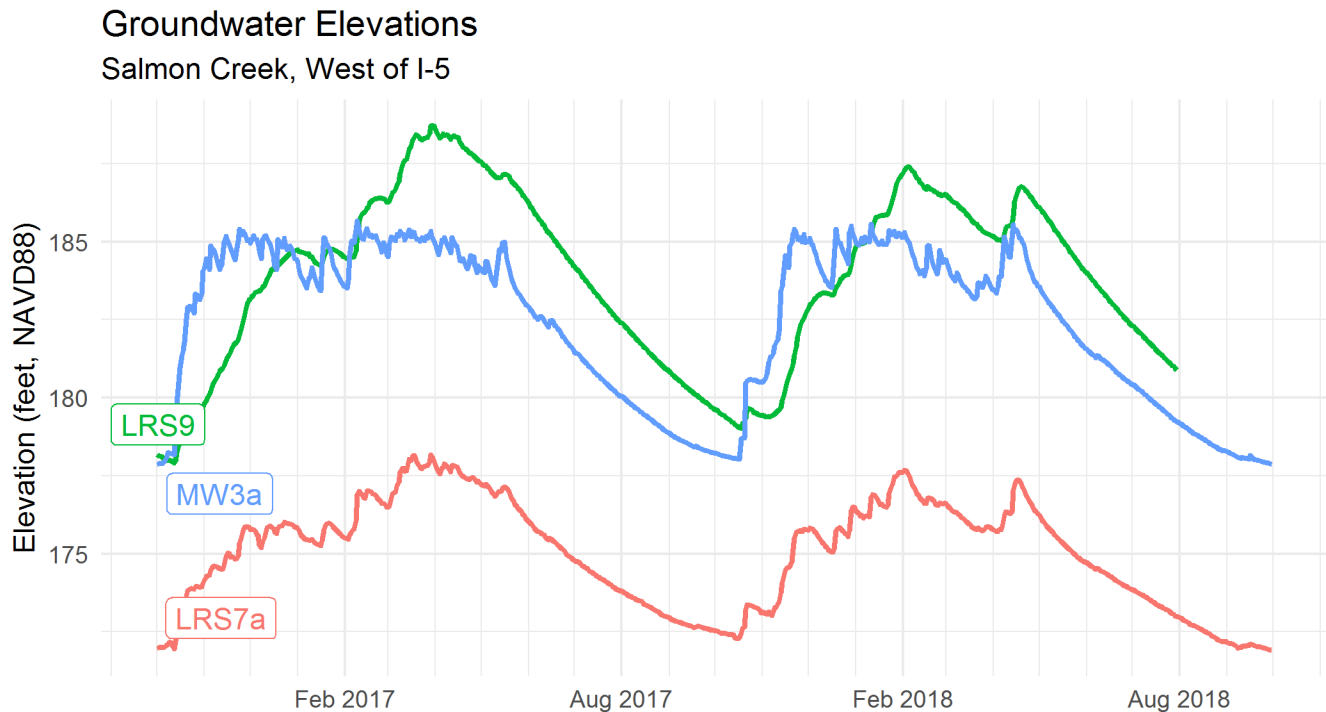


Figure 16: Salmon Creek Groundwater Maximum Elevation



Two near-exceptions to this rule are MW3a and LRS7a, where peak groundwater elevations were very similar between the two water years. This is because the geology and hydrology west of I-5, where LRS9, MW3a, and LRS7a are situated, is different from the geology and hydrology east of I-5, where the remainder of the Salmon Creek wells are situated.

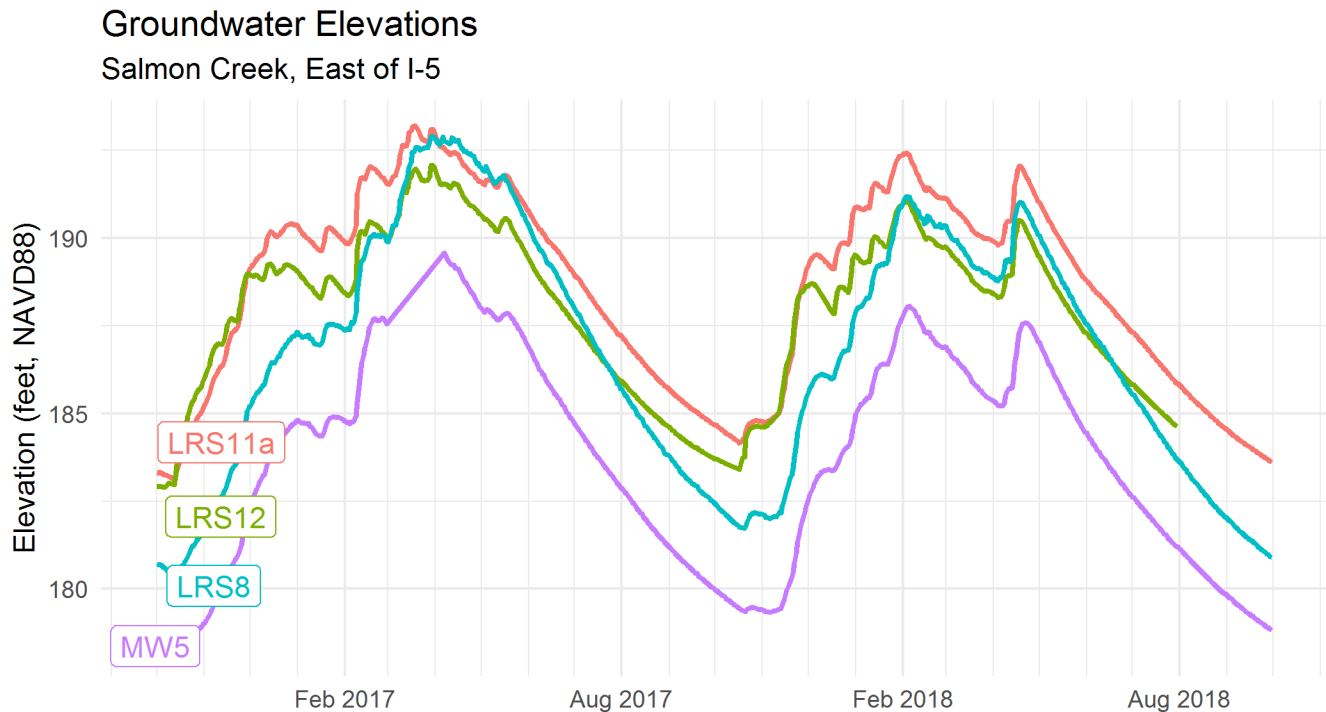
Figure 17: Salmon Creek Groundwater Elevation, West



MW3a and LRS7a are shallow wells, and they measure water that discharges to surface water bodies, like ditches, at sufficiently high elevations. Figure 17 shows these wells rising to a certain elevation (about 185' for MW3a and about 177' for LRS7a), then rising no higher, because at that elevation water begins to discharge very rapidly through the roadside ditch system. For that reason, even though there was significantly more rain in WY 2017 than in WY 2018, the maximum elevation in both wells was about the same in both water years. What is noticeably different between those water years is the length of time over which that high water elevation was sustained. In WY 2017 high water lasted from approximately November 2016 to mid-June 2017, or about 8 months; in WY 2018 high water lasted from approximately mid-November to mid-May, or about 7 months, with a significant drop in water levels in March. So while the annual maximum water level was about the same for those wells in both water years, there was less total water volume in WY 2018.

The wells east of I-5, on the other hand, tend to be deeper and only discharge to the surface under significantly wetter conditions.

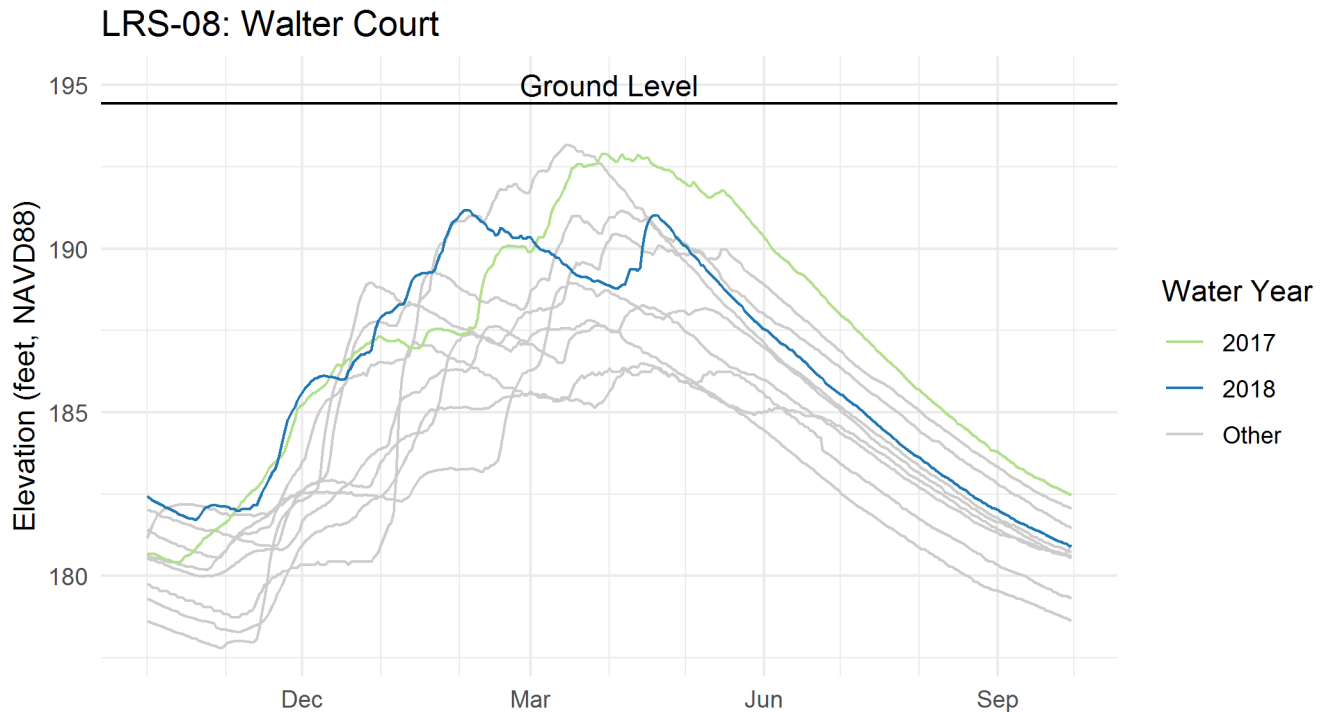
Figure 18: Salmon Creek Groundwater Elevation, East



Peak water elevations east of I-5 were lower in WY 2018 than in WY2017. The dry spell in March 2018 is particularly evident in the groundwater record in Figure 18, as is the wet streak in April. The record for MW5 includes a span in March of 2017 where data are missing, which appears as a straight line.

LRS8a, located just off of Walter Court, is the well that best characterizes the overall condition of groundwater in the Salmon Creek basin. In October 2017 LRS-08a was installed, adjacent to the original LRS-08. The two wells were monitored simultaneously for WY 2018 and determined to be effectively identical. This report will sometimes refer to LRS-08 and sometimes to LRS-08a; the data from both wells can be used interchangeably.

Figure 19: LRS-08 Groundwater Elevation Detail



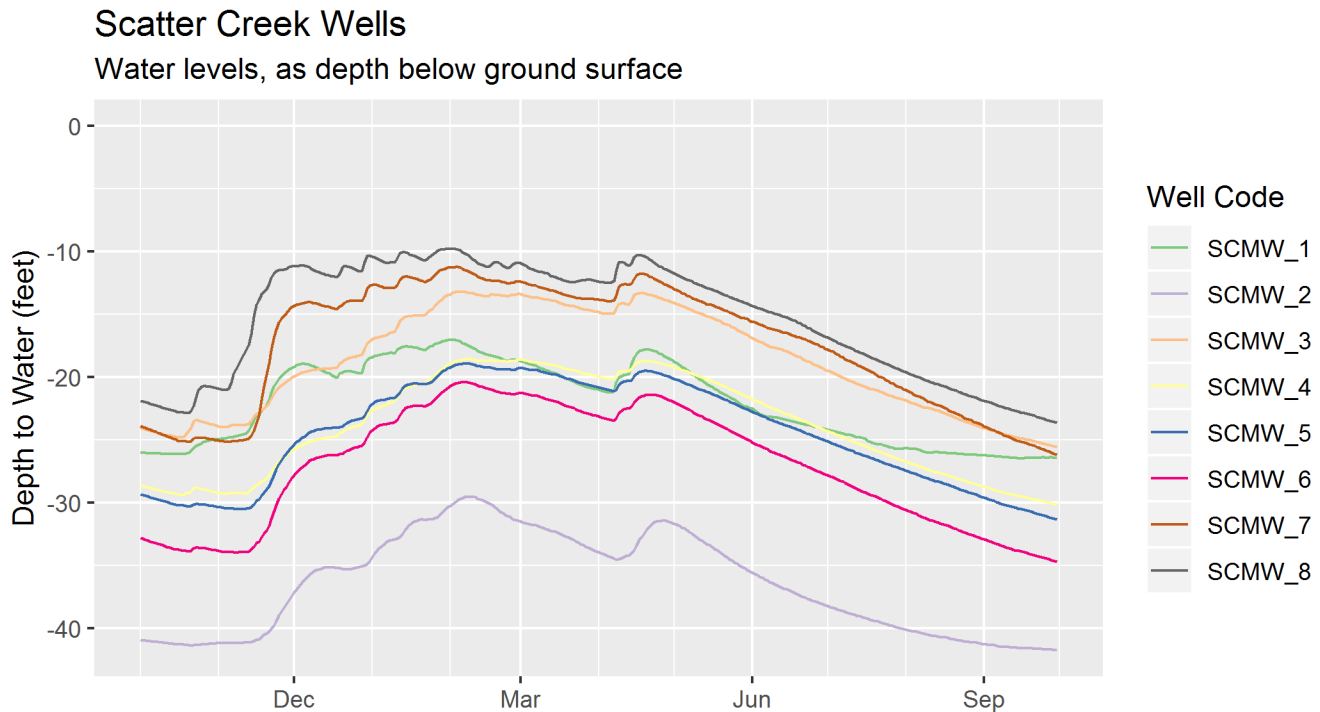
By overlaying multiple water years on the same graph in Figure 19, the differences and similarities between years become apparent.

Groundwater in the Salmon Creek basin began WY 2018 at the highest start-of-water-year elevation it has been in 10 years, raising fears of groundwater flooding. Unlike WY 2017, when a wet October drove up groundwater elevations, in WY 2018 groundwater elevations remained fairly constant until rains began in earnest in November. Up through early February, steady rainfall kept groundwater elevations high as compared to previous years, even exceeding WY 2017 elevations in January. In February and March relatively low rainfall pushed groundwater levels down, both in absolute terms and as compared to previous years. By April, when the next significant rainfall hit the region, groundwater levels had dropped to about normal for that time of year. A dry late spring and summer kept groundwater elevations low, so that water levels ended the water year right in the middle of the normal range, about a foot and a half lower than they began.

Groundwater Levels for the 2018 Water Year (Scatter Creek Basin)

In 2017 eight deep groundwater monitoring wells were installed in the Scatter Creek aquifer in southern Thurston County. Continuous monitoring of these wells began in summer 2017; WY 2018 is the first water year with a complete record.

Figure 20: Scatter Creek Groundwater Elevation



While historical comparisons are not possible because the wells are so new, most of the Scatter Creek wells responded to rainfall in WY 2018 in a similar manner to the Salmon Creek wells. There was a sharp increase in water elevation in late November, followed by either steady increases (in deeper wells) or maintained water levels through February. Like LRS8 and other Salmon Creek wells, the dry spell in March led to a decline in groundwater elevations throughout the Scatter Creek basin, and rain in April created a mid-spring bounce, followed by a long steady decline in water levels through the end of September. By the end of the water year water elevations were at or below their start-of-water-year elevations.

Figure 20 reveals some interesting deviations from this overall pattern. The first is that wells measuring deeper water, like SCMW_2 and SCMW_6, had less pronounced responses to individual rain events, whereas wells with shallower water like SCMW_8 and SCMW_7 had more pronounced responses. This is particularly evident in April; the hydrograph for SCMW_8 clearly shows the influence of two separate rain events in two separate peaks, whereas the SCMW_2 hydrograph has a single peak in April, as the influences of the two rain events blend together.

Another deviation from the pattern is evident in the hydrographs for SCMW_1 and SCMW_2 from June to the end of the water year. While other wells have consistent downward trends in water elevation over that period, water elevations in those two wells drop less and less over time, so that by September there is almost no difference in water elevation between the 1st of the month and the 30th of the month. One possible explanation is that these wells are more strongly influenced by the Chehalis River, which continues to discharge throughout the summer and could be maintaining higher groundwater elevations during the dry summer months.

Groundwater Levels for the 2018 Water Year (Other Basins)

The Salmon Creek Basin is not the only location where groundwater is monitored by Thurston County. It is the most extensive and has the longest, continuous record of groundwater data in the County, but other locations throughout Thurston County where groundwater data is recorded include Tanglewilde in Lacey, the Hidden Forest subdivision (also in Lacey), Scott Lake south of Tumwater, and some smaller sites for project-specific groundwater data requirements. These sites are mostly project specific sites and have data records of ten years or less.

Thurston County will be implementing a new groundwater monitoring program over the three-year period of 2019-2021. The intent of these changes is to create a more comprehensive groundwater monitoring program including high-growth areas in the County where no monitoring is currently performed.

The proposed program will use as many existing, project-specific wells as possible. Some wells in each project area will be abandoned where no longer needed or badly damaged. New wells will be drilled in high-growth parts of the county that are currently not monitored.

Lakes – St. Clair, Long, Black, and Hicks

General

In 2011 Thurston County Water Resources began collecting lake levels for three major lakes in Thurston County. The three lakes are:

1. **Lake St Clair** in North Eastern Thurston County between Yelm and Lacey
2. **Long Lake** in North Central Thurston County
3. **Black Lake** in North Western Thurston County

In 2018 Thurston County started recording lake level elevations reported by a volunteer on Hicks Lake as well.

4. **Hicks Lake** in North Central Thurston County (upstream of Long Lake)

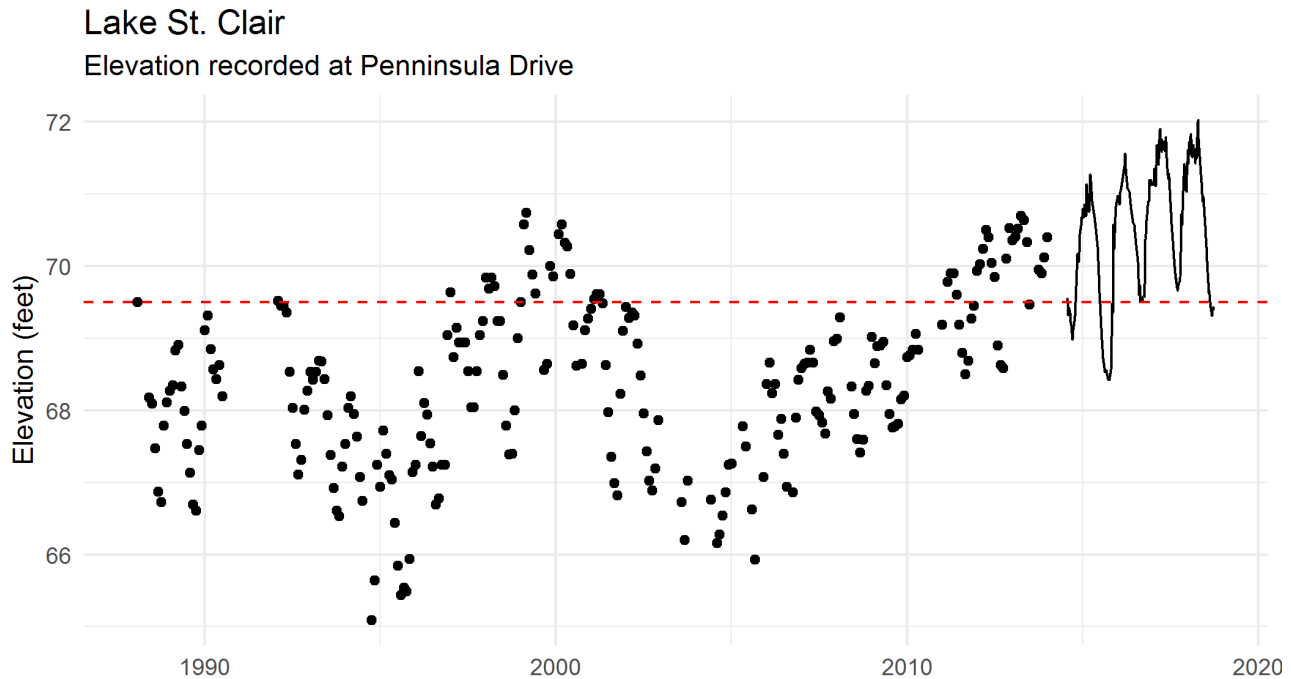
Although there are dozens of lakes in the County, the first three lakes were prioritized because they were the most densely populated and because they are entirely or predominantly within the County jurisdiction. Black Lake and Long Lake share boundaries with or include Urban Growth Areas for Tumwater and Lacey respectively. Lake Level data is also available in Appendix F, and online at <http://www.thurstoncountywa.gov/sw/Pages/monitoring-dashboard.aspx>.

There is also a Lakes Home Page maintained by Thurston County Public Works which oversees the County Lakes Program at http://www.co.thurston.wa.us/tcweeds/lakes/lakes-home_nw.html. The Lakes Home Page is for those lakes with an active Lake Management District (Long and Lawrence) or Lake Special District (Black Lake).

Lake St. Clair

Lake St. Clair is an isolated kettle lake left over from the continental ice sheet that occupied this region 13,000 years ago. It has no natural surface outlet, so water can only leave the basin by evaporation or groundwater seepage. Over the past 30 years, the level of the lake has varied by about 2 feet annually, and through a range of about 7 feet total.

Figure 21: Lake St. Clair Elevation



Datum: NGVD 29' converted from MSL City of Olympia Datum

The red dotted line on the plot indicates 69.5', which is the water elevation at which the 5 MPH speed limit is enacted

Since about 2005 Lake St. Clair has been on a long-term upswing. Despite the low start to WY 2016 because of the preceding drought year, the water years 2016 through 2018 had the highest levels in Lake St. Clair recorded since 1988. While the maximum level in 2018 was the highest recorded in that 30-year span, the lake also ended the water year with the lowest water level since WY 2016.

Thurston County Water Planning continues to study Lake St. Clair and the drivers behind the observed multi-year fluctuations. Evidence increasingly points to strong surface water influences on the lake, and may indicate minimal groundwater interaction above a baseline elevation. Since Eaton Creek is the primary surface water input to the lake, the fact that annual discharge in the creek have gone up over the past ten years (see Figure 11, graph for 10a) is probably relevant to the steady increase in lake level measurements.

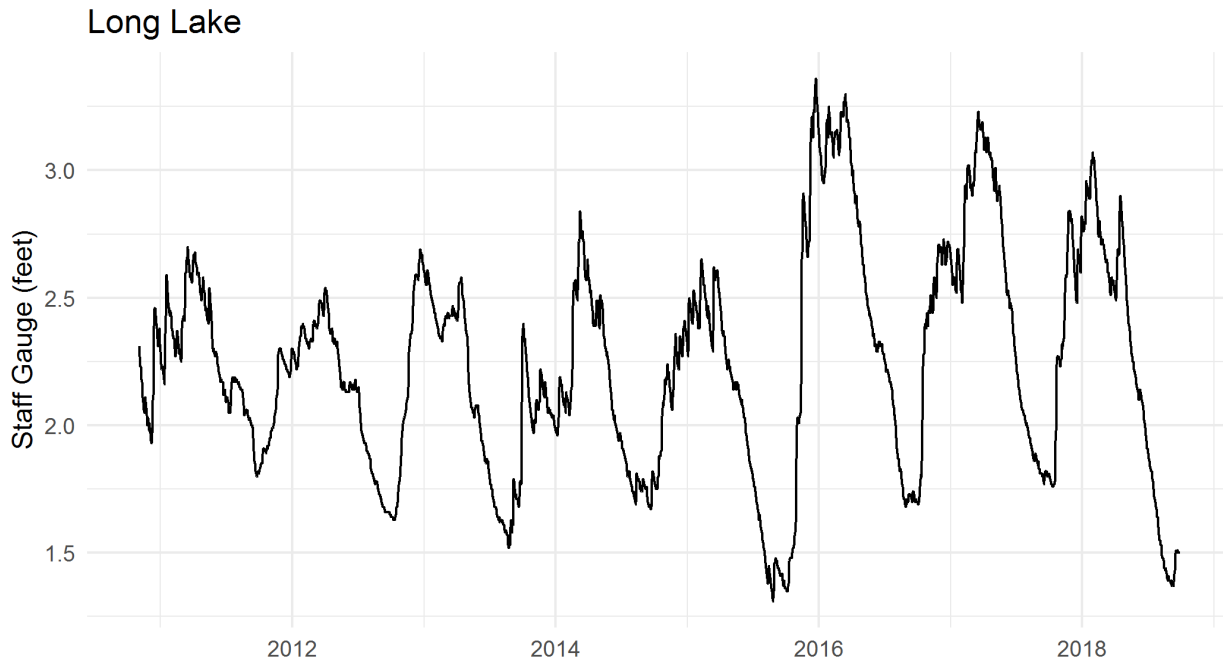
Long Lake

Long Lake is located in the southeastern Urban Growth Area of Lacey and is highly urbanized like most of the surrounding lakes. Long Lake is part of a three lake group that also includes Pattison Lake and Hicks Lake. These lakes are hydraulically connected by surface and subsurface flow ways. Unlike Lake St. Clair, Long Lake has a well-defined outlet that constitutes the headwaters of Woodland Creek.

Long Lake has also experienced higher than average seasonal lake levels during WY 2018, though unlike Lake St. Clair, WY 2018 was lower than the preceding two water years.

Figure 22 below represents data collected from the Holmes Island Bridge gauge that Thurston County maintains. The chart includes data from WYs 2011 through 2018 to illustrate the range of surface stage that seasonally occurs.

Figure 22: Long Lake Staff Gauge

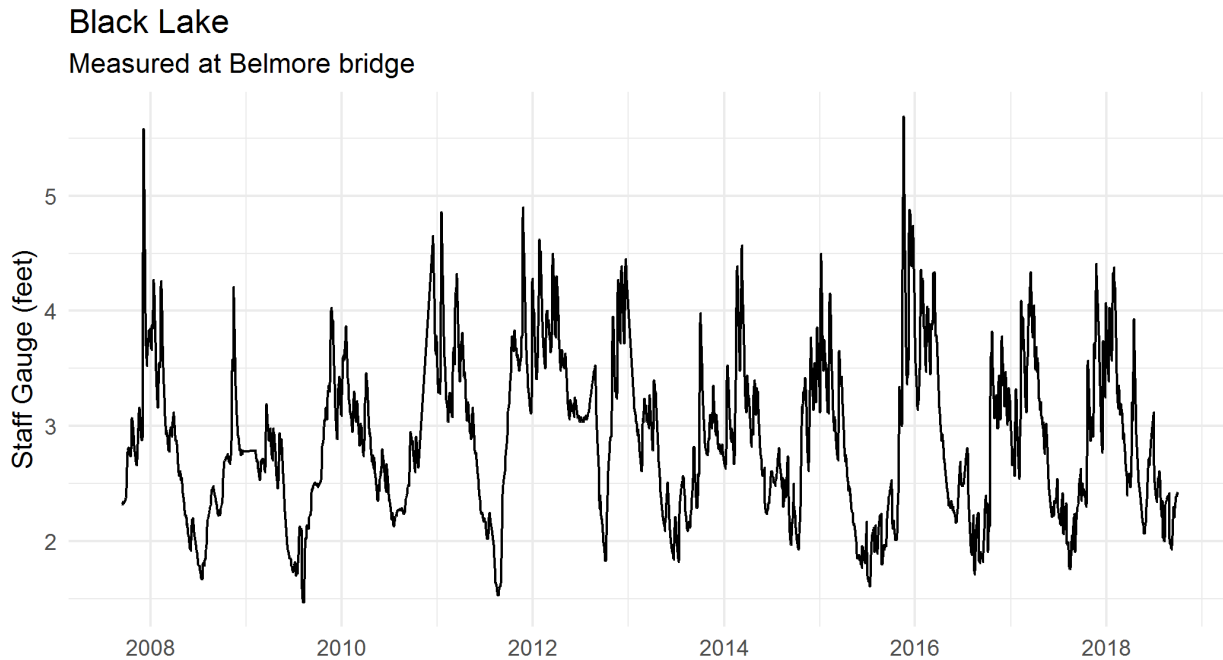


Much like Lake St. Clair, water years 2016, 2017, and 2018 all had similar annual peak water elevations; also like Lake St. Clair, the minimum elevation in WY 2018 was much lower than the minimum elevation in the preceding two years.

Black Lake

Black Lake also responds to variations in precipitation in predictable ways. This lake, however, responds more quickly than most lakes. The Black Lake Basin is located west of Olympia, adjacent to the Urban Growth Area for the City of Tumwater. It is situated between the predominantly basaltic Black Hills and Somerset Hill in Tumwater. This basin has highly impermeable rock and glacial till underlying the surface layers. In addition, the topography is steep, and this basin receives approximately 25 percent higher precipitation than the Olympia airport only five miles to the east. Finally, beavers regularly block the outlet of the lake, and those dams are regularly removed, resulting in sudden jumps and falls in water levels. As a result of this combination of factors – geology, topography, intensified precipitation, and beaver activity - the lake rises and falls more like a river than a lake. The figure below is a chart of WYs 2008 through 2018.

Figure 23: Black Lake Staff Gauge

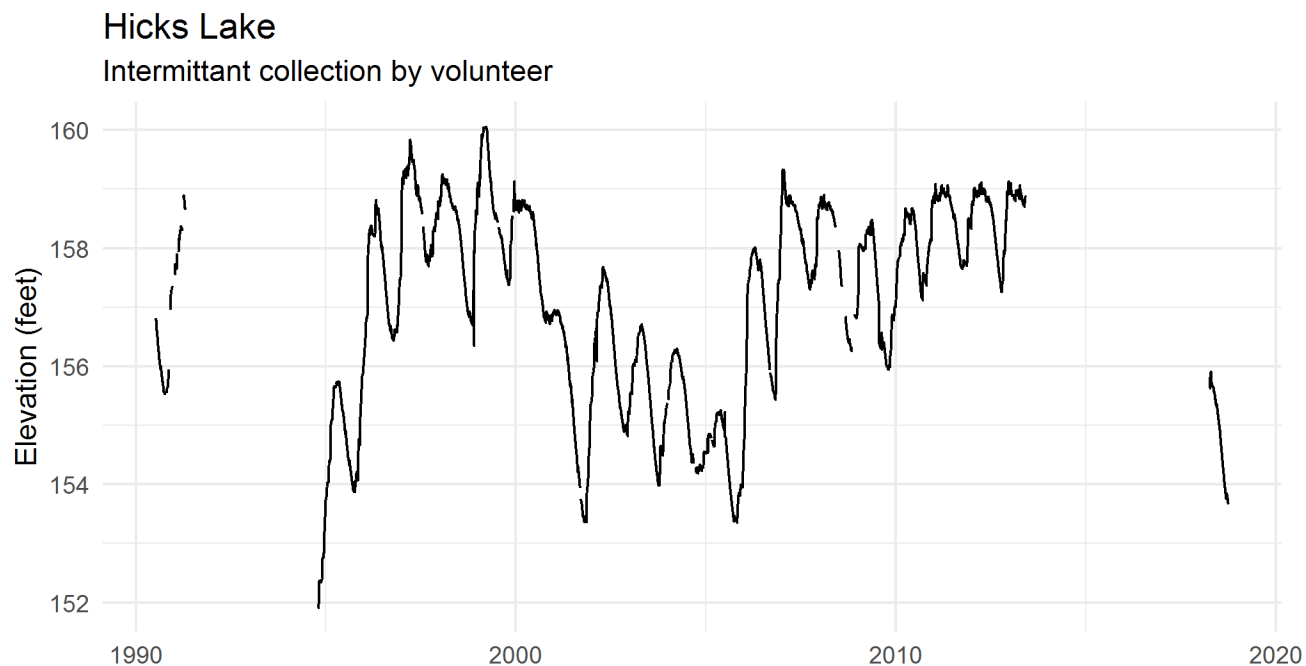


The hydrograph of Black Lake Ditch is much less regular than the hydrographs of other lakes in Thurston County, with many sudden peaks and falls for the reasons described above. Nevertheless, there is an apparent annual trend in the data, with peaks in the winter wet season and lows in the summer dry season. WY 2018 looks very similar to WY 2017, with nearly identical annual maximum and minimum water levels; that stands in contrast to other lakes in the County, where WY 2018 minimum lake levels were much lower than WY 2017.

Hicks Lake

Volunteers have monitored water levels at Hicks Lake for many years. Between WYs 2014 and 2017 Thurston County was not recording the collected data, but recording restarted in the middle of WY 2018.

Figure 24: Hicks Lake Elevation



Because data collection at Hicks Lake only restarted recently, WY 2018 is incomplete and difficult to compare to previous years. Despite that, Figure 24 shows WY 2018 ended much lower than the years between 2007 and 2013. Overall the pattern in Hicks is somewhat similar to the pattern in Lake St. Clair (where there are data to compare the two).

Summary of Water Year 2018

Compared to the drought year of WY 2016 and the wet years of 2016-2017, WY 2018 was a return to normal. Temperatures and rainfall patterns hewed closer to the long term average, which had a stabilizing effect on most stream discharge volumes and lake levels.

More specifically, WY 2018 began with high groundwater and lake levels from the previous two years of above-average precipitation. From October through December air temperatures were normal and rainfall amounts were near or slightly above average, leading to normal stream discharges and above average groundwater levels. In January a pulse of warm, wet weather pushed some precipitation stations above their WY 2017 cumulative rainfall amounts, and drove increases in both stream discharge volumes and in surface and shallow groundwater temperatures. A drier than usual February and March dropped groundwater levels from near or at their (high) WY 2017 elevations to approximately normal elevations, before a wet April pushed them back up again and created a noticeable spike in discharge at most stream gauges. The dry remainder of the water year caused groundwater and lake water levels to end the water year near their long-term averages.

Closing

Thurston County Water Planning has continued to collect data for our Regional Interlocal Monitoring partners and our General Environmental Monitoring program for almost twenty years. Together with the Thurston County Environmental Health Division, we collect millions of data points per year for processing and modelling. All of the data collected by our programs is available electronically at no cost to the public and other government agencies, either at <http://www.thurstoncountywa.gov/sw/Pages/monitoring.aspx> or by directly contacting Thurston County staff. The program is continuing to evolve with new technologies and analytical techniques. We will be striving to provide the highest quality data for quantifying our local water cycle and integrating it with our regional partners. We will be continuing to improve our data quality and services with new locations and using remote sensing technologies in the upcoming years. We will be providing additional services for groundwater, surface water flows and atmospheric monitoring and lake levels. We will continue to integrate our data and program elements with Thurston County Environmental Health through a shared database and other cooperative efforts. That in turn will provide a more complete picture of the health of our water resources in Thurston County.

The water cycle begins in the clouds and ends in Puget Sound or the Pacific Ocean, and we attempt to quantify it at every level from the raindrops, streams, ground, and lakes until it returns to its source.

Appendix A –Precipitation Data

05u--Yelm WRF_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.03	0.00	0.10	0.00	0.57	0.09	0.16	0.00	0.00	0.00	0.00	0.00
02	0.00	0.28	0.31	0.00	0.18	0.02	0.01	0.00	0.00	0.00	0.00	0.00
03	0.00	0.10	0.20	0.00	0.02	0.00	0.01	0.00	0.05	0.00	0.00	0.00
04	0.00	0.25	0.00	0.12	0.02	0.13	0.37	0.00	0.04	0.00	0.00	0.00
05	0.00	0.84	0.00	0.22	0.00	0.14	0.41	0.00	0.00	0.00	0.00	0.00
06	0.08	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
07	0.16	0.00	0.01	0.57	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.01
08	0.00	0.38	0.00	0.15	0.00	0.19	0.89	0.02	0.43	0.00	0.00	0.00
09	0.00	0.15	0.00	0.16	0.00	0.02	0.00	0.09	0.01	0.00	0.00	0.26
10	0.00	0.00	0.00	0.16	0.01	0.00	0.13	0.34	0.11	0.00	0.00	0.28
11	0.02	0.01	0.00	1.18	0.00	0.00	0.16	0.00	0.00	0.00	0.28	0.12
12	0.14	0.06	0.00	0.01	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.01
13	0.00	1.22	0.00	0.00	0.13	0.13	0.17	0.00	0.01	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.09	0.03	1.13	0.00	0.00	0.00	0.00	0.05
15	0.00	0.39	0.00	0.02	0.05	0.00	0.27	0.00	0.00	0.00	0.00	0.07
16	0.00	0.35	0.04	0.05	0.26	0.00	0.33	0.00	0.00	0.00	0.00	0.06
17	0.05	0.03	0.01	0.54	0.52	0.00	0.02	0.00	0.00	0.00	0.00	0.00
18	0.74	0.00	0.58	0.19	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.71	0.41	1.01	0.05	0.03	0.00	0.00	0.16	0.00	0.00	0.00	0.00
20	0.28	0.34	0.01	0.07	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	2.47	0.73	0.00	0.12	0.06	0.07	0.09	0.00	0.00	0.00	0.00	0.03
22	0.24	0.39	0.20	0.30	0.16	0.44	0.00	0.00	0.00	0.00	0.00	0.07
23	0.00	0.51	0.00	0.37	0.01	0.26	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.31	0.13	0.34	0.00	0.00	0.11	0.00	0.00	0.00
25	0.06	0.15	0.13	0.17	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.52	0.06	0.35	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.00
27	0.00	0.01	0.17	0.07	0.00	0.02	0.19	0.00	0.00	0.00	0.01	0.00
28	0.00	0.61	0.85	0.11	0.01	0.00	0.16	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.91	0.50		0.00	0.04	0.00	0.00	0.00	0.00	0.07
30	0.00	0.22	0.05	0.32		0.00	0.00	0.00	0.00	0.00	0.00	0.01
31	0.00		0.00	0.02		0.00		0.00		0.00	0.00	
Total	4.98	7.95	4.64	6.14	2.92	1.90	5.38	0.61	0.76	0.00	0.31	1.04
Days	12	22	16	26	19	14	20	4	7		3	12

155 Precip Days

Total Rainfall for Water Year 2018: 36.63

Notes:

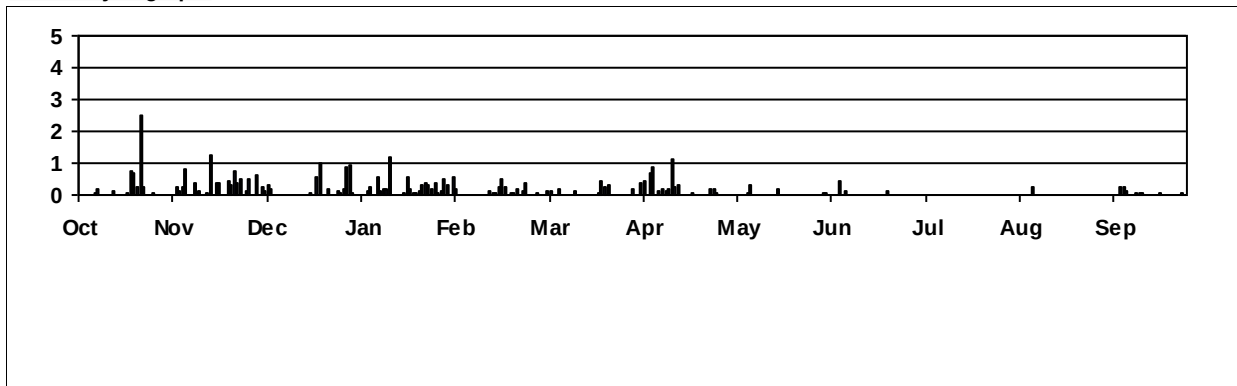
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

Visit our website at

Annual Hyetograph:



10u--Meridian Rd_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.02	0.00	0.24	0.00	0.58	0.19	0.10	0.00	0.00	0.00	0.00	0.00
02	0.01	0.38	0.34	0.01	0.24	0.02	0.04	0.00	0.00	0.00	0.00	0.00
03	0.00	0.18	0.10	0.00	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.00
04	0.00	0.27	0.00	0.22	0.01	0.10	0.38	0.00	0.00	0.00	0.00	0.00
05	0.00	0.83	0.01	0.25	0.00	0.04	0.33	0.00	0.00	0.00	0.00	0.00
06	0.15	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.13	0.00	0.00	0.47	0.00	0.01	1.01	0.00	0.00	0.00	0.00	0.01
08	0.00	0.46	0.01	0.15	0.00	0.45	0.85	0.01	0.61	0.00	0.00	0.00
09	0.00	0.35	0.00	0.11	0.01	0.01	0.00	0.03	0.15	0.00	0.00	0.24
10	0.00	0.00	0.01	0.24	0.01	0.00	0.18	0.07	0.16	0.00	0.00	0.03
11	0.04	0.05	0.00	1.48	0.00	0.00	0.17	0.00	0.00	0.00	0.75	0.42
12	0.27	0.22	0.00	0.01	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.03
13	0.00	1.72	0.00	0.02	0.15	0.07	0.40	0.00	0.01	0.00	0.00	0.11
14	0.01	0.10	0.00	0.00	0.14	0.02	1.66	0.00	0.00	0.00	0.00	0.13
15	0.00	0.63	0.00	0.03	0.01	0.00	0.26	0.00	0.00	0.00	0.00	0.09
16	0.00	0.42	0.06	0.07	0.21	0.00	0.38	0.00	0.00	0.00	0.00	0.45
17	0.08	0.04	0.01	0.35	0.69	0.00	0.10	0.00	0.00	0.00	0.00	0.00
18	1.31	0.01	0.54	0.22	0.18	0.00	0.00	0.03	0.00	0.00	0.00	0.00
19	0.78	0.69	1.56	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.32	0.41	0.03	0.14	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	2.56	1.10	0.00	0.17	0.03	0.24	0.02	0.00	0.00	0.00	0.00	0.07
22	0.28	0.70	0.20	0.37	0.03	0.59	0.00	0.00	0.00	0.00	0.00	0.06
23	0.01	0.59	0.00	0.81	0.05	0.41	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.01	0.00	0.26	0.15	0.38	0.00	0.00	0.11	0.00	0.00	0.00
25	0.00	0.22	0.08	0.34	0.51	0.01	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.55	0.03	0.58	0.00	0.12	0.00	0.00	0.00	0.00	0.02	0.00
27	0.00	0.05	0.21	0.12	0.07	0.05	0.17	0.00	0.00	0.00	0.01	0.00
28	0.00	0.50	0.94	0.13	0.09	0.00	0.20	0.00	0.00	0.00	0.00	0.00
29	0.00	0.01	1.13	0.65		0.00	0.01	0.00	0.00	0.00	0.00	0.04
30	0.01	0.24	0.05	0.16		0.00	0.02	0.00	0.00	0.00	0.00	0.00
31	0.00		0.00	0.04		0.00		0.01		0.00	0.00	
Total	5.98	10.73	5.55	7.46	3.28	2.71	6.43	0.15	1.05	0.00	0.78	1.68
Days	15	26	18	28	21	16	20	5	6		3	12

170 Precip Days

Total Rainfall for Water Year 2018: 45.80

Notes:

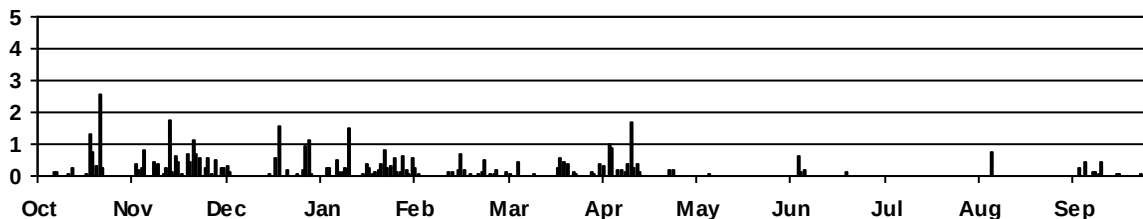
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

Visit our website at

Annual Hyetograph:



11u--NOAA Olympia Airport

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.05	0.02	0.28	0.00	0.55	0.07	0.13	0.00	0.00	0.00	0.00	0.00
02	0.00	0.45	0.54	0.00	0.33	0.01	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.37	0.02	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00
04	0.00	0.38	0.00	0.32	0.01	0.07	0.35	0.02	0.05	0.00	0.00	0.00
05	0.00	0.62	0.00	0.40	0.00	0.01	0.42	0.00	0.00	0.00	0.00	0.00
06	0.13	0.00	0.00	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
07	0.16	0.00	0.00	0.52	0.00	0.04	0.92	0.00	0.00	0.07	0.00	0.03
08	0.00	0.38	0.00	0.11	0.03	0.43	0.95	0.03	0.59	0.00	0.00	0.01
09	0.00	0.49	0.00	0.07	0.00	0.01	0.00	0.03	0.03	0.00	0.00	0.10
10	0.00	0.00	0.00	0.31	0.00	0.00	0.19	0.06	0.10	0.00	0.00	0.00
11	0.04	0.10	0.00	1.89	0.00	0.00	0.09	0.00	0.00	0.00	0.15	0.51
12	0.20	0.64	0.00	0.13	0.00	0.00	0.25	0.00	0.00	0.00	0.01	0.08
13	0.00	1.52	0.00	0.09	0.20	0.07	0.70	0.00	0.00	0.00	0.00	0.08
14	0.00	0.09	0.00	0.00	0.14	0.01	2.03	0.00	0.01	0.00	0.00	0.38
15	0.00	0.87	0.01	0.03	0.03	0.00	0.15	0.00	0.00	0.00	0.00	0.08
16	0.00	0.42	0.07	0.03	0.29	0.00	0.61	0.00	0.00	0.00	0.00	0.59
17	0.12	0.10	0.24	0.28	0.63	0.00	0.07	0.00	0.00	0.00	0.00	0.00
18	1.52	0.00	0.72	0.42	0.21	0.00	0.00	0.01	0.00	0.00	0.00	0.00
19	0.90	0.78	1.82	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.37	0.49	0.01	0.14	0.19	0.00	0.01	0.00	0.00	0.00	0.00	0.00
21	2.91	1.63	0.00	0.28	0.01	0.24	0.08	0.00	0.00	0.00	0.00	0.07
22	0.18	0.66	0.23	0.47	0.01	0.67	0.00	0.00	0.00	0.00	0.00	0.08
23	0.00	0.49	0.00	1.30	0.22	0.13	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.01	0.19	0.31	0.14	0.17	0.00	0.00	0.09	0.00	0.00	0.00
25	0.00	0.28	0.08	0.46	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.50	0.00	0.84	0.00	0.37	0.00	0.00	0.00	0.00	0.01	0.00
27	0.00	0.05	0.00	0.22	0.08	0.24	0.07	0.00	0.00	0.00	0.00	0.00
28	0.00	0.65	1.14	0.17	0.14	0.00	0.14	0.00	0.00	0.00	0.00	0.00
29	0.00	0.02	1.49	0.74		0.00	0.00	0.00	0.00	0.00	0.00	0.05
30	0.00	0.27	0.05	0.15		0.00	0.02	0.00	0.00	0.00	0.00	0.00
31	0.00		0.00	0.06		0.00		0.09		0.00	0.00	
Total	6.58	12.28	6.89	9.87	3.60	2.54	7.21	0.24	0.88	0.07	0.17	2.06
Days	11	26	15	27	18	15	20	6	7	1	3	12

161 Precip Days

Total Rainfall for Water Year 2018: 52.39

Notes:

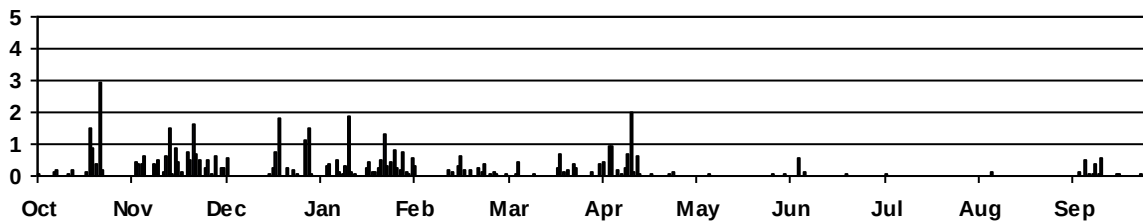
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

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Annual Hyetograph:



13u--Lake Lawrence_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.02	0.02	0.25	0.00	0.54	0.18	0.07	0.00	0.00	0.01	0.00	0.00
02	0.00	0.29	0.13	0.00	0.09	0.01	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.29	0.13	0.00	0.00	0.00	0.02	0.00	0.04	0.00	0.01	0.00
04	0.00	0.13	0.00	0.11	0.01	0.10	0.41	0.00	0.03	0.00	0.00	0.00
05	0.00	0.71	0.00	0.15	0.00	0.01	0.32	0.00	0.00	0.00	0.00	0.00
06	0.07	0.11	0.01	0.00	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00
07	0.14	0.01	0.00	0.53	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.01
08	0.00	0.28	0.00	0.16	0.01	0.56	1.53	0.02	0.38	0.00	0.00	0.00
09	0.00	0.28	0.01	0.23	0.00	0.08	0.00	0.10	0.22	0.00	0.00	0.15
10	0.00	0.03	0.00	0.14	0.00	0.00	0.12	0.17	0.19	0.00	0.00	0.29
11	0.02	0.02	0.00	1.16	0.00	0.00	0.35	0.00	0.00	0.00	0.02	0.37
12	0.15	0.10	0.01	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.01	0.01
13	0.01	1.13	0.00	0.01	0.09	0.05	0.23	0.00	0.02	0.00	0.00	0.00
14	0.00	0.09	0.00	0.01	0.11	0.13	0.69	0.00	0.00	0.00	0.00	0.24
15	0.00	0.59	0.00	0.02	0.07	0.00	0.32	0.00	0.00	0.00	0.00	0.04
16	0.00	0.46	0.03	0.03	0.15	0.03	0.25	0.00	0.00	0.00	0.00	0.17
17	0.03	0.06	0.01	0.32	0.78	0.01	0.04	0.00	0.00	0.00	0.00	0.00
18	0.65	0.00	0.62	0.40	0.05	0.00	0.06	0.01	0.00	0.00	0.00	0.00
19	1.14	0.74	1.15	0.04	0.15	0.00	0.00	0.13	0.00	0.00	0.00	0.00
20	0.05	0.39	0.03	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	2.22	0.68	0.00	0.22	0.18	0.17	0.19	0.00	0.00	0.00	0.00	0.06
22	0.45	0.39	0.23	0.28	0.12	0.41	0.00	0.00	0.00	0.00	0.00	0.03
23	0.00	0.78	0.05	0.29	0.01	0.34	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.38	0.08	0.30	0.00	0.00	0.09	0.00	0.00	0.00
25	0.06	0.15	0.04	0.09	0.58	0.00	0.00	0.00	0.03	0.00	0.00	0.00
26	0.01	0.57	0.01	0.36	0.00	0.02	0.00	0.00	0.00	0.00	0.03	0.00
27	0.00	0.01	0.22	0.08	0.00	0.01	0.17	0.00	0.00	0.00	0.02	0.00
28	0.00	0.34	0.89	0.18	0.05	0.00	0.15	0.00	0.00	0.00	0.00	0.00
29	0.01	0.01	0.89	0.62		0.00	0.05	0.00	0.00	0.00	0.00	0.10
30	0.00	0.13	0.03	0.50		0.00	0.02	0.00	0.00	0.00	0.00	0.06
31	0.00		0.00	0.04		0.00		0.00		0.00	0.00	

Total **5.03** **8.79** **4.74** **6.46** **3.15** **2.41** **5.71** **0.43** **1.00** **0.01** **0.09** **1.53**

Days **15** **28** **19** **26** **19** **16** **21** **5** **8** **1** **5** **12** **175 Precip Days**

Total Rainfall for Water Year 2018: **39.35**

Notes:

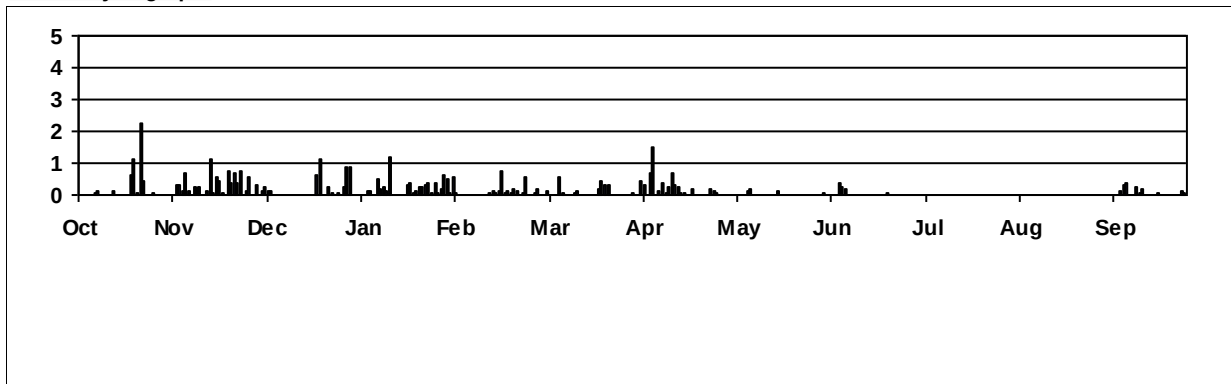
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

Visit our website at

Annual Hyetograph:



18u--Lacey Fire Dist. 3 Fire Station_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.05	0.00	0.21	0.01	0.57	0.15	0.14	0.00	0.00	0.00	0.00	0.00
02	0.01	0.33	0.52	0.00	0.37	0.01	0.01	0.00	0.00	0.00	0.00	0.00
03	0.00	0.44	0.07	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.40	0.00	0.30	0.02	0.20	0.47	0.01	0.01	0.00	0.00	0.00
05	0.00	0.61	0.00	0.38	0.00	0.02	0.30	0.00	0.00	0.00	0.00	0.00
06	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.04	0.00	0.01	0.50	0.00	0.03	1.04	0.00	0.00	0.02	0.00	0.01
08	0.00	0.44	0.00	0.11	0.05	0.42	0.60	0.03	0.56	0.00	0.00	0.00
09	0.00	0.38	0.01	0.10	0.00	0.03	0.00	0.00	0.08	0.00	0.00	0.10
10	0.00	0.01	0.00	0.28	0.00	0.00	0.17	0.11	0.07	0.00	0.00	0.14
11	0.00	0.09	0.00	1.85	0.00	0.00	0.10	0.00	0.00	0.00	0.22	0.15
12	0.28	0.48	0.00	0.16	0.00	0.00	0.18	0.00	0.00	0.00	0.01	0.14
13	0.00	1.64	0.00	0.05	0.20	0.11	0.58	0.00	0.03	0.00	0.00	0.07
14	0.00	0.11	0.00	0.00	0.13	0.01	1.85	0.00	0.00	0.00	0.00	0.41
15	0.00	0.85	0.01	0.03	0.07	0.00	0.22	0.00	0.00	0.00	0.00	0.08
16	0.00	0.37	0.06	0.06	0.22	0.00	0.27	0.00	0.00	0.00	0.00	0.77
17	0.12	0.08	0.15	0.28	0.65	0.00	0.08	0.00	0.00	0.00	0.00	0.00
18	1.48	0.00	0.72	0.38	0.21	0.00	0.00	0.01	0.00	0.00	0.00	0.00
19	0.81	0.75	1.77	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.19	0.38	0.02	0.13	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	2.46	1.60	0.00	0.20	0.01	0.21	0.05	0.00	0.00	0.00	0.00	0.04
22	0.31	0.72	0.21	0.30	0.07	0.51	0.00	0.00	0.00	0.00	0.00	0.08
23	0.00	0.50	0.00	1.49	0.00	0.25	0.00	0.00	0.01	0.00	0.00	0.00
24	0.00	0.02	0.00	0.26	0.35	0.21	0.00	0.00	0.13	0.00	0.00	0.00
25	0.00	0.29	0.23	0.43	0.49	0.02	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.48	0.06	0.78	0.00	0.22	0.00	0.00	0.00	0.00	0.04	0.00
27	0.00	0.03	0.00	0.24	0.13	0.10	0.16	0.00	0.00	0.00	0.00	0.00
28	0.00	0.47	1.00	0.14	0.10	0.00	0.08	0.00	0.00	0.00	0.00	0.00
29	0.00	0.01	1.51	0.88		0.00	0.01	0.00	0.00	0.00	0.00	0.05
30	0.00	0.24	0.21	0.06		0.00	0.02	0.00	0.00	0.00	0.00	0.01
31	0.00		0.00	0.04		0.00		0.08		0.00	0.00	
Total	5.85	11.72	6.77	9.51	3.76	2.50	6.33	0.24	0.89	0.02	0.27	2.05
Days	11	26	17	27	18	16	19	5	7	1	3	13

163 Precip Days

Total Rainfall for Water Year 2018: 49.91

Notes:

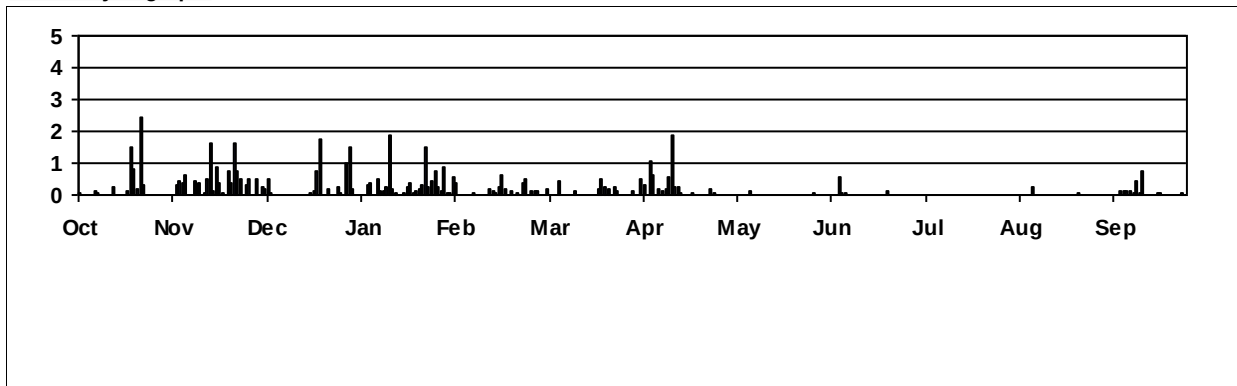
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

Visit our website at

Annual Hyetograph:



18w--WARC TC_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.01	0.00	0.16	0.00	0.55	0.17	0.14	0.00	0.00	0.00	0.00	0.00
02	0.00	0.26	0.51	0.00	0.30	0.01	0.01	0.00	0.00	0.00	0.00	0.00
03	0.00	0.41	0.20	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.43	0.00	0.29	0.02	0.12	0.47	0.00	0.08	0.00	0.00	0.00
05	0.00	0.52	0.00	0.33	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00
06	0.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.01	0.00	0.01	0.47	0.00	0.02	1.04	0.00	0.00	0.02	0.00	0.00
08	0.00	0.47	0.00	0.13	0.04	0.33	0.60	0.02	0.01	0.00	0.00	0.00
09	0.00	0.27	0.00	0.10	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.13
10	0.00	0.01	0.00	0.27	0.00	0.01	0.17	0.10	0.00	0.00	0.00	0.23
11	0.01	0.07	0.01	1.74	0.00	0.00	0.09	0.00	0.00	0.00	0.19	0.13
12	0.18	0.40	0.00	0.11	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.05
13	0.00	1.46	0.00	0.02	0.20	0.11	0.43	0.00	0.02	0.00	0.00	0.03
14	0.00	0.08	0.00	0.00	0.10	0.01	1.66	0.00	0.00	0.00	0.00	0.33
15	0.00	0.75	0.00	0.02	0.10	0.00	0.20	0.00	0.00	0.00	0.00	0.05
16	0.00	0.29	0.07	0.08	0.21	0.00	0.23	0.00	0.00	0.00	0.00	0.53
17	0.05	0.04	0.05	0.30	0.59	0.00	0.08	0.00	0.00 e	0.00	0.00	0.00
18	1.34	0.00	0.59	0.27	0.14	0.00	0.00	0.00	0.00 e	0.00	0.00	0.00
19	0.67	0.60	1.62	0.04	0.00	0.00	0.00	0.00	0.00 e	0.00	0.00	0.00
20	0.20	0.32	0.02	0.10	0.04	0.00	0.00	0.00	0.00 e	0.00	0.00	0.00
21	2.15	1.38	0.00	0.16	0.03	0.21	0.03	0.00	0.00	0.00	0.00	0.01
22	0.33	0.62	0.18	0.22	0.06	0.51	0.00	0.00	0.00	0.00	0.00	0.18
23	0.01	0.54	0.00	1.26	0.10	0.25	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.21	0.14	0.21	0.00	0.00	0.10	0.00	0.00	0.00
25	0.00	0.28	0.20	0.34	0.41	0.02	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.59	0.03	0.66	0.00	0.22	0.00	0.00	0.00	0.00	0.03	0.00
27	0.00	0.02	0.00	0.24	0.04	0.10	0.13	0.00	0.00	0.00	0.00	0.00
28	0.00	0.46	0.74	0.12	0.10	0.00	0.09	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	1.39	0.79		0.00	0.01	0.00	0.00	0.00	0.00	0.02
30	0.00	0.20	0.31	0.03		0.00	0.01	0.00	0.00	0.00	0.06	0.01
31	0.00		0.00	0.04		0.00		0.07		0.00	0.00	

Total **5.06** **10.47** **6.09** **8.35** **3.24** **2.30** **5.82** **0.19** **0.21** **0.02** **0.28** **1.70**

Days **12** **24** **16** **27** **21** **15** **19** **3** **4** **1** **3** **12** **157 Precip Days**

Total Rainfall for Water Year 2018: 43.73

Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt. Precipitation from snow is not measured accurately

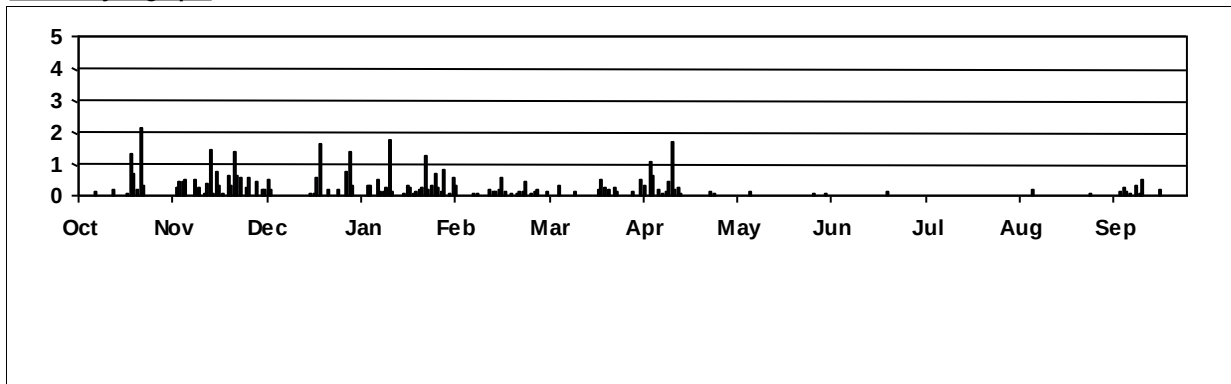
Thurston County

Notes:

e = Estimate

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Annual Hyetograph:



20u--Southbay Firestation_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.01	0.00	0.29	0.00	0.49	0.10	0.11	0.00	0.00	0.00	0.00	0.00
02	0.00	0.39	0.52	0.00	0.27	0.02	0.00	0.07	0.00	0.00	0.00	0.00
03	0.00	0.44	0.10	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
04	0.00	0.47	0.00	0.31	0.02	0.16	0.41	0.00	0.00	0.00	0.00	0.00
05	0.00	0.48	0.00	0.32	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00
06	0.09	0.01	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00
07	0.02	0.00	0.01	0.46	0.00	0.04	0.91	0.00	0.00	0.05	0.00	0.02
08	0.00	0.45	0.00	0.09	0.05	0.40	0.60	0.03	0.52	0.00	0.00	0.00
09	0.00	0.32	0.00	0.06	0.00	0.01	0.00	0.00	0.05	0.00	0.00	0.09
10	0.00	0.00	0.00	0.31	0.00	0.00	0.17	0.19	0.13	0.00	0.00	0.10
11	0.00	0.09	0.01	1.50	0.00	0.00	0.12	0.00	0.00	0.00	0.07	0.33
12	0.14	0.47	0.00	0.05	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.02
13	0.00	1.39	0.00	0.06	0.22	0.07	0.47	0.00	0.01	0.00	0.00	0.05
14	0.00	0.11	0.00	0.00	0.08	0.04	1.73	0.00	0.00	0.00	0.00	0.06
15	0.00	0.93	0.00	0.01	0.03	0.00	0.14	0.00	0.00	0.00	0.00	0.22
16	0.00	0.29	0.09	0.04	0.23	0.00	0.33	0.00	0.00	0.00	0.00	0.53
17	0.10	0.03	0.16	0.26	0.53	0.00	0.07	0.00	0.00	0.00	0.00	0.00
18	1.53	0.00	0.62	0.43	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.84	0.64	1.70	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.28	0.26	0.01	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	1.99	1.49	0.00	0.17	0.00	0.26	0.01	0.00	0.00	0.00	0.00	0.00
22	0.26	0.70	0.15	0.26	0.07	0.53	0.00	0.00	0.00	0.00	0.00	0.09
23	0.01	0.53	0.00	1.33	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.01	0.00	0.39	0.30	0.16	0.00	0.00	0.13	0.00	0.00	0.00
25	0.00	0.32	0.20	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.65	0.10	0.61	0.00	0.11	0.00	0.00	0.00	0.00	0.02	0.00
27	0.00	0.03	0.00	0.36	0.04	0.13	0.10	0.00	0.00	0.00	0.01	0.00
28	0.00	0.36	0.58	0.17	0.17	0.00	0.17	0.00	0.00	0.00	0.00	0.00
29	0.00	0.01	1.50	0.81		0.00	0.01	0.00	0.00	0.00	0.00	0.06
30	0.00	0.22	0.17	0.19		0.00	0.01	0.00	0.00	0.00	0.04	0.00
31	0.00		0.00	0.08		0.00		0.30		0.00	0.00	
Total	5.27	11.09	6.21	8.82	3.10	2.23	5.88	0.59	0.84	0.05	0.14	1.57
Days	11	26	16	26	17	15	20	4	5	1	4	11

156 Precip Days

Total Rainfall for Water Year 2018: 45.79

Notes:

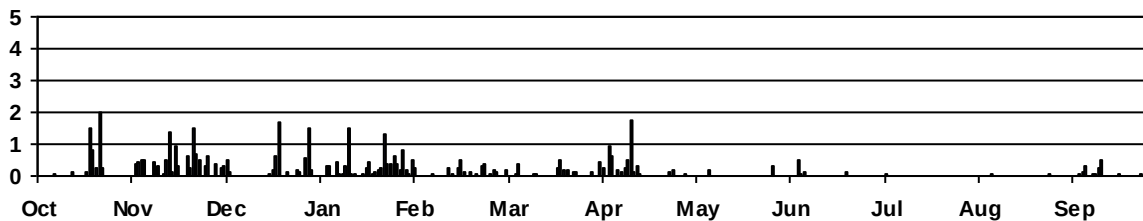
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

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Annual Hyetograph:



23u--Percival Creek, Bldg 4_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.10	0.00	0.28	0.00	0.56	0.08	0.08	0.00	0.00	0.00	0.00	0.00
02	0.00	0.46	0.54	0.00	0.41	0.01	0.01	0.00	0.00	0.00	0.00	0.00
03	0.00	0.46	0.06	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
04	0.00	0.51	0.00	0.36	0.04	0.08	0.34	0.00	0.01	0.00	0.00	0.00
05	0.00	0.59	0.00	0.37	0.00	0.00	0.38	0.01	0.00	0.00	0.00	0.00
06	0.14	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.00	0.00	0.00	0.00
07	0.05	0.00	0.00	0.46	0.00	0.04	0.84	0.00	0.00	0.05	0.00	0.04
08	0.00	0.38	0.00	0.08	0.04	0.45	0.92	0.03	0.63	0.00	0.00	0.00
09	0.00	0.48	0.00	0.06	0.00	0.03	0.00	0.00	0.12	0.00	0.00	0.05
10	0.00	0.00	0.00	0.30	0.00	0.00	0.09	0.10	0.12	0.00	0.00	0.24
11	0.00	0.09	0.00	1.86	0.00	0.00	0.08	0.00	0.00	0.00	0.04	0.39
12	0.13	0.61	0.00	0.09	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.06
13	0.09	1.65	0.00	0.08	0.25	0.08	0.79	0.00	0.13	0.00	0.00	0.11
14	0.00	0.17	0.00	0.00	0.15	0.02	2.09	0.00	0.00	0.00	0.00	0.08
15	0.00	0.97	0.00	0.03	0.02	0.00	0.16	0.00	0.00	0.00	0.00	0.04
16	0.00	0.43	0.12	0.01	0.33	0.00	0.22	0.00	0.00	0.00	0.00	0.51
17	0.16	0.05	0.45	0.29	0.71	0.00	0.10	0.00	0.00	0.00	0.00	0.00
18	1.76	0.00	0.67	0.50	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.90	0.85	1.97	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.22	0.42	0.00	0.14	0.09	0.00	0.01	0.00	0.00	0.00	0.00	0.00
21	2.94	1.87	0.00	0.24	0.02	0.25	0.05	0.00	0.00	0.00	0.00	0.01
22	0.29	0.75	0.24	0.34	0.06	0.55	0.00	0.00	0.00	0.00	0.00	0.04
23	0.01	0.32	0.00	1.55	0.01	0.14	0.00	0.00	0.01	0.00	0.00	0.00
24	0.00	0.02	0.00	0.38	0.43	0.13	0.00	0.00	0.08	0.00	0.00	0.00
25	0.00	0.33	0.30	0.46	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.53	0.00	0.84	0.00	0.24	0.00	0.00	0.00	0.00	0.02	0.00
27	0.00	0.03	0.00	0.35	0.07	0.19	0.09	0.00	0.00	0.00	0.00	0.00
28	0.00	0.57	1.10	0.16	0.17	0.00	0.04	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	1.61	0.84		0.00	0.02	0.00	0.00	0.00	0.00	0.04
30	0.00	0.26	0.18	0.08		0.00	0.02	0.00	0.00	0.00	0.00	0.01
31	0.00		0.00	0.03		0.00		0.60		0.00	0.00	
Total	6.79	12.80	7.52	10.04	3.94	2.29	6.60	0.81	1.10	0.05	0.06	1.62
Days	12	24	12	26	19	14	22	5	7	1	2	13

157 Precip Days

Total Rainfall for Water Year 2018: 53.62

Notes:

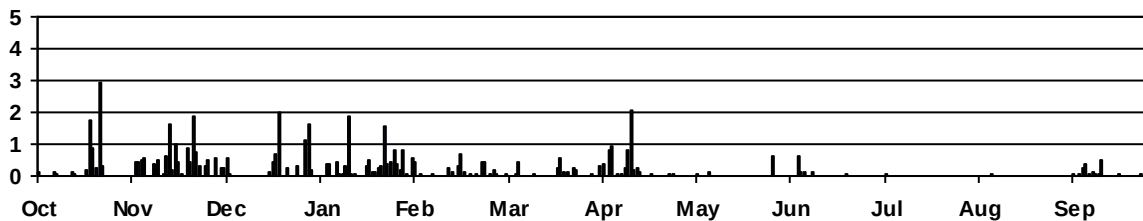
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

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Annual Hyetograph:



24u--McLane FS Wx

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.17	0.00	0.53	0.00	0.65	0.10	0.17	0.00	0.00	0.00	0.00	0.00
02	0.01	0.45	0.87	0.00	0.39	0.02	0.01	0.00	0.00	0.00	0.00	0.00
03	0.00	0.49	0.02	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00
04	0.00	0.79	0.00	0.38	0.04	0.10	0.40	0.01	0.00	0.00	0.00	0.00
05	0.00	0.79	0.00	0.53	0.00	0.00	0.52	0.01	0.00	0.00	0.00	0.00
06	0.12	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
07	0.05	0.00	0.01	0.58	0.00	0.07	1.53	0.00	0.00	0.03	0.00	0.04
08	0.00	0.43	0.00	0.11	0.01	0.70	1.33	0.01	0.71	0.00	0.00	0.00
09	0.00	0.54	0.01	0.04	0.00	0.04	0.00	0.00	0.01	0.00	0.00	0.07
10	0.00	0.01	0.00	0.38	0.00	0.00	0.16	0.15	0.18	0.00	0.00	0.07
11	0.00	0.12	0.00	2.15	0.00	0.00	0.07	0.00	0.00	0.00	0.03	0.75
12	0.17	0.74	0.00	0.16	0.00	0.00	0.44	0.00	0.00	0.00	0.02	0.44
13	0.04	1.99	0.00	0.13	0.27	0.11	1.25	0.00	0.00	0.00	0.00	0.13
14	0.00	0.32	0.00	0.00	0.13	0.01	2.42	0.00	0.00	0.00	0.00	0.12
15	0.00	1.41	0.00	0.04	0.02	0.01	0.22	0.00	0.00	0.00	0.00	0.06
16	0.00	0.37	0.05	0.00	0.25	0.00	0.45	0.00	0.00	0.00	0.00	0.52
17	0.18	0.06	0.51	0.47	0.82	0.00	0.02	0.00	0.00	0.00	0.00	0.00
18	2.22	0.00	0.70	0.87	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.94	1.03	2.32	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.33	0.49	0.01	0.24	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00
21	3.36	2.43	0.01	0.56	0.01	0.45	0.04	0.00	0.00	0.00	0.00	0.00
22	0.39	0.96	0.23	0.27	0.18	0.56	0.00	0.00	0.00	0.00	0.00	0.11
23	0.00	0.50	0.00	2.16	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.04	0.00	0.55	0.39	0.11	0.00	0.00	0.14	0.00	0.00	0.00
25	0.00	0.43	0.35	0.60	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.78	0.01	0.95	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.09	0.00	0.64	0.05	0.17	0.12	0.00	0.00	0.00	0.00	0.00
28	0.00	0.74	1.23	0.26	0.46	0.00	0.06	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	2.21	1.18		0.00	0.07	0.00	0.00	0.00	0.00	0.05
30	0.00	0.32	0.24	0.16		0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00		0.00	0.04		0.00		0.00		0.00	0.00	
Total	7.98	16.33	9.31	13.73	4.45	2.91	9.32	0.19	1.05	0.03	0.05	2.36
Days	12	26	17	25	18	15	21	5	5	1	2	11

158 Precip Days

Total Rainfall for Water Year 2018: 67.71

Notes:

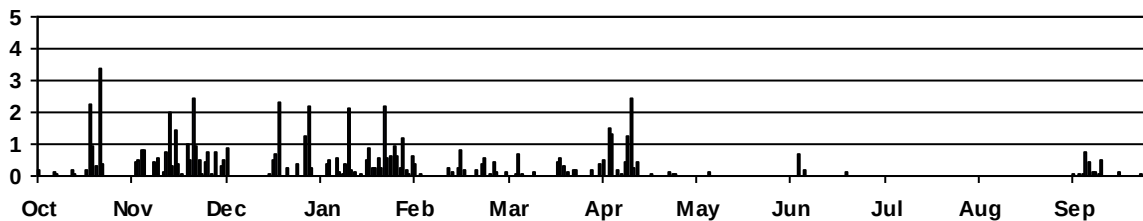
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

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Annual Hyetograph:



27u--Boston Harbor_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.00	0.00	0.51	0.00	0.51	0.10	0.14	0.00	0.00	0.00	0.00	0.00
02	0.00	0.29	0.86	0.00	0.30	0.03	0.00	0.00	0.00	0.00	0.00	0.00
03	0.00	0.36	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.51	0.01	0.29	0.00	0.16	0.47	0.00	0.00	0.00	0.00	0.00
05	0.00	0.52	0.00	0.43	0.00	0.00	0.46	0.01	0.00	0.00	0.00	0.00
06	0.17	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
07	0.05	0.00	0.00	0.50	0.00	0.08	1.15	0.00	0.00	0.12	0.00	0.04
08	0.00	0.52	0.00	0.16	0.03	0.70	0.74	0.03	0.60	0.00	0.00	0.00
09	0.00	0.51	0.00	0.06	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.17
10	0.00	0.00	0.00	0.43	0.00	0.00	0.18	0.20	0.34	0.00	0.00	0.09
11	0.00	0.07	0.00	1.82	0.00	0.00	0.15	0.00	0.01	0.00	0.20	0.39
12	0.13	0.50	0.00	0.07	0.00	0.00	0.19	0.00	0.00	0.00	0.01	0.29
13	0.00	1.59	0.00	0.08	0.25	0.09	0.60	0.00	0.05	0.00	0.00	0.08
14	0.00	0.14	0.00	0.00	0.09	0.02	1.91	0.00	0.00	0.00	0.00	0.09
15	0.00	0.96	0.00	0.03	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.10
16	0.00	0.28	0.11	0.00	0.22	0.00	0.40	0.00	0.00	0.00	0.00	0.34
17	0.15	0.02	0.17	0.48	0.60	0.00	0.01	0.00	0.00	0.00	0.00	0.00
18	1.76	0.00	0.79	0.68	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.71	0.79	1.70	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.20	0.25	0.02	0.13	0.14	0.00	0.01	0.00	0.00	0.00	0.00	0.00
21	2.48	1.60	0.00	0.49	0.01	0.30	0.05	0.00	0.00	0.00	0.00	0.01
22	0.30	0.72	0.10	0.30	0.09	0.57	0.00	0.00	0.00	0.00	0.00	0.06
23	0.00	0.29	0.00	1.16	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.01	0.00	0.42	0.38	0.13	0.00	0.00	0.15	0.00	0.00	0.00
25	0.00	0.42	0.14	0.29	0.40	0.00	0.00	0.00	0.01	0.00	0.00	0.00
26	0.00	0.83	0.11	0.56	0.00	0.01	0.00	0.00	0.00	0.00	0.04	0.00
27	0.00	0.04	0.04	0.48	0.00	0.23	0.09	0.00	0.00	0.00	0.01	0.00
28	0.00	0.52	0.64	0.20	0.34	0.00	0.27	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	2.06	0.69		0.00	0.00	0.00	0.00	0.00	0.00	0.04
30	0.00	0.32	0.17	0.14		0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00		0.00	0.08		0.00		0.10		0.00	0.00	
Total	5.95	12.06	7.52	10.06	3.55	2.60	7.01	0.36	1.17	0.12	0.26	1.70
Days	9	24	16	25	15	13	18	6	7	1	4	12

150 Precip Days

Total Rainfall for Water Year 2018: 52.36

Notes:

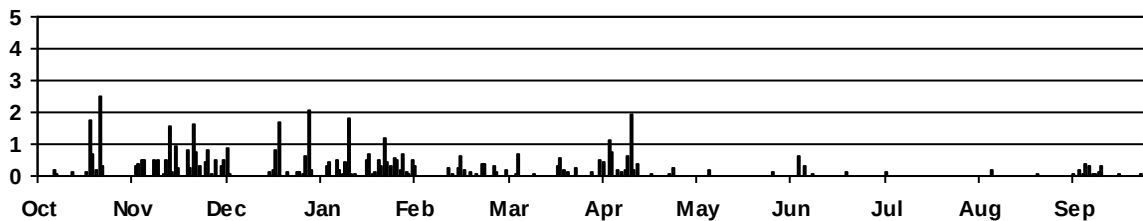
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

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Annual Hyetograph:



33x--Griffin FS 13-2

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.17	0.00	0.60	0.00	0.46	0.08	0.08	0.00	0.00	0.00	0.00	0.00
02	0.01	0.23	0.69	0.00	0.28	0.01	0.00	0.00	0.00	0.00	0.01	0.00
03	0.00	0.33	0.13	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04	0.00	0.52	0.00	0.38	0.00	0.18	0.43	0.00	0.00	0.00	0.00	0.00
05	0.00	0.45	0.00	0.45	0.00	0.01	0.55	0.01	0.00	0.00	0.00	0.00
06	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
07	0.05	0.00	0.00	0.50	0.00	0.07	1.11	0.00	0.00	0.06	0.00	0.05
08	0.00	0.40	0.01	0.14	0.01	0.70	0.71	0.01	0.40	0.00	0.00	0.01
09	0.00	0.62	0.00	0.05	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.08
10	0.00	0.00	0.00	0.39	0.00	0.00	0.14	0.31	0.19	0.00	0.00	0.26
11	0.00	0.07	0.00	1.94	0.00	0.00	0.16	0.00	0.00	0.00	0.16	0.29
12	0.09	0.51	0.00	0.11	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.11
13	0.00	1.54	0.00	0.11	0.21	0.11	0.73	0.00	0.06	0.00	0.00	0.10
14	0.00	0.12	0.00	0.00	0.07	0.01	2.19	0.00	0.00	0.00	0.00	0.07
15	0.00	0.89	0.01	0.04	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.13
16	0.00	0.34	0.09	0.00	0.15	0.00	0.38	0.00	0.00	0.00	0.00	0.24
17	0.12	0.04	0.18	0.41	0.65	0.00	0.08	0.00	0.00	0.00	0.00	0.00
18	1.64	0.00	0.70	0.63	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.66	0.78	1.60	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.15	0.33	0.01	0.15	0.09	0.00	0.02	0.00	0.00	0.00	0.00	0.00
21	2.64	1.45	0.00	0.43	0.07	0.33	0.05	0.00	0.00	0.00	0.00	0.06
22	0.31	0.66	0.11	0.41	0.04	0.51	0.00	0.00	0.00	0.00	0.00	0.05
23	0.01	0.31	0.00	0.83	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.02	0.00	0.26	0.36	0.07	0.00	0.00	0.14	0.00	0.00	0.00
25	0.02	0.38	0.22	0.31	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.74	0.01	0.52	0.00	0.06	0.00	0.00	0.00	0.00	0.03	0.00
27	0.00	0.03	0.00	0.43	0.01	0.17	0.08	0.00	0.00	0.00	0.01	0.00
28	0.00	0.48	0.66	0.18	0.26	0.00	0.20	0.00	0.00	0.00	0.00	0.00
29	0.00	0.02	1.99	0.87		0.00	0.00	0.00	0.00	0.00	0.00	0.02
30	0.00	0.27	0.19	0.06		0.00	0.00	0.00	0.00	0.00	0.00	0.03
31	0.00		0.00	0.11		0.00		0.00		0.00	0.00	
Total	5.97	11.53	7.20	9.85	3.14	2.50	7.24	0.35	0.80	0.06	0.21	1.50
Days	13	25	16	25	16	14	18	5	5	1	4	14

156 Precip Days

Total Rainfall for Water Year 2018: 50.35

Notes:

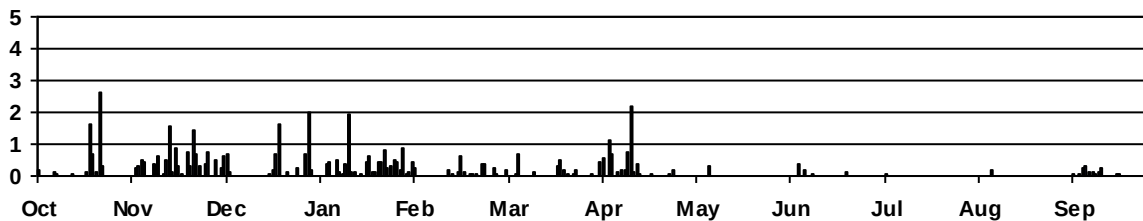
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

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Annual Hyetograph:



45u--Littlerock_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.20	0.00	0.39	0.00	0.75	0.12	0.32	0.00	0.00	0.00	0.00	0.00
02	0.01	0.65	0.63	0.00	0.33	0.02	0.03	0.00	0.00	0.00	0.00	0.00
03	0.00	0.36	0.00	0.00	0.11	0.00	0.05	0.00	0.00	0.00	0.00	0.00
04	0.00	0.43	0.01	0.41	0.06	0.09	0.55	0.00	0.01	0.00	0.00	0.00
05	0.00	0.68	0.00	0.55	0.02	0.04	0.72	0.01	0.00	0.00	0.00	0.00
06	0.18	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
07	0.04	0.00	0.00	0.83	0.00	0.05	1.12	0.00	0.00	0.15	0.00	0.03
08	0.01	0.32	0.00	0.13	0.20	0.45	1.09	0.01	0.92	0.00	0.00	0.00
09	0.00	0.59	0.00	0.10	0.00	0.06	0.01	0.01	0.09	0.00	0.00	0.10
10	0.01	0.00	0.00	0.29	0.00	0.00	0.07	0.07	0.30	0.03	0.00	0.08
11	0.04	0.06	0.00	1.89	0.00	0.00	0.09	0.00	0.00	0.00	0.17	0.77
12	0.36	0.60	0.00	0.13	0.01	0.00	0.35	0.00	0.00	0.00	0.01	0.07
13	0.01	2.14	0.00	0.22	0.29	0.10	0.93	0.00	0.02	0.00	0.00	0.25
14	0.00	0.10	0.00	0.00	0.22	0.04	2.67	0.00	0.00	0.00	0.00	0.29
15	0.00	0.92	0.01	0.03	0.05	0.00	0.17	0.00	0.00	0.00	0.00	0.10
16	0.00	0.61	0.06	0.00	0.59	0.00	1.33	0.00	0.00	0.00	0.00	0.40
17	0.24	0.10	0.65	0.30	0.83	0.00	0.08	0.00	0.00	0.00	0.00	0.00
18	1.97	0.00	0.95	0.49	0.43	0.02	0.00	0.00	0.00	0.00	0.00	0.00
19	1.10	0.93	1.93	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
20	0.42	0.55	0.01	0.21	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00
21	3.85	1.67	0.00	0.33	0.06	0.36	0.05	0.00	0.00	0.00	0.00	0.07
22	0.36	0.89	0.32	0.43	0.25	0.64	0.00	0.00	0.00	0.00	0.00	0.23
23	0.01	0.69	0.00	1.32	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.05	0.00	0.29	0.59	0.06	0.00	0.00	0.10	0.00	0.00	0.00
25	0.00	0.34	0.30	0.50	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.68	0.06	0.90	0.00	0.53	0.00	0.00	0.00	0.00	0.02	0.00
27	0.00	0.03	0.08	0.19	0.15	0.76	0.08	0.00	0.00	0.00	0.00	0.00
28	0.00	0.97	1.63	0.22	0.25	0.00	0.02	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	1.82	0.83		0.00	0.01	0.00	0.00	0.00	0.00	0.09
30	0.00	0.34	0.18	0.31		0.00	0.03	0.00	0.00	0.00	0.00	0.04
31	0.00		0.00	0.05		0.00		0.00		0.00	0.00	
Total	8.81	14.70	9.03	11.22	5.84	3.45	9.80	0.10	1.44	0.18	0.20	2.53
Days	16	24	16	26	21	16	23	4	6	2	3	14

171 Precip Days

Total Rainfall for Water Year 2018: 67.30

Notes:

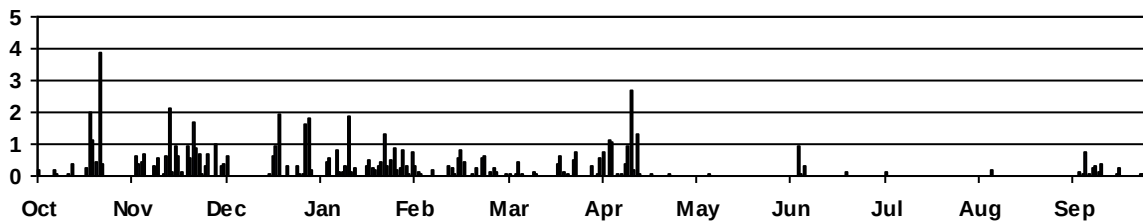
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

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Annual Hyetograph:



45w--Rochester Drop Box_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.12	0.02	0.40	0.00	0.57	0.09	0.27	0.00	0.00	0.00	0.00	0.00
02	0.00	0.43	0.48	0.00	0.23	0.02	0.07	0.00	0.00	0.00	0.00	0.00
03	0.00	0.22	0.00	0.00	0.08	0.00	0.06	0.00	0.00	0.00	0.00	0.00
04	0.00	0.26	0.00	0.37	0.06	0.16	0.47	0.00	0.02	0.00	0.00	0.00
05	0.00	0.73	0.00	0.52	0.01	0.06	0.49	0.00	0.00	0.00	0.00	0.00
06	0.16	0.01	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
07	0.07	0.00	0.01	0.77	0.00	0.03	1.07	0.00	0.00	0.18	0.00	0.02
08	0.00	0.30	0.00	0.13	0.17	0.42	0.68	0.01	0.71	0.00	0.00	0.02
09	0.00	0.47	0.01	0.11	0.02	0.05	0.00	0.02	0.13	0.00	0.00	0.10
10	0.03	0.01	0.01	0.27	0.02	0.00	0.12	0.09	0.23	0.00	0.00	0.16
11	0.22	0.03	0.00	1.40	0.00	0.00	0.14	0.00	0.00	0.00	0.13	0.51
12	0.52	0.47	0.00	0.09	0.00	0.00	0.28	0.00	0.00	0.00	0.01	0.07
13	0.01	1.40	0.00	0.12	0.26	0.09	0.40	0.00	0.04	0.00	0.00	0.20
14	0.00	0.08	0.00	0.00	0.18	0.03	2.01	0.00	0.00	0.00	0.00	0.06
15	0.00	0.81	0.03	0.03	0.03	0.01	0.14	0.00	0.00	0.00	0.00	0.08
16	0.00	0.67	0.06	0.01	0.50	0.00	0.53	0.00	0.00	0.00	0.00	0.48
17	0.22	0.12	0.13	0.29	0.61	0.00	0.03	0.01	0.00	0.00	0.00	0.00
18	1.50	0.01	0.71	0.29	0.34	0.00	0.00	0.01	0.00	0.00	0.00	0.00
19	0.86	0.66	1.53	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.32	0.34	0.02	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	2.38	1.16	0.01	0.29	0.10	0.31	0.03	0.00	0.00	0.00	0.00	0.04
22	0.25	0.58	0.24	0.24	0.19	0.56	0.00	0.00	0.00	0.00	0.00	0.15
23	0.00	0.48	0.00	0.89	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.01	0.00	0.26	0.42	0.06	0.00	0.00	0.11	0.00	0.00	0.00
25	0.01	0.31	0.34	0.36	0.58	0.00	0.00	0.00	0.01	0.00	0.00	0.00
26	0.00	0.56	0.05	0.64	0.00	0.17	0.00	0.00	0.00	0.00	0.06	0.00
27	0.00	0.05	0.01	0.11	0.16	0.60	0.06	0.00	0.00	0.00	0.00	0.00
28	0.00	0.45	1.05	0.19	0.18	0.00	0.06	0.00	0.00	0.00	0.00	0.00
29	0.00	0.08	1.32	0.59		0.00	0.00	0.00	0.00	0.00	0.00	0.10
30	0.00	0.23	0.12	0.32		0.00	0.04	0.00	0.00	0.00	0.00	0.01
31	0.00		0.00	0.04		0.00		0.00		0.00	0.00	
Total	6.67	10.95	6.53	8.65	4.72	2.76	6.95	0.14	1.25	0.18	0.20	2.00
Days	14	29	19	27	21	16	19	5	7	1	3	14

175 Precip Days

Total Rainfall for Water Year 2018: 51.00

Notes:

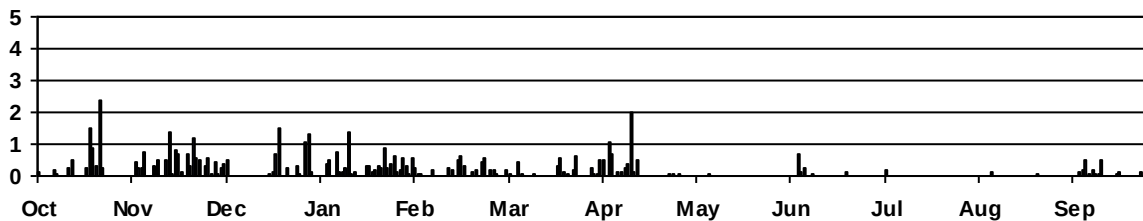
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

Visit our website at

Annual Hyetograph:



55u--Tenino_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.16	0.01	0.24	0.00	0.56	0.11	0.24	0.00	0.00	0.00	0.00	0.00
02	0.01	0.45	0.48	0.00	0.23	0.03	0.03	0.00	0.00	0.00	0.00	0.00
03	0.00	0.33	0.04	0.00	0.06	0.00	0.04	0.00	0.01	0.00	0.00	0.00
04	0.00	0.33	0.00	0.22	0.08	0.12	0.42	0.00	0.08	0.00	0.00	0.00
05	0.00	1.04	0.00	0.32	0.00	0.03	0.38	0.00	0.00	0.00	0.00	0.00
06	0.15	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
07	0.06	0.00	0.00	0.62	0.00	0.00	1.25	0.00	0.00	0.00	0.00	0.02
08	0.00	0.42	0.01	0.13	0.08	0.52	1.15	0.02	0.61	0.00	0.00	0.01
09	0.00	0.36	0.00	0.10	0.00	0.02	0.00	0.03	0.03	0.00	0.00	0.19
10	0.01	0.01	0.00	0.19	0.00	0.00	0.10	0.16	0.13	0.01	0.00	0.53
11	0.07	0.07	0.00	1.88	0.00	0.00	0.15	0.00	0.00	0.00	0.36	0.14
12	0.26	0.22	0.00	0.20	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.01
13	0.00	1.40	0.02	0.06	0.18	0.08	0.40	0.00	0.02	0.00	0.00	0.04
14	0.00	0.04	0.00	0.00	0.22	0.02	1.47	0.00	0.00	0.00	0.00	0.21
15	0.00	0.62	0.00	0.03	0.05	0.00	0.22	0.00	0.00	0.00	0.00	0.11
16	0.00	0.65	0.10	0.03	0.50	0.00	0.48	0.00	0.00	0.00	0.00	0.34
17	0.14	0.09	0.13	0.33	0.63	0.01	0.04	0.00	0.00	0.00	0.00	0.00
18	1.48	0.00	0.60	0.09	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.75	0.79	1.43	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.19	0.49	0.02	0.17	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	3.15	1.08	0.00	0.25	0.09	0.24	0.05	0.00	0.00	0.00	0.00	0.08
22	0.21	0.62	0.22	0.30	0.03	0.78	0.00	0.00	0.00	0.00	0.00	0.11
23	0.00	0.40	0.00	0.84	0.00	0.51	0.00	0.00	0.00	0.00	0.00	0.00
24	0.01	0.01	0.00	0.27	0.42	0.12	0.00	0.00	0.13	0.00	0.00	0.00
25	0.05	0.26	0.21	0.40	0.59	0.00	0.00	0.00	0.03	0.00	0.00	0.00
26	0.00	0.66	0.03	0.98	0.00	0.30	0.00	0.00	0.00	0.00	0.03	0.00
27	0.00	0.06	0.08	0.06	0.11	0.25	0.08	0.00	0.00	0.00	0.01	0.00
28	0.00	0.63	1.27	0.14	0.11	0.00	0.08	0.00	0.00	0.00	0.00	0.00
29	0.00	0.04	1.32	0.80		0.00	0.04	0.00	0.00	0.00	0.00	0.05
30	0.00	0.25	0.07	0.30		0.00	0.05	0.00	0.00	0.00	0.00	0.00
31	0.00		0.00	0.03		0.00		0.00		0.00	0.00	
Total	6.70	11.33	6.27	8.82	4.50	3.15	6.94	0.21	1.04	0.01	0.40	1.84
Days	15	27	17	26	18	16	20	3	8	1	3	13

167 Precip Days

Total Rainfall for Water Year 2018: 51.21

Notes:

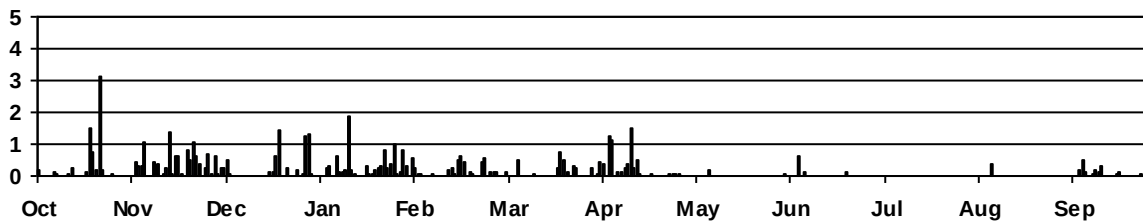
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

Visit our website at

Annual Hyetograph:



59u--Bloody Run USGS_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.11	0.10	0.32	0.00	0.51	0.11	0.25	0.00	0.00	0.00	0.00	0.00
02	0.00	0.18	0.26	0.00	0.15	0.02	0.02	0.00	0.00	0.00	0.00	0.00
03	0.00	0.28	0.04	0.00	0.06	0.00	0.00	0.00	0.04	0.00	0.05	0.00
04	0.00	0.20	0.00	0.07	0.02	0.09	0.33	0.00	0.02	0.00	0.00	0.00
05	0.00	0.30	0.00	0.23	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00
06	0.00	0.00	0.00	0.03	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00
07	0.11	0.00	0.00	0.63	0.00	0.00	0.95	0.00	0.00	0.00	0.00	0.00
08	0.00	0.00	0.00	0.13	0.04	0.44	1.46	0.00	0.66	0.00	0.00	0.00
09	0.00	0.39	0.00	0.16	0.00	0.01	0.00	0.20	0.13	0.00	0.00	0.18
10	0.07	0.01	0.00	0.16	0.00	0.00	0.09	0.18	0.17	0.00	0.00	0.47
11	0.59	0.03	0.00	1.09	0.00	0.00	0.22	0.00	0.00	0.00	0.19	0.25
12	0.31	0.13	0.00	0.03	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.06
13	0.02	1.06	0.00	0.00	0.09	0.07	0.17	0.00	0.00	0.00	0.00	0.02
14	0.00	0.11	0.00	0.00	0.20	0.03	0.84	0.00	0.00	0.00	0.00	0.16
15	0.00	0.63	0.00	0.02	0.07	0.00	0.27	0.00	0.00	0.00	0.00	0.04
16	0.00	0.52	0.05	0.02	0.44	0.00	0.41	0.00	0.00	0.00	0.00	0.31
17	0.03	0.20	0.00	0.32	0.63	0.00	0.07	0.00	0.00	0.00	0.00	0.00
18	0.57	0.00	0.14	0.62	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	1.18	0.70	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.20	0.56	0.00	0.14	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	2.74	1.05	0.00	0.26	0.00	0.13	0.08	0.00	0.00	0.00	0.00	0.06
22	0.47	0.52	0.19	0.60	0.03	0.71	0.00	0.00	0.00	0.00	0.00	0.02
23	0.00	0.54	0.00	0.61	0.00	0.35	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.17	0.61	0.20	0.20	0.00	0.00	0.03	0.00	0.00	0.00
25	0.02	0.22	0.06	0.12	0.66	0.02	0.00	0.00	0.03	0.00	0.08	0.00
26	0.01	0.60	0.00	0.50	0.02	0.02	0.00	0.00	0.00	0.00	0.08	0.00
27	0.00	0.01	0.01	0.05	0.02	0.09	0.10	0.00	0.00	0.00	0.05	0.00
28	0.00	0.58	1.16	0.14	0.08	0.00	0.15	0.00	0.00	0.00	0.00	0.00
29	0.00	0.01	1.63	0.83		0.00	0.10	0.00	0.00	0.00	0.00	0.03
30	0.00	0.09	0.14	0.25		0.00	0.03	0.00	0.00	0.00	0.00	0.00
31	0.00		0.00	0.03		0.00		0.00		0.00	0.02	
Total	6.43	9.02	4.17	7.72	3.60	2.29	5.79	0.38	1.08	0.00	0.47	1.60
Days	14	25	12	26	19	14	20	2	7		6	11

156 Precip Days

Total Rainfall for Water Year 2018: 42.55

Notes:

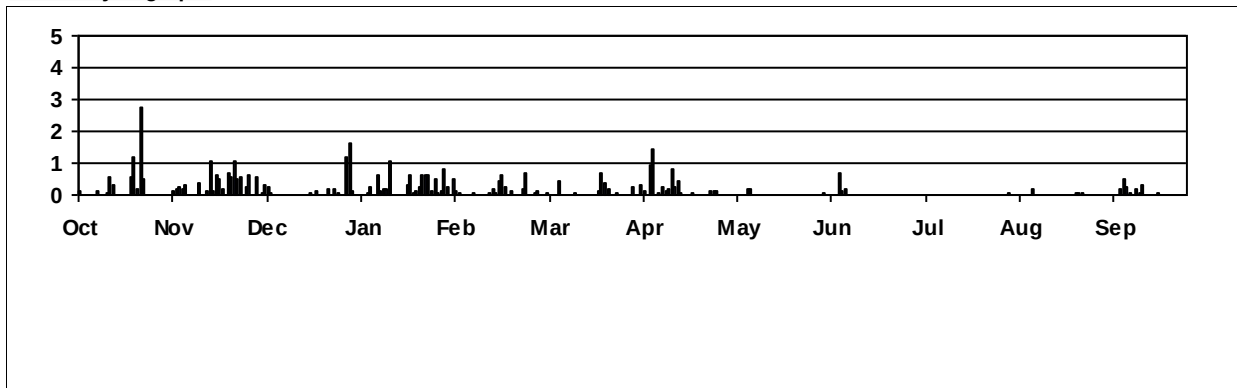
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

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Annual Hyetograph:



65u--Grand Mound_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.06	0.13	0.28	0.00	0.51	0.07	0.09	0.00	0.00	0.00	0.00	0.00
02	0.01	0.37	0.41	0.00	0.17	0.04	0.02	0.00	0.00	0.00	0.00	0.00
03	0.00	0.25	0.00	0.00	0.04	0.00	0.08	0.00	0.00	0.00	0.00	0.00
04	0.00	0.27	0.01	0.35	0.08	0.13	0.42	0.00	0.05	0.00	0.00	0.00
05	0.00	0.87	0.00	0.39	0.01	0.03	0.37	0.00	0.00	0.00	0.00	0.00
06	0.14	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
07	0.02	0.00	0.00	0.79	0.00	0.01	1.38	0.00	0.00	0.05	0.00	0.07
08	0.00	0.34	0.00	0.12	0.06	0.53	0.90	0.03	0.73	0.00	0.00	0.00
09	0.00	0.31	0.00	0.11	0.00	0.03	0.00	0.02	0.12	0.00	0.00	0.09
10	0.05	0.01	0.00	0.21	0.00	0.00	0.04	0.17	0.08	0.00	0.00	0.15
11	0.27	0.04	0.00	1.73	0.00	0.00	0.14	0.00	0.00	0.00	0.23	0.43
12	0.65	0.41	0.00	0.12	0.00	0.00	0.13	0.00	0.00	0.00	0.01	0.07
13	0.03	1.28	0.00	0.08	0.23	0.10	0.54	0.00	0.03	0.00	0.00	0.23
14	0.00	0.07	0.00	0.00	0.26	0.02	1.69	0.00	0.00	0.00	0.00	0.06
15	0.00	1.11	0.00	0.05	0.02	0.00	0.16	0.00	0.00	0.00	0.00	0.09
16	0.00	0.66	0.06	0.02	0.27	0.00	0.35	0.00	0.00	0.00	0.00	0.30
17	0.22	0.19	0.03	0.37	0.70	0.00	0.01	0.00	0.00	0.00	0.00	0.01
18	1.41	0.00	0.77	0.17	0.35	0.06	0.00	0.00	0.00	0.00	0.00	0.00
19	0.68	0.75	1.69	0.12	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
20	0.13	0.41	0.02	0.16	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	2.38	1.10	0.00	0.33	0.10	0.22	0.01	0.00	0.00	0.00	0.00	0.05
22	0.23	0.54	0.29	0.32	0.06	0.65	0.00	0.00	0.00	0.00	0.00	0.07
23	0.01	0.46	0.00	1.05	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.01	0.00	0.29	0.39	0.06	0.00	0.00	0.14	0.00	0.00	0.00
25	0.12	0.36	0.41	0.34	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.63	0.00	0.76	0.00	0.04	0.00	0.00	0.00	0.00	0.06	0.00
27	0.00	0.04	0.01	0.13	0.15	0.58	0.04	0.00	0.00	0.00	0.00	0.00
28	0.00	0.45	1.01	0.20	0.20	0.00	0.24	0.00	0.00	0.00	0.00	0.00
29	0.00	0.02	1.34	0.71		0.00	0.02	0.00	0.00	0.00	0.00	0.11
30	0.00	0.13	0.14	0.25		0.00	0.04	0.00	0.00	0.00	0.00	0.00
31	0.00		0.00	0.04		0.00		0.00		0.00	0.00	
Total	6.41	11.21	6.47	9.21	4.48	2.69	6.67	0.22	1.15	0.05	0.30	1.73
Days	16	27	14	26	20	18	20	3	6	1	3	13

167 Precip Days

Total Rainfall for Water Year 2018: 50.59

Notes:

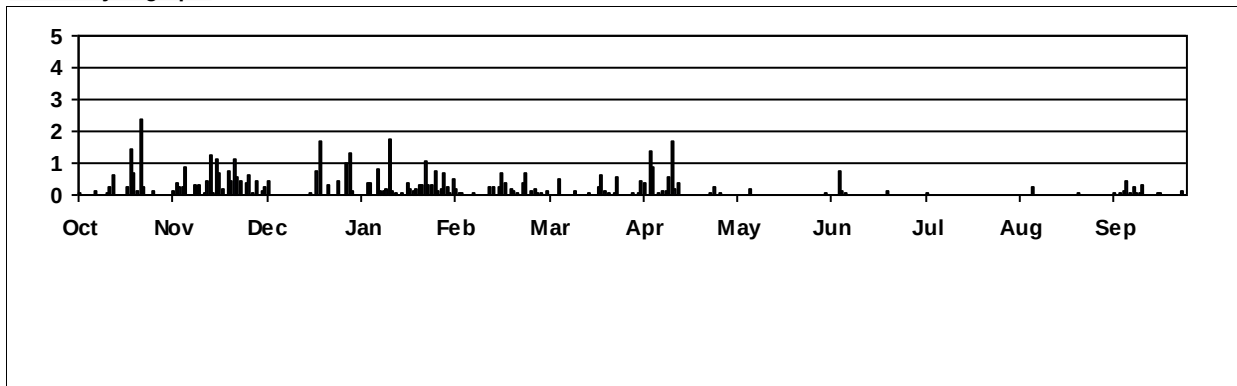
Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt.

Precipitation from snow is not measured accurately

Thurston County

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Annual Hyetograph:



69u--Summit Lake_Rain

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.03	0.02	1.18	0.00	0.80	0.21	0.41	0.00	0.00	0.00	0.00	0.00
02	0.00	0.75	0.67	0.00	0.55	0.03	0.05	0.00	0.00	0.00	0.00	0.00
03	0.01	0.46	0.00	0.00	0.12	0.00	0.02	0.00	0.00	0.00	0.00	0.00
04	0.00	0.40	0.00	0.46	0.20	0.25	0.45	0.03	0.00	0.00	0.00	0.00
05	0.00	0.81	0.01	0.58	0.04	0.08	0.63	0.01	0.00	0.00	0.00	0.00
06	0.22	0.01	0.00	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
07	0.23	0.00	0.01	0.68	0.00	0.06	1.31	0.00	0.00	0.05	0.00	0.00
08	0.00	0.48	0.00	0.12	0.09	1.29	1.95	0.04	0.47	0.00	0.00	0.03
09	0.00	0.69	0.01	0.09	0.01	0.07	0.01	0.10	0.02	0.00	0.00	0.28
10	0.03	0.00	0.00	0.23	0.00	0.00	0.25	0.18	0.24	0.00	0.00	0.22
11	0.12	0.19	0.01	2.76	0.00	0.00	0.64	0.00	0.00	0.00	0.43	1.08
12	0.35	0.85	0.00	0.25	0.00	0.00	0.58	0.00	0.00	0.00	0.03	0.12
13	0.01	2.49	0.00	0.20	0.23	0.05	1.19	0.00	0.30	0.00	0.00	0.19
14	0.00	0.63	0.00	0.00	0.29	0.18	2.51	0.00	0.00	0.00	0.00	0.16
15	0.00	1.66	0.01	0.07	0.06	0.01	0.27	0.00	0.00	0.00	0.00	0.09
16	0.00	0.76	0.09	0.03	0.64	0.00	0.94	0.00	0.00	0.00	0.00	0.61
17	0.37	0.21	0.52	0.69	1.62	0.00	0.28	0.00	0.00	0.00	0.00	0.00
18	2.80	0.03	0.94	1.06	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	1.18	1.06	2.35	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.48	0.55	0.01	0.42	0.13	0.00	0.06	0.00	0.00	0.00	0.00	0.00
21	3.94	2.22	0.02	0.98	0.02	0.39	0.04	0.00	0.00	0.00	0.00	0.06
22	0.84	1.18	0.29	0.49	0.11	0.94	0.00	0.00	0.00	0.00	0.00	0.48
23	0.00	1.10	0.01	1.35	0.19	0.40	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.08	0.00	0.44	0.52	0.04	0.00	0.00	0.16	0.00	0.00	0.00
25	0.02	0.52	0.28	0.79	1.23	0.00	0.00	0.00	0.01	0.00	0.00	0.00
26	0.00	1.43	0.04	0.81	0.01	0.20	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.09	0.07	0.62	0.18	0.54	0.09	0.00	0.00	0.00	0.00	0.00
28	0.01	0.69	1.32	0.25	0.71	0.00	0.12	0.00	0.00	0.00	0.00	0.00
29	0.00	0.01	2.11	1.33		0.00	0.02	0.00	0.00	0.00	0.00	0.04
30	0.00	0.37	0.42	0.21		0.02	0.06	0.00	0.00	0.00	0.00	0.02 p
31	0.00		0.00	0.31		0.00		0.00		0.00	0.00	
Total	10.64	19.74	10.37	15.74	8.03	4.76	11.88	0.37	1.20	0.05	0.46	3.38
Days	16	28	21	27	22	17	22	6	6	1	2	13

181 Precip Days

Total Rainfall for Water Year 2018: 86.62

Precipitation is measured with a tipping bucket rain gauge. Ice and snow accumulations in the rain gauge are not measured until they melt. Precipitation from snow is not measured accurately

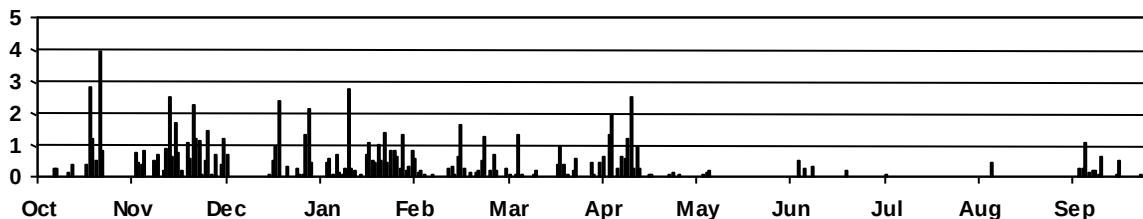
Thurston County

Notes:

Switch logger to CR300 and newer TB4 rain gage and T107 Temp probe. Also Cell service added. -18/02/07

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Annual Hyetograph:



Appendix B – Air Temperature Data

05u--Yelm WRF_Rain

Water Year: 2018 Air Temperatures in degrees Celsius

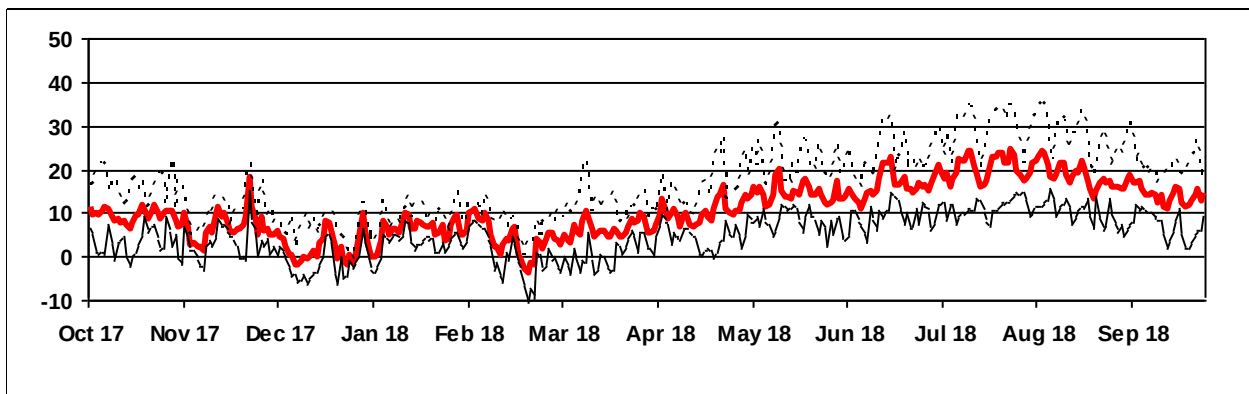
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	12	10	5.8	0.05	6.0	5.6	5.8	10	13	16	19	16
02	9.9	7.0	4.5	0.14	10	4.3	5.7	12	18	15	17	16
03	10	2.8	4.3	0.62	11	3.6	6.2	14	13	17	18	16
04	9.6	3.5	2.3	3.8	11	2.7	7.2	14	13	19	20	16
05	10	2.3	0.74	8.3	8.8	5.1	9.7	14	14	21	22	18
06	12	2.1	0.65	6.8	8.1	3.9	13	16	16	20	22	19
07	11	1.6	-1.59	5.2	9.9	3.5	11	15	15	18	23	17
08	9.1	5.5	-1.59	6.3	8.5	7.3	8.7	16	13	19	25	17
09	8.4	6.7	-0.74	6.7	5.3	6.2	10	14	13	16	24	18
10	8.8	5.7	-0.09	5.6	2.4	5.0	11	11	11	18	21	16
11	8.0	9.6	-0.49	8.2	2.4	8.4	9.1	12	14	19	18	14
12	8.4	12	0.06	10	0.67	11	7.1	14	15	22	18	14
13	7.6	9.3	1.6	9.9	2.6	9.1	9.8	19	15	22	19	15
14	6.6	10	0.09	6.7	4.0	6.3	10.0	20	14	22	22	14
15	7.8	8.0	3.1	6.7	3.7	4.5	7.4	15	15	24	22	12
16	9.7	5.8	4.4	8.4	6.4	5.7	6.9	14	18	24	19	14
17	9.7	5.8	8.5	7.8	6.9	6.0	7.6	14	22	21	17	11
18	12	6.6	7.7	7.3	0.50	6.2	8.0	13	22	19	19	11
19	11	6.6	6.1	6.8	-0.49	4.7	9.6	15	21	16	20	13
20	8.6	7.5	2.2	6.8	-2.59	4.6	11	15	23	17	19	15
21	11	9.0	-0.16	7.9	-3.39	6.3	9.4	14	17	18	22	16
22	12	18	2.2	5.0	-1.15	6.0	8.3	17	17	21	21	16
23	10.0	11	-0.85	5.6	-1.76	4.6	11	18	17	23	17	12
24	8.9	8.9	-1.82	7.4	4.3	4.5	14	16	19	23	16	11
25	10	5.2	0.43	3.7	3.4	5.8	14	14	16	24	13	12
26	11	9.2	-1.20	4.3	1.8	6.7	17	14	16	24	15	13
27	11	5.9	0.29	7.6	4.3	9.0	11	16	15	22	17	14
28	10	6.5	5.2	9.2	5.5	7.9	10	14	16	22	18	16
29	8.4	5.0	10	9.5		8.1	9.9	12	17	25	17	13
30	7.0	5.2	6.2	5.2		10	11	12	16	23	18	15
31	7.6		1.8	5.1		9.3		12		20	16	
Avg Temp	9.6	7.1	2.3	6.2	4.2	6.2	9.6	15	16	20	19	15
Max Temp	23	22	13	15	15	22	28	31	33	35	35	31
Max Mean Daily	12	18	10	10	11	11	17	20	23	25	25	19

Avg Air Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



10u--Meridian Rd_Rain

Water Year: 2018 Air Temperatures in degrees Celsius

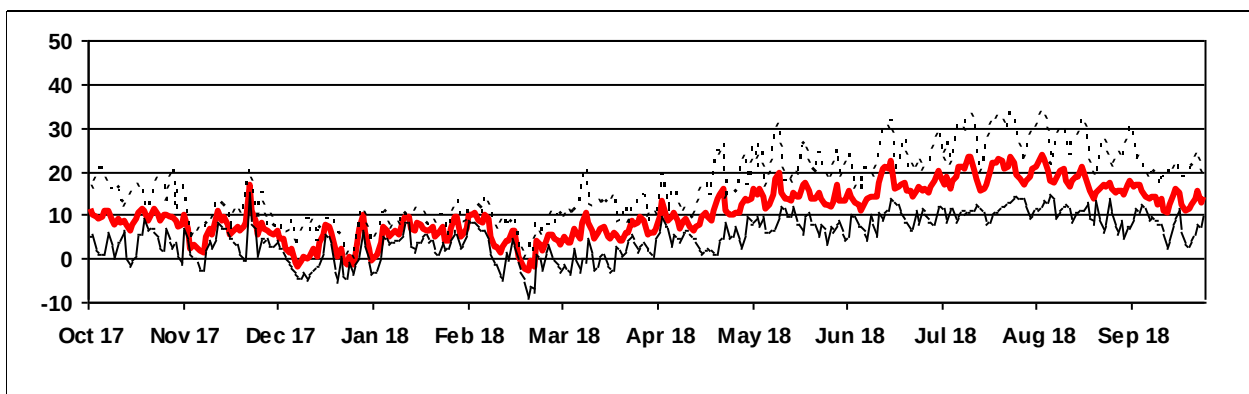
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	11	10.0	6.5	-0.19	7.0	5.6	5.8	11	13	16	18	15
02	10	6.8	4.7	0.49	10	4.5	5.9	12	17	15	17	15
03	9.7	2.6	4.6	1.1	10	4.1	6.2	14	13	17	18	16
04	9.2	3.2	2.5	3.9	11	3.1	7.0	13	13	18	19	15
05	9.9	2.4	1.5	7.5	8.6	5.0	9.6	14	14	20	21	17
06	11	2.0	2.3	6.6	8.1	3.6	13	16	16	19	21	18
07	11	1.6	-0.68	5.3	10	3.7	10	15	14	17	22	17
08	8.9	5.2	-1.61	6.2	9.1	7.1	8.7	16	13	19	24	17
09	7.7	7.1	-0.37	6.6	5.3	6.2	9.8	14	13	16	23	17
10	9.2	5.4	0.38	5.6	2.8	4.7	11	12	11	18	20	16
11	8.3	9.1	0.04	8.6	2.7	8.4	8.8	12	13	19	18	14
12	8.6	11	0.61	9.8	1.5	10	6.9	15	14	21	18	14
13	7.7	8.6	2.2	9.6	2.6	8.3	9.0	18	14	21	18	14
14	6.4	9.8	0.52	7.0	4.0	6.6	9.4	20	14	21	20	14
15	7.7	7.7	3.5	6.5	4.3	4.5	7.2	15	14	23	21	12
16	9.4	5.6	5.4	8.5	6.4	5.8	6.7	14	17	23	18	14
17	11	6.3	7.7	7.7	6.7	6.8	7.4	14	21	20	17	11
18	11	7.3	7.5	7.1	0.67	7.2	8.1	13	21	19	18	10
19	11	6.7	6.0	6.4	-0.29	5.0	9.8	15	21	16	19	13
20	8.6	7.5	2.3	6.3	-2.05	4.5	11	14	22	16	19	15
21	11	8.5	0.59	7.4	-2.69	5.9	9.5	14	16	17	21	16
22	12	17	2.5	5.0	-0.56	5.6	8.6	17	16	20	20	15
23	10.0	11	-0.33	5.9	-1.74	4.1	11	17	17	22	17	13
24	8.7	8.7	-1.44	7.3	4.3	4.4	14	16	18	22	16	11
25	10	5.6	0.32	4.3	3.2	5.9	15	14	16	23	14	12
26	10	8.3	-1.12	4.2	2.0	6.1	16	14	16	23	15	13
27	9.6	6.8	0.35	7.0	4.4	8.6	11	15	14	21	16	14
28	9.9	6.3	6.8	9.5	5.7	7.7	9.9	14	16	21	17	15
29	8.9	6.0	10	9.5		8.2	10	12	17	24	17	13
30	7.3	5.5	6.2	5.3		9.7	10	12	16	22	17	14
31	7.8		2.5	5.5		8.8		12		19	16	
Avg Temp	9.5	7.0	2.7	6.2	4.4	6.1	9.5	14	16	20	19	14
Max Temp	21	21	12	14	15	21	27	31	32	34	35	31
Max Mean Daily	12	17	10	9.8	11	10	16	20	22	24	24	18

Avg Air Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



11u--NOAA Olympia Airport

Water Year: 2018 Air Temperatures in degrees Celsius

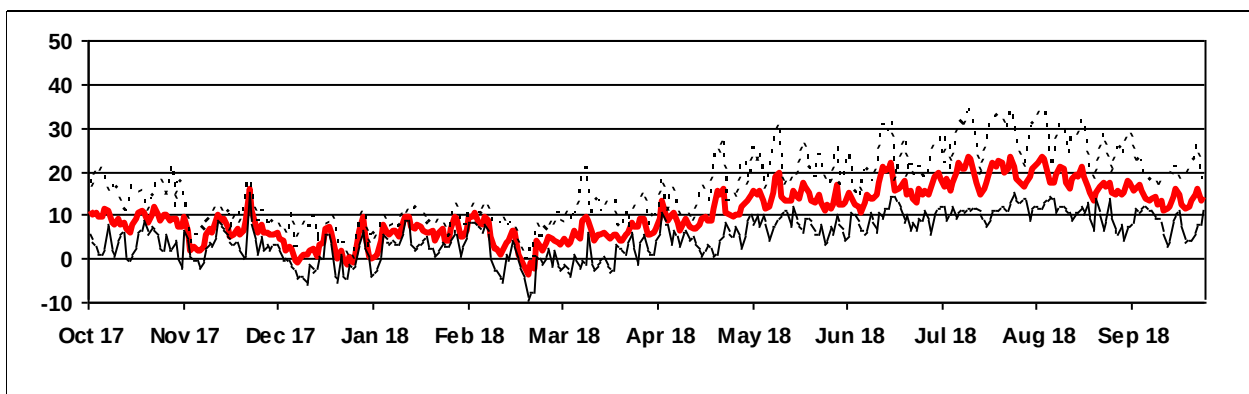
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	11	9.8	5.9	0.02	6.4	4.7	5.7	10.0	13	16	17	15
02	10.0	6.7	4.8	0.60	9.7	4.1	5.4	12	17	15	17	16
03	10	2.1	4.0	1.0	9.9	3.8	5.9	13	13	16	18	15
04	9.6	3.0	1.9	4.1	10	3.1	7.1	13	12	19	19	15
05	9.9	2.1	2.7	7.8	8.4	4.4	9.4	15	13	20	21	18
06	11	1.9	2.4	6.1	7.9	3.4	13	16	15	18	21	18
07	11	2.8	-0.42	5.6	9.8	3.8	10	15	14	17	22	16
08	8.2	5.5	-0.97	6.6	8.6	6.6	8.7	16	13	19	24	16
09	7.7	6.9	0.65	6.3	5.1	5.7	10	14	12	16	23	17
10	9.0	5.8	1.0	5.2	2.4	4.7	11	12	10	18	19	16
11	7.9	8.8	0.90	8.4	2.6	8.6	8.3	12	13	20	17	14
12	8.1	10	2.0	9.5	0.88	9.5	6.6	15	15	22	18	13
13	7.0	8.6	2.2	9.8	2.1	8.9	8.5	19	14	21	20	14
14	6.2	9.4	0.51	7.5	3.8	5.9	9.3	20	14	21	21	14
15	7.7	7.4	3.1	6.8	4.1	4.2	7.3	14	15	23	21	12
16	9.2	5.2	3.9	7.8	6.3	5.6	6.8	13	17	23	17	13
17	10	5.6	6.7	7.6	6.5	5.7	6.9	13	21	19	16	11
18	11	6.8	7.5	6.5	0.83	6.1	8.0	13	20	18	18	11
19	11	5.7	6.0	6.1	-0.05	5.1	9.4	16	21	15	19	12
20	8.3	6.6	1.9	6.0	-1.65	4.8	9.8	14	22	16	19	14
21	10	8.8	-0.01	6.6	-3.39	5.7	9.0	14	16	18	21	16
22	12	16	2.1	4.4	-0.86	5.6	8.7	17	16	21	19	15
23	10.0	11	0.24	5.8	-2.33	4.2	12	17	17	22	17	12
24	8.8	7.8	-1.13	7.1	4.1	4.2	16	15	18	21	15	11
25	10	6.2	0.36	4.2	2.9	5.8	15	13	15	23	13	12
26	10	7.9	-0.68	4.0	1.8	5.9	16	13	16	22	15	13
27	8.6	6.1	1.2	6.8	3.7	8.4	11	15	14	20	17	15
28	9.2	6.1	6.4	9.5	4.9	7.2	10.0	13	13	21	18	16
29	9.3	5.5	9.7	9.3		7.3	9.9	11	16	24	16	13
30	7.3	5.5	5.7	4.9		9.4	10	12	15	21	17	14
31	7.5		0.76	4.9		9.2		11		18	15	
Avg Temp	9.3	6.7	2.6	6.0	4.1	5.9	9.5	14	15	19	18	14
Max Temp	22	18	12	13	13	21	28	31	32	34	35	29
Max Mean Daily	12	16	9.7	9.8	10	9.5	16	20	22	24	24	18

Avg Air Temp for Water Year 2018: 10

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



13u--Lake Lawrence_Rain

Water Year: 2018 Air Temperatures in degrees Celsius

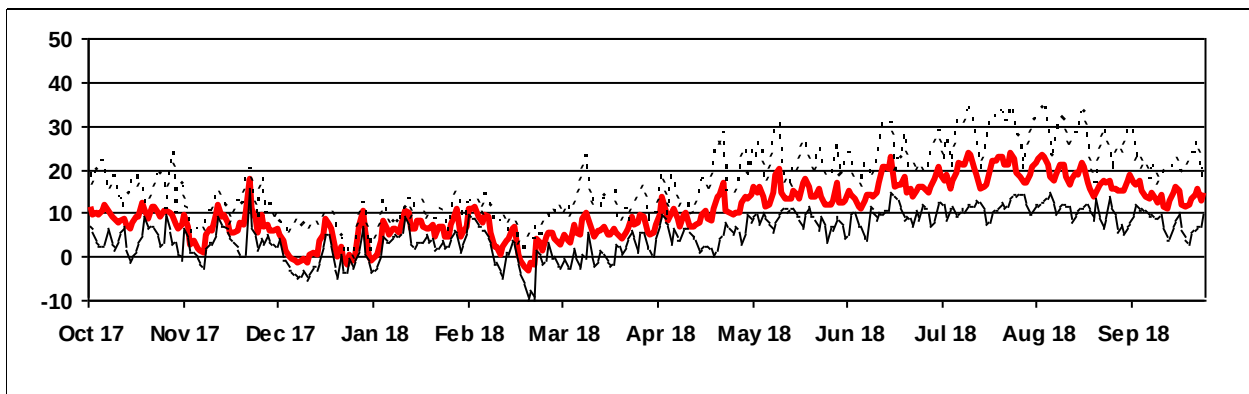
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	12	9.6	6.4	-0.84	7.0	5.5	5.6	10	13	16	18	16
02	9.7	6.8	5.2	0.28	11	4.3	5.3	12	17	15	17	15
03	10	2.6	4.0	0.62	11	3.2	5.8	14	13	16	17	15
04	9.6	3.6	1.5	3.8	11	3.0	7.3	13	13	18	19	15
05	10	2.1	0.25	8.5	9.2	4.9	9.9	14	13	21	21	18
06	12	1.6	-0.33	6.5	7.8	3.8	14	16	15	19	22	19
07	11	1.1	-0.97	5.3	9.6	3.5	11	15	14	17	22	17
08	9.1	5.0	-1.15	6.3	9.2	7.5	8.2	16	13	19	24	17
09	8.6	6.6	-0.95	6.5	5.5	5.6	10	14	12	16	23	17
10	8.1	6.1	-0.44	5.7	2.5	5.2	11	11	11	17	21	15
11	8.3	9.7	-1.13	9.0	2.5	8.6	8.8	12	13	19	18	14
12	8.6	12	0.31	10	0.72	10	7.0	15	14	22	18	14
13	7.5	9.1	1.2	10	2.5	8.6	9.7	19	14	21	19	15
14	6.5	9.9	0.58	6.5	3.8	6.0	10	20	14	21	21	14
15	7.9	7.7	3.7	6.6	4.3	4.4	7.1	15	15	24	21	13
16	9.3	5.6	5.3	8.4	6.4	5.8	6.9	14	17	23	18	14
17	9.3	5.8	8.6	8.4	6.7	5.9	7.2	13	21	20	17	11
18	13	6.1	7.6	6.9	0.36	6.8	7.8	13	21	19	18	11
19	11	7.9	6.3	6.7	-1.05	4.9	9.8	15	20	15	19	13
20	8.9	7.6	1.8	6.6	-2.16	5.0	11	14	23	16	19	15
21	11	10	0.08	7.4	-2.97	6.6	9.0	14	16	17	22	16
22	12	18	2.3	4.9	-1.50	5.8	8.4	17	16	20	21	15
23	10	11	-0.55	6.9	-1.65	4.7	11	18	17	22	17	12
24	9.1	8.9	-1.68	7.1	4.0	4.3	14	16	19	22	15	12
25	11	5.7	0.39	4.4	3.1	5.4	15	14	15	23	14	12
26	10	9.7	-1.04	4.5	1.7	6.6	17	14	16	23	15	13
27	10	6.8	0.57	7.4	4.6	9.1	11	15	14	21	17	14
28	9.8	7.3	7.3	9.7	5.8	7.6	10	14	15	21	18	16
29	7.6	5.9	11	11		7.9	9.5	12	16	24	17	13
30	6.6	5.9	6.0	4.5		9.5	10	12	16	23	17	15
31	7.2		0.09	5.5		9.4		12		19	16	
Avg Temp	9.5	7.2	2.3	6.3	4.3	6.1	9.6	14	15	20	19	14
Max Temp	24	21	13	15	15	23	29	31	31	35	34	30
Max Mean Daily	13	18	11	11	11	10	17	20	23	24	24	19

Avg Air Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



18u--Lacey Fire Dist. 3 Fire Station_Rain

Water Year: 2018 Air Temperatures in degrees Celsius

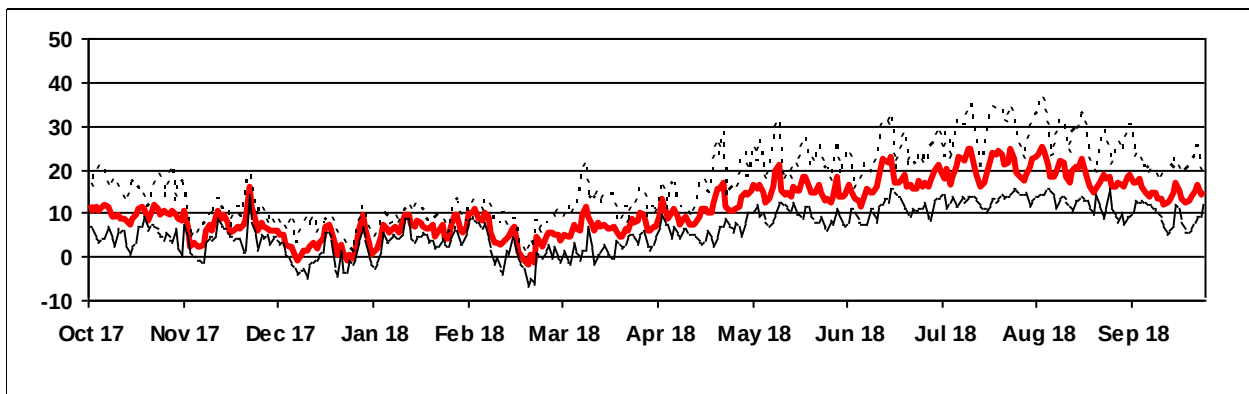
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	12	10	6.2	0.63	6.9	5.6	6.1	11	14	17	18	16
02	11	7.1	5.1	1.3	10	5.0	6.1	14	18	16	17	17
03	11	2.5	5.3	1.7	10	5.0	7.0	15	14	17	19	17
04	11	3.3	2.8	4.5	11	3.8	7.0	14	14	20	21	16
05	11	2.3	2.5	7.6	8.9	5.3	9.8	15	14	21	23	19
06	12	2.5	2.5	6.5	8.3	4.7	13	17	17	20	23	19
07	12	3.0	0.18	5.7	10	4.7	10	16	15	18	23	17
08	9.4	5.9	-0.72	6.5	9.0	7.3	8.9	17	13	20	25	17
09	9.0	7.2	0.55	7.1	5.6	6.6	10	15	13	17	24	18
10	9.7	6.2	1.5	5.7	3.2	6.0	11	12	12	18	21	16
11	9.0	9.0	1.6	8.2	3.5	9.5	9.1	13	14	20	18	15
12	8.6	11	2.4	9.7	2.8	11	7.3	16	16	23	18	14
13	8.1	8.7	3.1	9.8	3.3	9.3	9.0	20	15	23	19	15
14	7.3	9.9	1.9	7.5	4.3	7.3	9.4	21	15	22	22	15
15	8.9	7.8	3.2	7.2	4.7	6.2	7.6	15	16	25	22	13
16	9.9	5.5	4.3	8.5	6.5	7.7	7.2	14	18	25	18	14
17	11	6.0	7.2	7.9	6.9	6.8	7.9	15	22	21	17	12
18	12	7.0	7.6	7.1	1.2	7.4	9.0	14	22	19	20	12
19	11	6.5	6.1	6.6	0.45	6.3	11	16	22	16	21	13
20	8.5	7.4	2.8	6.3	-0.94	6.4	11	15	23	17	20	15
21	10	8.8	0.74	7.2	-1.65	6.8	10	15	17	19	23	17
22	12	16	2.7	4.9	0.44	5.9	9.9	19	17	22	21	15
23	11	11	0.87	6.1	-1.52	4.6	12	19	18	24	17	13
24	9.6	8.4	-0.76	7.5	4.5	4.8	16	16	19	23	16	12
25	11	5.9	0.53	4.4	3.5	6.4	16	15	16	25	15	13
26	10	8.0	-0.28	4.2	2.6	6.2	17	15	17	23	16	14
27	9.5	6.8	1.5	7.2	4.4	8.6	11	16	16	21	17	15
28	10	6.3	6.6	9.6	5.5	8.1	10	15	16	22	19	17
29	9.9	5.8	9.8	9.5		8.4	11	13	18	25	18	14
30	8.7	6.0	6.6	5.9		10	11	13	16	23	18	15
31	8.2		3.5	5.4		9.7		12		19	16	
Avg Temp	10	7.1	3.2	6.4	4.8	6.8	10	15	17	21	20	15
Max Temp	22	19	12	13	14	22	29	32	33	35	37	31
Max Mean Daily	12	16	9.8	9.8	11	11	17	21	23	25	25	19

Avg Air Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



18w--WARC TC_Rain

Water Year: 2018 Air Temperatures in degrees Celsius

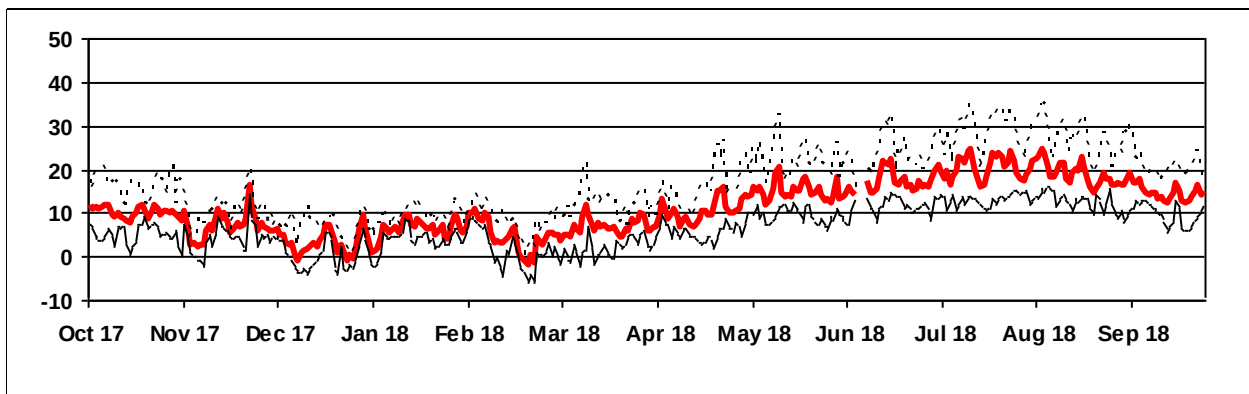
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	12	10	6.5	1.1	6.8	5.6	6.1	11	14	17	18	16
02	11	7.1	5.3	1.4	10	5.1	6.1	13	18	16	17	17
03	12	2.7	5.2	2.1	10	4.9	7.0	14	14	17	19	17
04	11	3.3	3.3	4.8	11	3.8	7.0	14	14	20	20	17
05	11	2.3	2.7	7.6	8.8	5.2	9.8	14	14	21	22	19
06	12	2.7	3.2	6.7	8.2	5.1	13	16	16	20	22	19
07	12	2.8	0.08	5.6	10	4.8	10	15	15	18	23	17
08	9.8	6.1	-0.84	6.5	9.0	7.3	8.9	16	14	20	25	17
09	9.2	7.3	0.77	7.1	5.8	6.5	10	14		17	24	18
10	10	6.1	1.6	5.7	3.1	5.5	11	12		18	21	16
11	9.2	9.3	2.1	8.1	3.6	9.2	9.1	13		20	18	15
12	8.9	11	2.4	9.7	3.2	12	7.1	16	17	23	18	14
13	8.3	8.7	3.4	9.7	3.1	9.6	9.0	19	15	22	19	15
14	7.8	9.9	2.3	7.5	4.2	7.3	9.3	21	15	22	22	15
15	9.2	7.9	3.7	7.1	4.5	6.2	7.4	15	16	24	22	13
16	10	5.7	4.9	8.7	6.5	7.7	7.0	14	18	25	18	14
17	11	6.3	7.4	8.0	6.8	6.8	7.6	14	22	20	17	13
18	12	7.6	7.5	7.2	1.0	7.4	8.8	14	22	19	19	12
19	11	6.8	6.0	6.6	0.26	6.3	10	16	21	16	20	13
20	8.8	7.6	3.4	6.4	-1.02	6.4	11	15	23	17	20	15
21	10	8.8	1.1	7.4	-1.61	6.8	9.8	15	17	19	23	17
22	12	17	3.0	4.9	0.51	5.9	9.6	18	17	22	21	15
23	11	11	1.4	6.0	-1.37	4.6	12	18	17	24	18	13
24	9.9	8.9	-0.67	7.5	4.5	4.8	15	16	18	23	16	12
25	11	6.0	0.40	4.4	3.5	6.4	15	14	16	24	15	13
26	11	8.0	-0.54	4.2	2.7	6.2	16	15	17	23	16	14
27	10.0	7.0	1.4	7.2	4.5	8.6	11	16	15	21	17	15
28	11	6.3	6.6	9.9	5.7	8.1	10	14	16	21	19	17
29	9.7	6.3	9.5	9.4		8.4	10	13	18	24	18	14
30	9.2	6.0	6.6	6.0		10	11	13	16	22	18	15
31	8.4		3.5	5.5		9.7		12		19	16	
Avg Temp	10	7.2	3.3	6.4	4.8	6.8	9.9	15	17	20	19	15
Max Temp	21	20	12	13	15	22	27	33	33	35	35	30
Max Mean Daily	12	17	9.5	9.9	11	12	16	21	23	25	25	19

Avg Air Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



20u--Southbay Firestation_Rain

Water Year: 2018 Air Temperatures in degrees Celsius

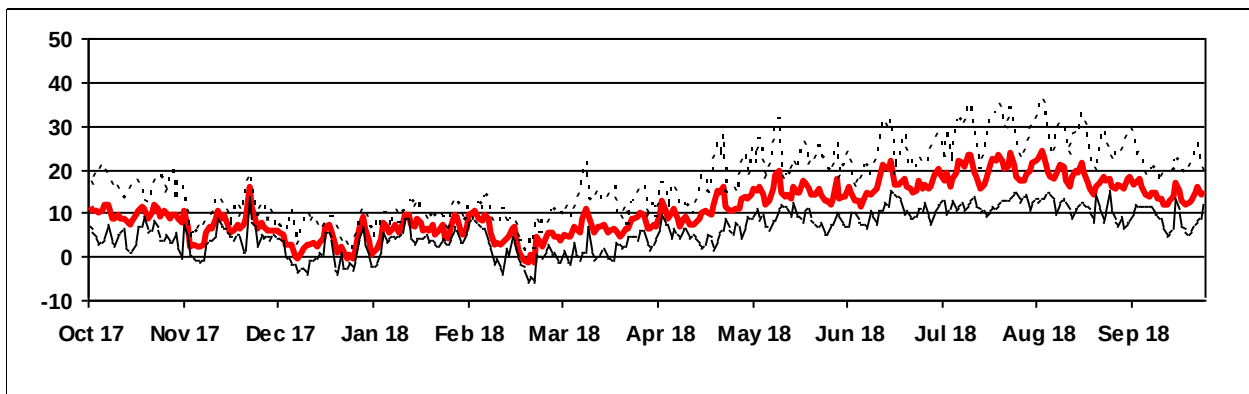
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	11	11	6.2	0.73	6.7	5.5	6.3	11	13	17	18	16
02	11	7.1	5.5	1.3	9.8	4.8	6.4	13	18	16	18	16
03	11	2.4	5.3	2.0	10	4.5	7.5	14	13	16	19	16
04	10	3.0	3.0	4.4	11	3.7	7.0	13	14	19	20	16
05	11	2.3	2.6	7.7	8.9	5.1	9.7	14	14	20	22	18
06	12	2.3	2.7	6.8	8.4	4.5	13	16	16	19	22	18
07	12	2.8	0.12	5.8	9.9	4.5	11	15	15	17	22	17
08	8.9	5.8	-0.58	6.6	9.0	7.1	9.0	16	13	19	24	17
09	8.8	7.0	0.93	7.2	5.5	6.5	10	14	13	16	23	18
10	9.7	6.4	2.0	5.7	2.8	5.8	11	12	11	18	20	16
11	8.9	8.7	2.7	8.0	3.2	9.0	8.9	13	14	19	19	14
12	8.8	11	2.9	9.7	2.8	11	7.2	16	15	22	18	14
13	8.2	8.8	3.2	9.8	3.2	9.8	8.8	19	14	21	19	15
14	7.5	9.8	2.5	7.6	4.3	7.2	9.2	20	15	21	21	15
15	8.5	7.6	3.4	6.8	4.6	5.4	7.5	15	15	24	21	13
16	9.9	5.4	4.1	8.6	6.6	7.2	7.3	14	18	24	18	13
17	11	6.1	6.9	7.6	6.9	6.8	7.9	14	21	19	16	12
18	11	7.5	7.6	6.3	1.4	7.2	8.7	14	21	18	18	12
19	11	6.5	6.0	6.4	0.51	5.7	10	16	20	16	20	13
20	8.7	7.3	2.7	6.2	-0.89	5.9	11	15	22	17	19	14
21	10	8.7	0.88	7.2	-1.25	6.5	10	15	17	18	22	17
22	12	16	2.6	5.1	0.45	6.0	9.5	18	16	21	19	15
23	11	11	1.3	5.9	-1.37	4.7	12	17	17	23	17	13
24	9.2	8.3	-0.47	7.4	4.4	5.0	15	16	18	22	16	12
25	10	6.4	0.55	4.6	3.5	6.7	15	14	16	23	14	12
26	10	8.0	-0.39	4.1	2.5	6.3	16	14	16	22	16	13
27	9.0	7.1	1.6	6.8	4.5	8.9	12	16	15	20	17	15
28	9.6	6.2	6.5	9.6	5.4	8.6	10	14	15	21	18	16
29	9.7	6.2	9.1	9.3		9.0	11	13	17	24	18	14
30	8.6	6.1	6.5	5.8		10	11	13	16	21	18	15
31	7.9		3.7	5.3		9.9		12		19	16	
Avg Temp	9.9	7.1	3.3	6.3	4.7	6.7	9.9	15	16	20	19	15
Max Temp	21	19	12	14	14	22	28	32	32	35	37	30
Max Mean Daily	12	16	9.1	9.8	11	11	16	20	22	24	24	18

Avg Air Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



23u--Percival Creek, Bldg 4_Rain

Water Year: 2018 **Air Temperatures in degrees Celsius**

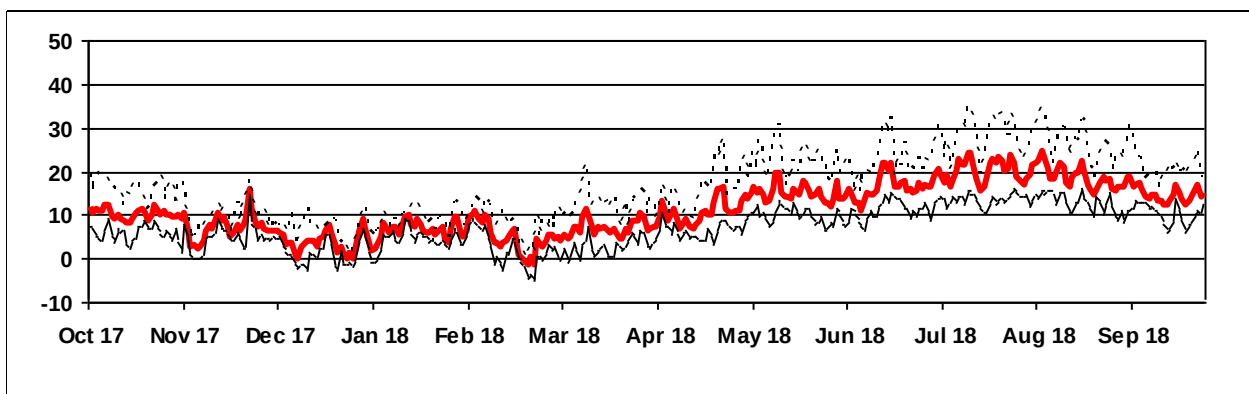
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	12	11	6.3	1.8	6.6	5.7	6.3	11	13	17	18	16
02	11	7.1	6.0	2.3	9.7	4.8	6.8	14	18	16	17	17
03	11	2.7	5.4	3.1	10	5.3	7.3	15	14	17	18	16
04	11	3.2	3.3	4.9	11	4.2	7.2	14	14	19	19	16
05	11	2.3	3.6	8.2	9.1	5.5	9.7	15	14	21	22	19
06	12	3.0	3.9	6.9	8.3	4.7	13	16	16	20	22	19
07	12	4.3	1.1	6.2	10	5.3	11	15	15	18	23	17
08	9.8	6.3	-0.09	7.2	9.2	7.2	8.9	16	13	19	25	17
09	9.2	7.7	3.0	7.4	6.0	7.3	10	15	13	17	23	18
10	10	7.1	3.1	5.7	3.5	6.1	12	13	11	18	21	16
11	9.0	9.2	4.0	8.2	3.5	9.6	8.8	13	14	20	18	14
12	8.6	11	4.2	9.7	3.0	11	7.0	16	15	23	18	14
13	8.5	8.6	4.1	10.0	3.8	10.0	8.5	20	15	22	20	15
14	8.2	9.6	2.9	7.9	4.4	7.5	9.2	20	15	22	22	15
15	9.4	7.5	4.7	7.6	4.9	5.8	7.4	15	16	24	21	13
16	10	5.3	4.9	9.0	6.5	7.6	7.1	14	18	24	18	14
17	11	6.1	6.6	8.1	6.9	7.2	7.9	14	22	20	16	12
18	11	8.0	7.7	6.5	1.2	7.3	8.9	14	22	18	19	12
19	11	6.3	6.0	6.3	0.75	6.4	11	16	20	16	20	13
20	8.7	7.9	3.3	6.0	-0.51	6.1	11	15	22	16	20	15
21	10	9.1	1.3	7.1	-1.16	6.9	10	15	17	18	23	17
22	12	16	2.8	5.5	0.51	6.1	10	18	17	22	20	15
23	11	11	1.5	6.3	-1.45	4.6	13	18	17	23	17	14
24	10	8.2	0.22	7.4	4.5	4.7	16	16	18	22	16	13
25	11	7.2	1.2	4.5	3.4	6.9	16	14	16	23	15	14
26	10	8.3	0.15	3.9	2.9	6.1	17	15	16	22	16	14
27	10.0	7.0	2.3	7.0	4.2	8.8	11	16	15	20	18	16
28	9.7	6.4	6.5	9.6	5.4	8.8	11	14	16	21	19	17
29	9.8	6.7	9.1	9.7		8.8	11	13	17	24	18	14
30	10	6.3	7.1	6.1		10	11	13	16	22	18	15
31	9.0		3.9	5.2		9.7		12		19	16	
Avg Temp	10	7.3	3.9	6.6	4.9	7.0	10	15	16	20	19	15
Max Temp	20	18	13	14	14	22	28	31	33	35	35	31
Max Mean Daily	12	16	9.1	10.0	11	11	17	20	22	24	25	19

Avg Air Temp for Water Year 2018: **11**

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



04/15/2019 2:53:31 PM by Nat Kale

24u--McLane FS Wx

Water Year: 2018 Air Temperatures in degrees Celsius

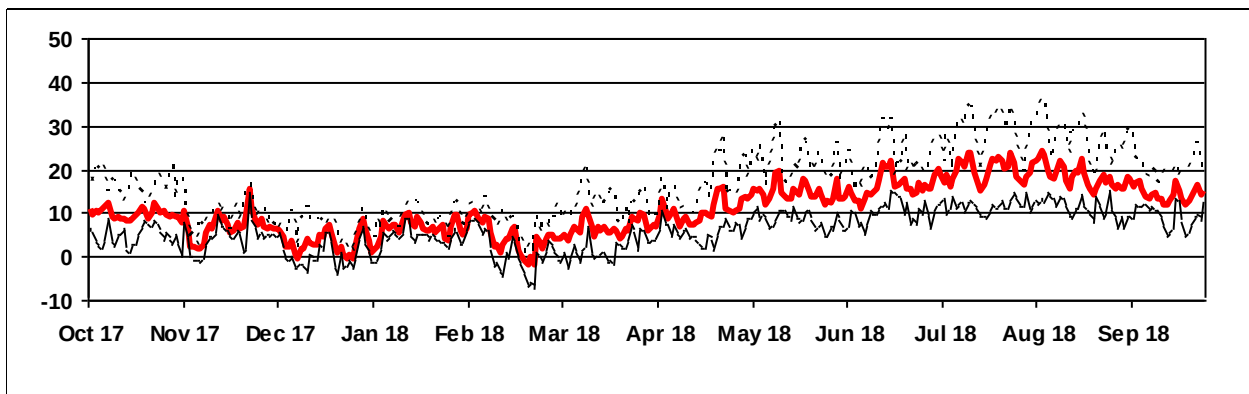
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	11	11	6.4	1.1	6.6	5.3	6.2	11	13	16	18	16
02	9.9	6.9	6.1	1.8	9.8	4.4	6.5	13	18	15	17	16
03	11	2.2	4.8	2.3	10	4.3	7.3	14	13	16	18	16
04	10	2.5	2.5	4.5	11	4.0	6.9	13	14	19	20	16
05	11	1.8	2.4	8.5	8.8	5.0	9.6	14	14	20	22	18
06	12	1.8	3.7	6.9	7.9	3.8	13	16	16	19	22	18
07	12	3.0	0.73	6.3	9.4	4.9	10	15	15	17	22	16
08	9.1	5.4	-0.49	7.4	8.9	6.9	8.9	16	13	19	25	17
09	8.8	7.5	2.1	7.3	5.7	6.4	9.9	14	13	16	24	17
10	9.4	6.7	2.1	5.6	2.4	5.4	11	12	11	18	20	16
11	8.6	9.0	4.4	8.1	2.8	9.3	8.5	13	13	20	18	14
12	8.7	11	3.5	9.7	1.1	11	6.8	16	15	22	18	13
13	8.2	8.5	3.0	10	2.8	9.7	8.6	19	14	21	19	14
14	8.2	9.2	2.6	8.0	4.0	7.0	9.0	20	15	21	22	15
15	8.9	7.3	5.2	7.2	4.2	4.8	7.2	15	16	24	21	13
16	9.5	5.4	4.8	9.0	6.7	6.8	7.3	14	18	24	18	14
17	10	6.1	6.5	7.7	6.8	6.2	7.8	14	22	19	16	12
18	11	8.0	7.5	6.4	1.3	7.2	8.4	13	21	18	19	12
19	11	6.4	5.7	5.9	0.52	5.7	10	16	21	15	20	13
20	8.8	7.1	2.3	5.9	-0.88	5.5	10	15	22	16	19	14
21	10	9.0	0.83	7.1	-1.66	6.6	9.8	14	16	18	23	17
22	12	16	2.4	5.7	0.06	5.9	9.3	18	17	21	19	15
23	11	11	0.58	6.4	-1.73	4.4	12	17	17	23	17	14
24	10	8.2	-0.41	7.3	4.8	4.6	16	15	18	22	16	12
25	10	7.4	0.67	4.4	3.4	6.5	15	14	16	23	14	13
26	9.6	8.6	-0.38	3.6	2.0	6.1	16	14	16	22	16	14
27	9.4	6.9	2.1	7.0	4.2	9.1	11	15	14	20	17	16
28	9.7	6.5	6.6	9.8	5.1	8.7	11	14	15	21	19	17
29	9.1	6.9	9.0	9.6		8.4	10	12	17	24	17	14
30	9.2	6.4	6.4	5.9		10.0	11	13	15	22	18	15
31	7.8		3.7	5.2		9.8		12		19	16	
Avg Temp	9.9	7.1	3.5	6.5	4.5	6.6	9.9	15	16	20	19	15
Max Temp	22	17	12	14	14	22	29	32	32	35	37	30
Max Mean Daily	12	16	9.0	10	11	11	16	20	22	24	25	18

Avg Air Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



27u--Boston Harbor_Rain

Water Year: 2018 Air Temperatures in degrees Celsius

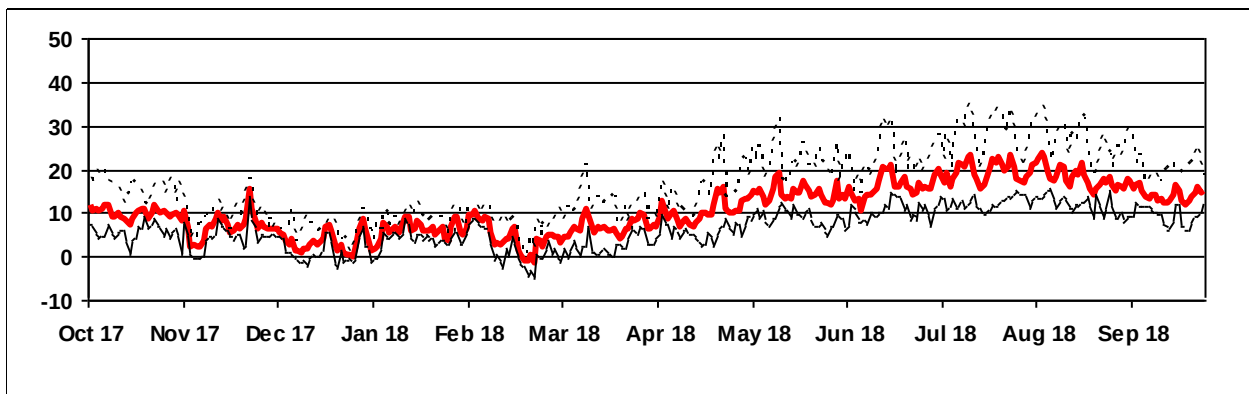
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	12	11	6.3	1.6	6.5	5.0	6.3	11	13	16	18	15
02	11	7.0	5.7	1.9	9.7	4.5	6.6	13	18	16	17	17
03	11	2.5	5.2	2.5	9.8	4.6	7.2	13	13	16	18	16
04	11	2.9	3.6	4.4	11	3.4	6.8	13	14	19	19	16
05	11	2.3	3.1	7.7	8.7	4.8	9.3	14	13	20	21	18
06	12	2.3	4.3	7.0	8.1	4.7	13	15	16	19	22	18
07	12	3.7	1.3	5.8	9.2	5.5	10	15	15	17	22	16
08	9.4	6.3	1.2	6.6	8.8	7.0	8.8	16	13	19	24	17
09	9.3	7.2	0.99	7.0	5.4	6.5	10.0	14	13	16	23	17
10	10.0	6.9	1.9	5.7	2.9	6.2	11	12	11	18	19	15
11	9.1	8.7	1.7	7.7	3.2	9.0	8.3	13	14	19	18	14
12	8.8	10	2.8	9.4	2.7	11	7.0	16	14	22	18	14
13	8.4	8.5	3.5	9.4	3.1	9.7	8.5	18	14	21	19	14
14	7.4	9.4	3.0	6.2	4.2	6.8	8.8	19	15	20	21	14
15	8.9	7.4	3.1	6.5	4.3	5.8	7.5	14	16	23	21	13
16	10	5.5	4.3	8.5	6.6	7.1	7.2	13	17	24	17	13
17	11	6.1	6.7	7.6	6.8	6.7	7.8	14	21	19	16	12
18	11	7.5	7.6	6.0	1.3	7.1	8.6	13	20	18	18	12
19	11	6.4	6.0	6.2	0.37	5.9	10	16	20	16	20	13
20	8.7	7.3	2.6	6.0	-0.72	6.0	10.0	15	21	16	19	14
21	9.9	8.9	1.5	7.1	-1.00	6.6	9.8	15	16	18	22	17
22	12	16	2.7	5.1	0.40	5.6	9.5	18	16	21	19	15
23	11	11	1.2	5.9	-1.15	4.4	12	17	17	23	17	13
24	10.0	8.3	0.44	7.1	4.3	4.8	15	15	18	22	16	12
25	11	6.7	0.73	4.4	3.6	6.6	15	14	16	23	14	13
26	10	7.9	0.29	3.9	2.4	6.3	16	14	16	21	16	14
27	9.2	6.9	1.7	6.8	4.6	8.9	11	15	14	20	17	15
28	9.7	6.3	6.5	9.3	5.2	8.5	10	14	15	21	18	16
29	9.9	6.3	8.6	9.5		8.7	10	12	17	23	17	15
30	9.8	6.3	6.3	5.7		10	11	13	16	20	18	15
31	8.1		3.5	5.2		9.8		12		18	16	
Avg Temp	10	7.1	3.5	6.2	4.6	6.7	9.7	14	16	19	19	15
Max Temp	21	18	11	13	13	22	28	32	32	35	35	30
Max Mean Daily	12	16	8.6	9.5	11	11	16	19	21	24	24	18

Avg Air Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



33x--Griffin FS 13-2

Water Year: 2018 Air Temperatures in degrees Celsius

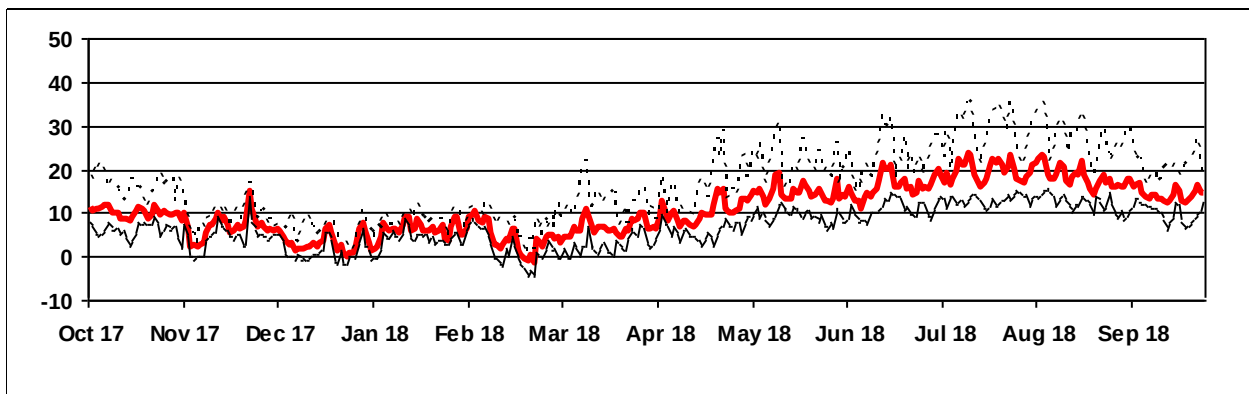
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	12	10	6.3	1.5	6.6	5.0	6.3	11	13	16	17	16
02	11	7.0	5.8	1.9	9.3	4.3	6.3	13	18	16	17	16
03	11	2.5	4.8	2.4	9.5	4.6	7.1	13	13	16	18	16
04	11	2.6	3.7	4.5	10	3.4	6.6	13	14	19	19	16
05	11	2.3	2.7	7.7	8.3	4.7	9.1	14	14	20	21	18
06	12	2.7	3.4	6.5	7.9	4.7	13	15	16	19	22	18
07	12	3.4	1.4	5.9	9.1	4.8	10	15	15	17	22	16
08	10	5.8	1.8	6.5	8.7	6.8	8.5	16	13	19	24	17
09	10.0	7.2	1.9	6.5	5.4	6.2	10	14	13	16	23	17
10	10	7.3	1.8	5.5	3.0	6.1	11	12	11	18	19	15
11	8.6	8.7	2.3	7.4	3.0	8.9	8.2	13	14	20	18	14
12	8.9	10	2.5	9.2	1.9	11	6.8	16	15	22	18	14
13	8.6	8.4	3.2	9.2	2.9	9.6	8.4	19	14	21	19	14
14	8.3	9.2	2.4	6.1	4.4	6.9	8.5	20	15	21	21	14
15	9.3	7.4	3.3	6.5	4.0	5.6	7.4	14	16	24	21	13
16	11	5.6	4.0	8.6	6.5	6.9	6.9	13	18	24	17	14
17	11	5.9	6.6	7.4	6.3	6.8	7.3	14	21	19	16	13
18	11	7.6	7.4	6.2	1.4	7.1	8.9	13	20	18	18	12
19	11	6.4	5.4	6.0	0.71	5.9	10.0	16	20	16	19	13
20	8.8	7.2	2.6	5.8	-0.48	6.0	9.8	15	21	17	19	14
21	9.9	8.4	1.4	6.9	-1.01	6.3	9.5	15	16	18	22	16
22	12	15	2.8	5.4	0.47	5.6	9.6	18	16	21	19	15
23	11	11	0.86	6.1	-1.11	4.5	12	16	17	22	17	13
24	9.7	8.2	-0.04	7.2	4.2	4.8	16	15	18	22	16	13
25	11	7.1	0.83	4.4	3.4	6.4	15	14	16	22	14	13
26	10	7.9	0.92	3.8	2.5	6.2	16	14	16	21	15	14
27	9.9	6.7	1.8	6.7	4.6	8.7	11	16	14	19	17	15
28	9.9	6.1	6.4	9.1	5.2	8.2	10	15	15	21	19	16
29	10	6.4	8.0	9.2		8.6	10	13	17	23	17	15
30	9.9	6.2	5.9	5.3		10.0	11	13	16	20	18	15
31	8.1		3.3	5.1		10.0		12		18	16	
Avg Temp	10	7.0	3.4	6.1	4.5	6.6	9.6	14	16	20	19	15
Max Temp	22	17	11	13	13	22	29	31	33	36	36	30
Max Mean Daily	12	15	8.0	9.2	10	11	16	20	21	24	24	18

Avg Air Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



45u--Littlerock_Rain

Water Year: 2018 Air Temperatures in degrees Celsius

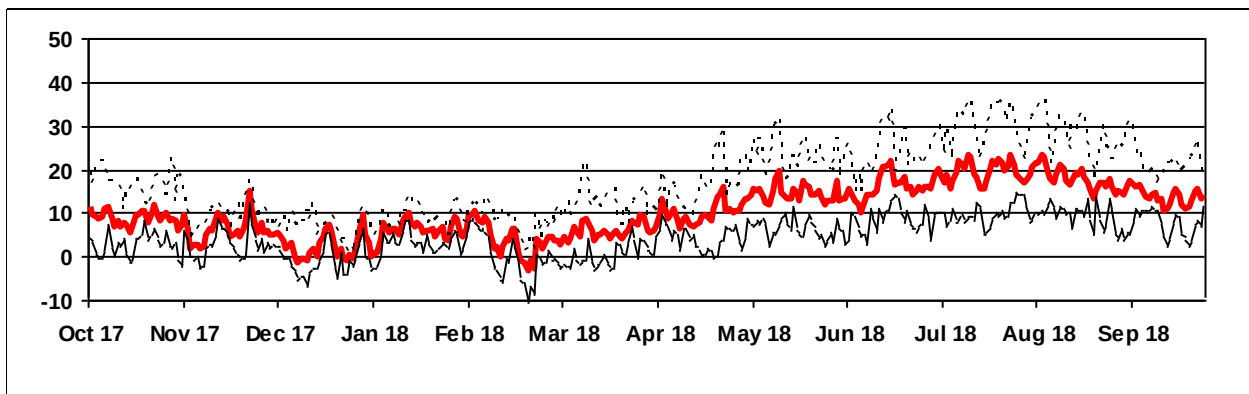
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	11	9.9	5.5	0.21	6.4	4.6	5.9	11	13	16	18	14
02	9.5	6.5	5.0	0.86	9.6	3.6	5.7	12	18	16	17	15
03	9.3	2.0	3.6	1.1	9.9	3.6	5.9	13	13	16	18	15
04	8.6	2.8	1.8	4.1	10	2.7	7.0	13	13	19	19	14
05	9.4	2.7	2.8	7.8	8.5	4.4	9.5	14	13	20	21	17
06	11	2.0	3.3	6.3	8.0	3.1	14	16	15	19	21	17
07	11	2.4	-0.46	5.4	9.2	4.1	10	15	15	17	22	17
08	8.6	5.1	-1.12	6.7	8.0	6.8	8.8	16	13	19	23	16
09	7.0	6.5	-0.26	6.6	5.0	5.9	10	14	12	16	23	17
10	8.3	5.9	-0.25	5.0	2.0	4.6	11	12	10	17	19	16
11	7.0	8.9	-0.72	8.5	2.4	8.4	8.2	12	13	19	18	14
12	7.9	10	1.0	9.4	0.07	9.0	6.6	15	14	22	17	13
13	7.4	8.4	1.9	10	2.3	8.0	8.6	18	14	21	19	14
14	5.5	9.3	0.19	8.0	4.0	6.1	9.3	20	14	20	21	15
15	6.9	7.4	3.3	7.0	3.7	3.5	7.2	15	15	23	20	13
16	9.6	4.8	4.4	7.7	6.5	5.3	6.9	14	18	23	18	14
17	9.5	5.2	6.5	7.1	6.5	5.3	7.3	13	21	19	16	11
18	11	5.8	7.4	5.5	1.1	6.1	8.1	13	21	19	18	11
19	11	4.8	5.8	6.0	-0.71	5.1	9.3	16	21	16	19	12
20	7.7	6.6	1.7	5.9	-1.46	4.1	9.5	15	22	16	19	15
21	9.9	8.3	-0.01	6.3	-3.16	5.5	9.3	13	16	17	20	16
22	12	15	2.1	4.6	-0.62	5.8	8.5	17	17	20	19	14
23	9.5	11	-0.31	5.9	-2.66	4.5	11	17	17	22	17	12
24	8.5	7.0	-0.97	6.9	4.4	4.1	14	16	18	21	16	11
25	9.8	5.4	0.61	4.2	3.1	5.5	15	14	15	22	13	12
26	10	7.7	-0.38	3.8	1.7	5.9	16	14	16	22	15	13
27	8.5	5.8	1.4	6.9	3.7	8.5	11	15	14	20	17	15
28	8.8	5.9	6.1	9.1	4.7	8.0	11	14	15	20	17	16
29	8.5	5.2	9.6	8.7		7.5	10	12	16	23	16	13
30	6.1	5.2	5.3	5.0		9.7	11	13	15	21	18	14
31	7.3		3.5	4.7		9.2		13		19	16	
Avg Temp	8.9	6.5	2.5	6.0	4.0	5.8	9.5	14	16	19	18	14
Max Temp	23	18	13	15	14	22	30	32	34	36	37	32
Max Mean Daily	12	15	9.6	10	10	9.7	16	20	22	23	23	17

Avg Air Temp for Water Year 2018: 10

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



45w--Rochester Drop Box_Rain

Water Year: 2018 Air Temperatures in degrees Celsius

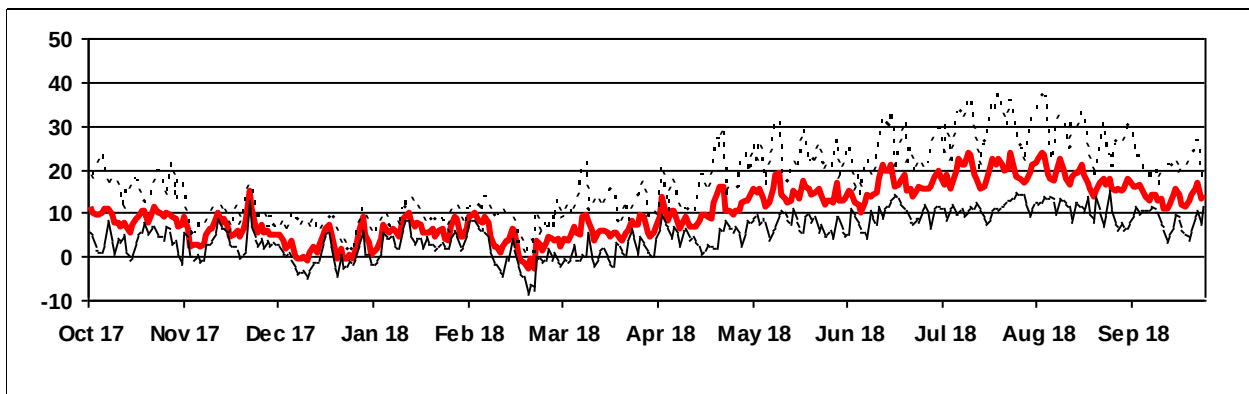
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	12	9.3	5.3	0.71	6.3	4.3	5.4	11	13	16	18	15
02	10	6.3	5.0	1.4	9.4	3.7	4.9	13	17	16	17	16
03	9.9	2.4	3.6	1.9	9.6	4.2	5.4	13	13	16	18	15
04	9.6	2.9	1.7	4.3	10	2.4	7.0	13	13	18	19	16
05	10	2.8	2.9	7.5	8.5	4.2	9.4	15	13	20	21	18
06	11	2.4	3.8	6.2	7.8	3.7	14	16	15	18	21	18
07	11	2.7	0.22	5.6	9.0	4.9	10	15	15	17	22	16
08	9.8	5.2	-0.46	6.5	7.7	6.8	8.5	16	13	19	24	16
09	7.7	6.5	-0.46	6.1	4.9	5.5	10	14	12	16	23	17
10	8.0	6.4	-0.04	4.8	2.4	5.0	11	12	10	17	19	16
11	6.8	8.9	-0.90	8.6	2.5	9.0	8.1	12	13	20	18	14
12	7.8	10	0.89	9.3	0.86	9.7	6.3	16	14	23	17	13
13	7.0	8.0	2.6	10	2.3	8.4	8.4	19	14	21	19	14
14	5.7	8.9	0.80	8.2	4.0	6.1	9.1	19	14	21	22	14
15	7.5	7.1	2.9	6.8	3.8	3.8	7.0	14	15	24	20	13
16	9.0	4.6	5.1	7.9	6.4	5.8	6.9	14	18	24	18	13
17	9.1	5.0	6.4	7.2	6.2	5.9	7.0	13	21	19	17	11
18	11	5.9	7.3	5.6	0.49	6.0	8.5	13	20	18	18	11
19	10	4.9	5.7	5.8	-0.73	5.5	9.6	15	20	15	19	12
20	7.7	6.5	1.4	5.7	-1.43	4.6	9.6	14	21	16	19	14
21	10.0	8.5	-0.50	6.4	-2.80	5.8	9.4	13	16	17	21	15
22	12	15	2.1	4.6	-0.57	5.5	9.0	18	17	21	19	14
23	10	11	-0.24	5.8	-2.61	4.2	12	16	17	22	17	12
24	10.0	7.0	-0.54	6.7	3.9	3.8	15	16	19	21	16	12
25	9.4	5.7	0.48	4.1	2.6	5.4	16	14	15	22	14	13
26	10	7.5	-0.36	3.8	1.5	5.9	16	15	16	21	15	14
27	9.9	5.6	1.4	6.9	3.4	8.2	11	16	14	20	17	16
28	9.4	5.9	6.1	9.0	4.7	7.5	11	14	15	20	18	17
29	8.8	5.2	9.4	8.8		7.2	9.9	12	16	24	16	13
30	6.7	5.1	4.9	4.8		9.5	10	13	16	20	18	14
31	7.3		3.4	4.7		9.0		13		19	16	
Avg Temp	9.2	6.4	2.6	6.0	3.9	5.9	9.5	14	15	19	19	14
Max Temp	24	17	12	14	14	22	30	32	33	38	37	30
Max Mean Daily	12	15	9.4	10	10	9.7	16	19	21	24	24	18

Avg Air Temp for Water Year 2018: 10

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



55u--Tenino_Rain

Water Year: 2018 Air Temperatures in degrees Celsius

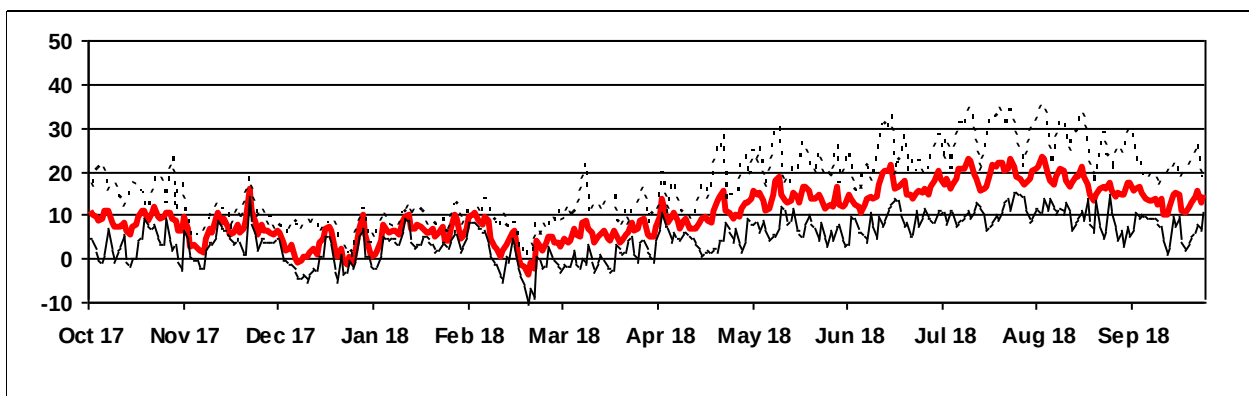
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	11	9.7	6.4	0.69	6.8	5.3	5.6	9.8	12	16	18	14
02	10	7.0	6.0	1.0	9.8	3.9	5.0	12	17	15	17	15
03	9.5	2.7	3.9	1.7	10	3.7	5.0	13	13	16	17	15
04	8.7	3.3	2.1	4.4	11	2.9	7.2	13	12	18	18	15
05	9.3	2.2	2.3	8.0	8.6	4.5	9.8	14	13	20	20	17
06	11	1.9	3.4	6.6	8.0	3.7	14	16	15	18	21	17
07	11	1.5	0.22	6.0	9.7	4.0	10	15	14	17	21	16
08	8.4	4.8	-0.74	6.4	8.6	7.1	8.4	15	13	18	24	16
09	7.4	6.7	-0.30	6.5	4.6	5.5	9.6	13	12	16	23	17
10	7.3	5.8	0.41	5.4	2.6	5.1	11	11	11	17	19	15
11	7.3	9.2	0.69	8.8	2.4	8.5	8.6	11	12	18	18	14
12	8.3	11	1.5	9.6	0.72	9.0	6.8	15	14	21	17	14
13	6.6	8.4	2.6	10	1.9	7.0	8.6	18	14	21	19	13
14	5.8	9.3	1.1	7.0	3.3	6.0	9.4	19	14	21	21	14
15	7.3	7.5	3.5	6.8	4.3	3.8	7.1	15	14	23	20	13
16	8.0	5.5	4.6	8.0	6.2	5.2	6.9	13	17	22	18	14
17	9.6	6.0	7.0	7.6	6.7	5.7	7.2	13	20	19	17	10
18	11	7.7	7.4	7.0	0.50	6.6	8.1	13	20	18	18	10
19	11	6.2	6.4	6.1	-1.29	4.6	9.3	15	20	15	19	12
20	8.8	7.0	2.1	6.0	-1.53	4.3	9.9	14	22	16	19	15
21	10	8.8	0.38	7.1	-3.36	6.3	8.9	13	16	16	21	15
22	12	16	2.3	5.1	-0.84	5.7	8.2	17	16	20	19	15
23	9.8	11	-0.18	5.9	-2.35	3.8	11	16	17	22	17	11
24	9.1	8.3	-1.23	7.2	4.0	4.0	13	16	18	21	15	11
25	9.7	5.7	0.45	4.4	2.9	5.4	14	14	15	22	13	12
26	11	7.9	-0.74	4.3	1.8	5.9	16	14	15	22	15	13
27	10	6.5	1.2	7.0	3.8	8.4	11	15	14	20	16	14
28	9.4	6.3	7.0	10	5.2	6.5	10	14	15	21	17	16
29	8.6	6.2	10	9.3		6.9	9.3	11	16	23	16	13
30	6.6	5.7	5.4	4.8		9.0	10	12	15	21	18	15
31	6.7		2.2	5.3		9.1		12		19	16	
Avg Temp	9.1	6.8	2.8	6.3	4.0	5.7	9.3	14	15	19	18	14
Max Temp	23	19	12	13	14	22	28	31	33	35	36	30
Max Mean Daily	12	16	10	10	11	9.1	16	19	22	23	24	17

Avg Air Temp for Water Year 2018: 10

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



65u--Grand Mound_Rain

Water Year: 2018 Air Temperatures in degrees Celsius

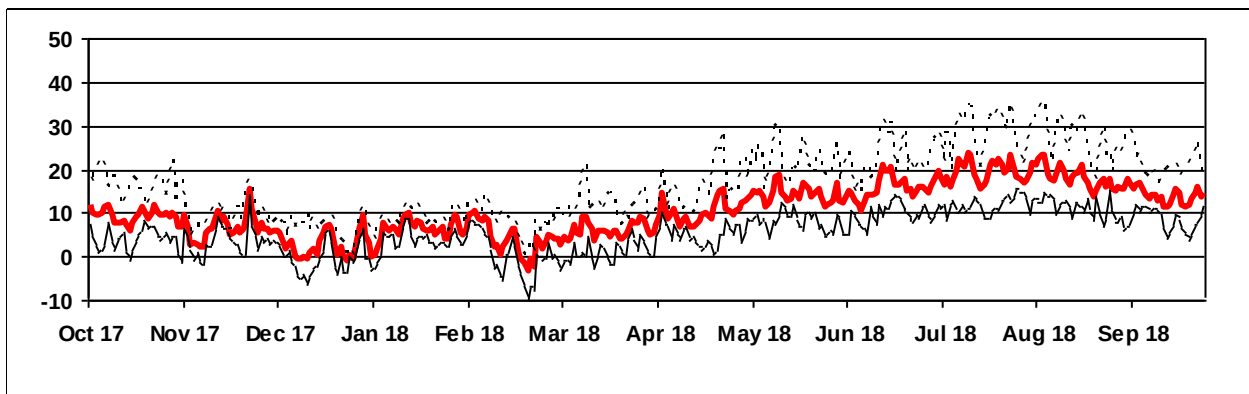
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	12	9.7	6.0	0.25	6.5	4.7	5.8	11	13	16	18	15
02	10	7.0	5.5	0.76	9.7	4.0	5.2	13	17	15	17	16
03	9.7	3.1	3.4	1.9	10	4.4	5.6	13	13	16	18	16
04	9.5	3.3	1.7	4.3	11	2.9	7.5	13	13	18	19	16
05	10	3.1	3.1	7.8	8.8	4.5	9.8	14	13	20	21	18
06	11	2.4	3.7	6.6	8.1	3.9	15	15	15	18	21	17
07	12	2.5	0.25	6.0	9.2	4.4	11	15	15	17	23	16
08	9.9	5.5	-0.34	6.7	8.5	7.2	8.7	15	13	18	24	16
09	7.9	6.7	-0.43	6.3	4.8	5.6	10	14	12	16	24	17
10	8.0	6.5	-0.13	5.3	2.4	5.2	11	11	11	17	19	16
11	7.8	9.4	-0.50	8.9	2.7	9.2	8.5	12	13	20	18	14
12	8.2	10	0.80	9.6	0.65	9.4	7.0	15	14	23	18	14
13	7.3	8.4	1.8	10	2.4	8.1	8.7	19	14	21	19	14
14	6.0	9.4	0.44	7.8	3.9	6.5	9.3	19	14	21	22	14
15	8.1	7.4	3.5	7.1	4.8	3.9	7.0	15	15	24	20	13
16	9.1	5.2	5.4	8.2	6.4	6.1	7.2	14	18	23	18	14
17	9.6	5.5	6.9	7.8	6.5	6.0	7.4	13	21	19	16	11
18	11	6.9	7.5	6.6	0.84	6.1	8.5	13	20	18	19	12
19	11	5.6	6.4	6.0	-0.40	5.5	9.6	15	20	16	20	12
20	8.6	6.6	2.0	6.0	-1.48	4.6	9.9	14	21	16	19	14
21	10	8.8	0.44	6.7	-3.32	6.0	9.8	13	16	17	21	16
22	12	16	2.3	5.1	-0.55	5.9	8.8	17	17	21	18	15
23	10	11	-0.08	6.2	-2.31	4.4	12	16	17	22	17	12
24	9.6	7.9	-0.82	7.0	4.4	4.1	14	16	18	21	16	11
25	9.7	5.8	0.70	4.4	3.1	5.3	15	14	15	22	14	12
26	10	8.0	-0.18	4.2	2.0	6.2	15	15	16	21	15	13
27	9.2	6.4	1.9	7.2	3.9	8.3	11	15	14	20	17	15
28	10	6.3	6.5	9.9	5.1	7.8	11	14	15	20	18	16
29	9.4	5.7	9.8	9.4		7.8	9.8	12	16	23	16	14
30	6.9	5.8	5.0	5.4		9.3	11	12	16	20	18	15
31	7.0		3.3	5.2		8.8		12		18	16	
Avg Temp	9.4	6.9	2.8	6.3	4.2	6.0	9.7	14	15	19	19	14
Max Temp	23	18	12	13	15	22	29	31	32	35	36	30
Max Mean Daily	12	16	9.8	10	11	9.4	15	19	21	24	24	18

Avg Air Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



69u--Summit Lake_Rain

Water Year: 2018 Air Temperatures in degrees Celsius

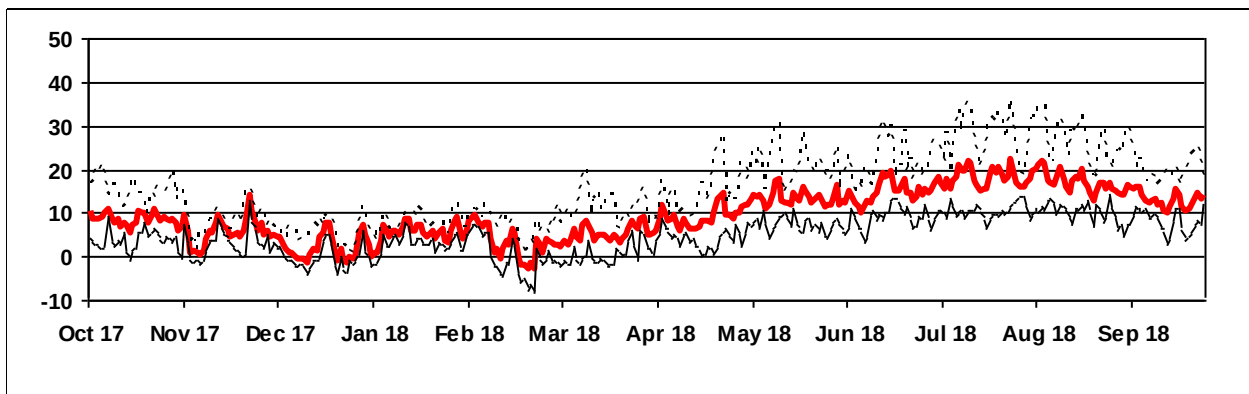
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	10	9.7	4.9	-0.04	5.8	3.5	5.2	10	13	15	16	15
02	8.8	6.1	4.5	0.87	8.5	2.7	5.1	12	17	15	16	15
03	8.9	1.2	3.0	0.94	9.1	2.9	5.5	12	12	15	17	14
04	8.7	1.5	1.9	3.5	9.8	2.3	6.1	12	13	17	18	14
05	9.3	0.87	0.96	7.6	7.7	3.7	8.7	13	12	18	20	17
06	10	0.41	1.1	5.8	7.1	2.9	12	14	15	17	20	16
07	11	1.6	-0.05	4.8	8.1	3.6	9.6	14	14	16	21	16
08	8.8	4.2	-0.53	5.9	8.1	6.4	8.1	14	12	18	22	16
09	8.1	6.0	-0.18	5.8	4.3	4.9	8.8	13	12	16	22	16
10	8.6	5.7	-0.36	5.3	1.2	3.9	9.9	11	10	17	18	14
11	6.7	7.9	-1.16	7.0	1.8	7.5	7.1	12	12	18	17	13
12	7.9	9.7	0.51	8.7	-0.39	8.3	6.0	15	13	21	17	13
13	7.4	8.1	1.8	8.8	1.8	7.3	8.6	17	13	20	18	13
14	5.5	7.1	1.4	6.1	3.9	5.6	8.0	18	14	20	21	13
15	7.3	6.3	4.7	6.0	3.0	3.8	6.4	13	15	22	18	12
16	8.0	4.9	5.5	7.2	6.5	5.1	6.6	12	17	22	16	12
17	11	4.9	8.0	7.4	5.8	5.2	6.3	12	20	17	15	11
18	10	5.5	7.7	5.5	0.02	5.1	7.2	12	19	17	17	10
19	10	4.6	5.1	4.8	-1.89	4.1	8.4	15	19	15	18	11
20	8.0	6.1	0.95	5.1	-1.94	3.9	8.3	14	20	16	18	13
21	9.7	8.5	-0.65	6.0	-2.54	5.3	8.5	13	15	16	20	15
22	11	14	1.8	4.3	-1.25	4.7	7.8	16	15	19	18	14
23	9.2	11	-0.93	5.7	-2.63	3.3	10	15	16	20	16	11
24	8.2	7.9	-1.20	6.5	4.2	4.1	13	14	18	20	15	10
25	9.1	6.1	0.15	3.5	2.8	5.2	14	13	15	21	13	11
26	8.7	7.7	-0.24	3.5	1.1	6.7	15	13	15	19	15	12
27	8.3	5.1	0.22	6.0	4.3	8.5	9.6	14	13	18	17	14
28	8.8	6.0	5.4	8.4	3.7	7.2	9.6	13	14	18	17	15
29	8.1	4.6	7.4	9.1		6.6	8.8	11	16	23	16	13
30	6.3	5.2	5.3	5.5		8.9	10.0	12	14	19	17	14
31	7.1		2.8	4.1		9.1		12		17	15	
Avg Temp	8.7	5.9	2.2	5.5	3.5	5.2	8.6	13	15	18	18	14
Max Temp	22	16	12	13	13	21	29	31	32	36	35	30
Max Mean Daily	11	14	8.0	9.1	9.8	9.1	15	18	20	23	22	17

Avg Air Temp for Water Year 2018: 9.7

Notes:

Thurston County

Annual Air Temp-- Mean, Maximum, Minimum:



Appendix C – Stream Discharge and Stage Data

10a--Eaton Creek @ Yelm Hwy

Water Year: 2018

Elv: 166

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	8.0	5.7	22	29	29	19	11	13	8.1	9.2	6.1	6.7
02	7.7	6.8	24	23	29	20	12	13	8.0	8.8	6.2	6.6
03	7.1	12	25	21	31	18	11	12	8.3	8.8	6.2	6.5
04	6.9	11	22	19	28	16	15	12	8.3	8.5	6.2	6.6
05	6.9	21	20	25	25	19	18	11	8.2	8.2	6.2	6.5
06	6.6	23	18	26	23	17	20	11	9.2	7.7	6.2	6.5
07	7.8	16	17	25	21	15	23	11	10.0	7.6	6.2	6.4
08	8.6	12	15	31	20	18	28	11	11	7.8	6.2	6.4
09	7.6	18	15	30	19	22	30	11	15	7.8	6.2	6.5
10	7.1	18	15	26	18	18	27	11	12	7.5	6.1	7.2
11	7.4	14	14	33	17	16	21	11	11	6.8	6.9	7.4
12	8.6	12	13	35	15	16	20	11	11	6.8	7.0	7.9
13	9.2	21	14	35	14	16	21	10	11	6.8	6.8	8.2
14	7.9	32	13	33	18	16	26	9.9	10	6.7	6.7	8.1
15	7.8	33	14	26	16	14	28	9.8	10	6.7	6.4	7.9
16	7.3	30	13	24	18	12	27	10	9.8	6.7	6.2	8.6
17	7.2	27	14	24	25	12	28	10	9.6	6.5	6.1	8.6
18	8.4	21	16	30	29	11	26	10	9.1	6.6	6.2	8.3
19	26	17	33	27	24	9.7	20	10	9.2	6.4	6.2	7.9
20	27	28	33	25	19	9.4	18	9.8	8.8	6.4	6.2	7.6
21	26	28	30	24	17	9.8	17	8.9	9.3	6.7	6.3	7.7
22	31	26	23	27	17	20	16	8.8	9.2	6.5	7.4	7.9
23	27	32	21	30	15	22	15	8.9	9.2	6.4	6.8	7.8
24	20	31	18	31	19	26	14	9.0	8.9	6.3	6.4	7.6
25	12	27	18	33	26	21	14	8.9	8.8	6.3	6.5	7.8
26	8.5	28	18	30	26	16	13	8.4	8.8	6.3	6.6	7.3
27	7.2	30	16	31	21	17	13	8.6	9.6	6.2	6.8	7.3
28	6.2	27	21	32	19	15	16	8.6	9.5	6.1	6.8	7.2
29	5.8	27	35	31		12	17	8.5	9.5	6.2	6.6	7.0
30	5.8	23	38	30		12	15	8.1	9.6	6.3	6.7	7.1
31	5.6		35	32		11		8.2		6.2	6.5	

Avg Discharge	11	22	21	28	21	16	19	10	9.7	7.0	6.4	7.4
Max Instantaneous	43	39	47	45	39	31	37	17	19	11	11	9.7
Max Mean Daily	31	33	38	35	31	26	30	13	15	9.2	7.4	8.6

Average Discharge for Water Year 2018: 15 [Low Flow \(Cal Year\)--7 day](#) 6.16 07/31/2018 [--30 day](#) 6.3 08/07/201

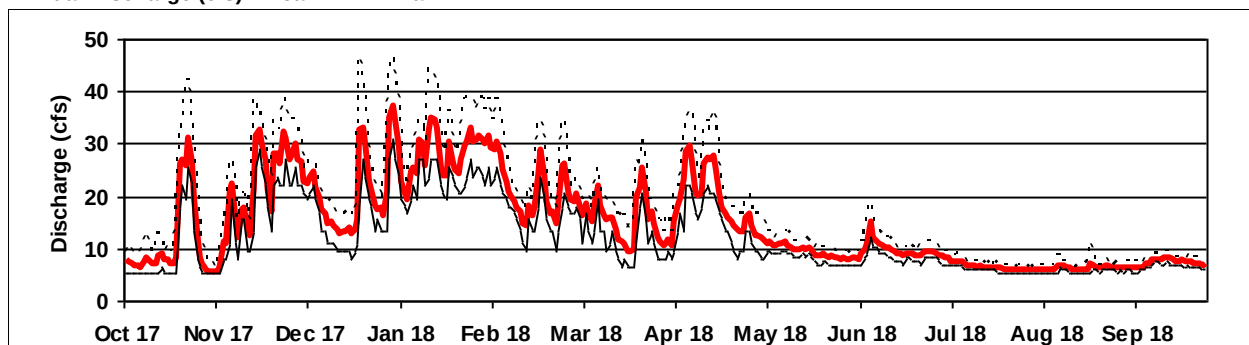
Lowest Stage: 1.03 **Discharge:** 5.42 11/01/2017 **Metrics** [High Pulse Count](#) 13 [Range](#) 177 Days

Peak Inst Stage: 1.29 **Discharge:** 46.84 12/19/2017 [TQ Mean \(Use Daily Avg\)](#) 0.42 [R-B Index](#) 0.11

Discharge is determined by comparing continuous stage records with field flow measurements.

Thurston County

Annual Discharge (cfs)-- Mean — Max ---- Min —



04/15/2019 3:12:01 PM by Nat Kale

10a--Eaton Creek @ Yelm Hwy

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	1.07	1.05	1.16	1.20	1.20	1.14	1.09	1.10	1.06	1.05	1.01	1.02
02	1.07	1.06	1.17	1.16	1.20	1.15	1.09	1.10	1.06	1.05	1.01	1.02
03	1.06	1.09	1.18	1.15	1.21	1.13	1.09	1.09	1.06	1.05	1.01	1.02
04	1.06	1.09	1.16	1.14	1.20	1.12	1.11	1.09	1.06	1.04	1.01	1.02
05	1.06	1.15	1.14	1.18	1.18	1.13	1.13	1.09	1.06	1.04	1.01	1.02
06	1.06	1.16	1.13	1.18	1.16	1.12	1.14	1.09	1.07	1.03	1.01	1.02
07	1.07	1.11	1.12	1.17	1.15	1.11	1.17	1.08	1.07	1.03	1.01	1.02
08	1.07	1.10	1.11	1.21	1.14	1.13	1.20	1.08	1.09	1.03	1.01	1.02
09	1.07	1.13	1.11	1.21	1.14	1.16	1.20	1.09	1.13	1.03	1.01	1.02
10	1.06	1.13	1.11	1.18	1.13	1.13	1.19	1.09	1.10	1.03	1.01	1.03
11	1.07	1.10	1.10	1.22	1.12	1.12	1.15	1.09	1.09	1.02	1.03	1.04
12	1.07	1.10	1.10	1.23	1.11	1.11	1.14	1.08	1.09	1.02	1.03	1.04
13	1.08	1.15	1.10	1.23	1.11	1.11	1.15	1.08	1.08	1.02	1.02	1.05
14	1.07	1.21	1.10	1.22	1.13	1.12	1.19	1.07	1.08	1.01	1.02	1.05
15	1.07	1.22	1.10	1.18	1.12	1.10	1.19	1.07	1.08	1.01	1.02	1.04
16	1.07	1.21	1.10	1.17	1.13	1.09	1.19	1.07	1.07	1.01	1.01	1.05
17	1.06	1.19	1.10	1.17	1.17	1.09	1.19	1.08	1.07	1.01	1.01	1.05
18	1.07	1.15	1.11	1.21	1.20	1.09	1.18	1.07	1.06	1.01	1.01	1.05
19	1.18	1.12	1.22	1.19	1.17	1.08	1.15	1.08	1.06	1.01	1.01	1.04
20	1.19	1.20	1.22	1.18	1.14	1.08	1.13	1.07	1.06	1.01	1.01	1.04
21	1.18	1.20	1.21	1.17	1.12	1.08	1.12	1.07	1.06	1.01	1.02	1.04
22	1.21	1.19	1.16	1.19	1.12	1.14	1.11	1.07	1.06	1.01	1.03	1.04
23	1.19	1.22	1.15	1.20	1.11	1.16	1.11	1.07	1.06	1.01	1.03	1.04
24	1.14	1.21	1.13	1.21	1.14	1.18	1.11	1.07	1.06	1.01	1.02	1.04
25	1.09	1.19	1.13	1.22	1.18	1.15	1.10	1.07	1.06	1.01	1.02	1.04
26	1.07	1.19	1.13	1.21	1.19	1.11	1.10	1.06	1.05	1.01	1.02	1.03
27	1.06	1.21	1.12	1.21	1.15	1.12	1.10	1.06	1.06	1.00	1.03	1.03
28	1.06	1.19	1.15	1.21	1.14	1.11	1.12	1.06	1.06	1.00	1.03	1.03
29	1.05	1.19	1.23	1.21		1.09	1.12	1.06	1.06	1.00	1.02	1.03
30	1.05	1.16	1.24	1.21		1.09	1.11	1.06	1.06	1.01	1.02	1.03
31	1.05		1.23	1.21		1.09		1.06		1.01	1.02	

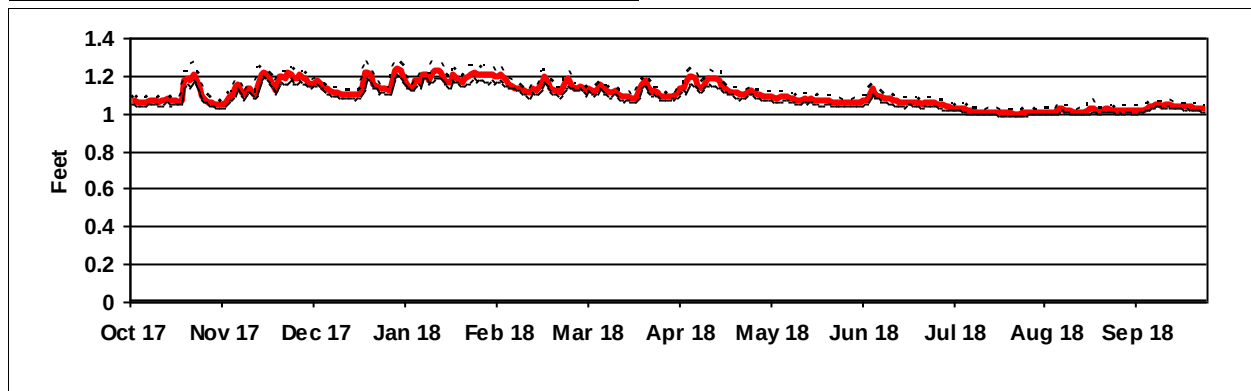
Avg Stage	1.09	1.16	1.15	1.19	1.15	1.12	1.14	1.08	1.07	1.02	1.02	1.03
Max Instantaneous	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.1	1.2	1.1	1.1	1.1
Max Mean Daily	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.0	1.1

Average Stage for Water Year 2018: 1.10

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 786-5549 or (360) 867-2072

Annual Stage (ft)-- Mean — Max ----- Min —



14a--Spurgeon Creek @ Rich Road bridge

Water Year: 2018

Elv:

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	12	14	38	38	43	26	20	21	14	10	8.6	8.2
02	12	14	40	35	47	26	20	21	14	10	8.5	7.9
03	11	15	42	34	45	25	19	20	14	10	8.5	7.8
04	11	15	36	33	41	24	20	19	14	10	8.7	8.0
05	11	19	33	36	38	24	21	19	14	10	8.5	8.1
06	11	20	31	35	36	24	21	19	13	10	8.3	8.1
07	11	17	29	33	34	23	24	18	13	10	8.3	7.8
08	12	16	27	36	33	24	41	19	14	10	8.3	8.1
09	11	19	26	35	31	25	48	18	15	10.0	8.4	7.9
10	11	19	25	32	29	24	31	17	14	10.0	8.0	8.3
11	11	17	24	44	28	24	28	15	14	10	8.0	8.8
12	12	17	23	53	27	22	27	14	14	10	8.2	9.2
13	12	22	22	45	26	22	27	13	14	10.0	8.2	9.0
14	12	34	21	40	28	22	38	11	13	9.7	8.1	9.5
15	12	35	21	37	27	21	66	10	13	9.4	8.2	9.1
16	11	34	20	35	27	21	55	14	13	9.2	8.1	10
17	12	31	20	35	32	20	50	28	13	9.1	7.9	9.9
18	12	24	21	38	33	20	42	24	12	9.1	8.0	9.6
19	20	22	38	35	30	19	36	19	12	9.0	8.0	9.3
20	22	39	44	34	28	19	33	13	11	9.1	7.8	9.2
21	24	42	33	33	26	19	31	15	11	9.1	8.0	9.2
22	81	66	29	34	25	23	29	28	11	8.9	7.8	9.3
23	31	53	28	37	24	23	27	17	11	9.0	7.7	9.2
24	22	56	26	52	26	25	26	16	11	8.9	7.9	9.0
25	19	39	25	52	29	23	25	15	11	8.7	7.9	9.0
26	17	41	25	45	29	22	24	15	11	8.8	8.0	8.9
27	16	43	24	48	27	22	23	15	11	8.9	8.0	8.9
28	15	43	26	44	27	21	25	14	11	8.7	8.1	8.8
29	14	41	59	44		21	24	14	11	8.7	8.1	8.8
30	14	39	103	51		20	22	14	11	8.6	8.0	9.0
31	14		45	46		20		14		8.5	8.0	

Avg Discharge	17	30	32	40	31	22	31	17	13	9.5	8.1	8.8
Max Instantaneous	149	88	141	63	49	27	76	37	16	11	9.1	11
Max Mean Daily	81	66	103	53	47	26	66	28	15	10	8.7	10

Average Discharge for Water Year 2018: 22 [Low Flow \(Cal Year\)--7 day](#) 7.88 08/23/2018 [--30 day](#) 7.99 08/26/201

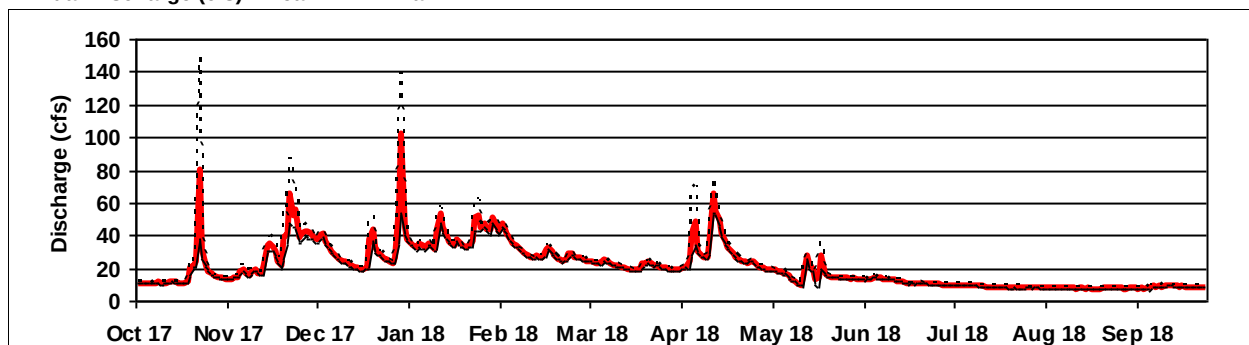
Lowest Stage: 0.71 **Discharge:** 6.55 09/11/2018 **Metrics** [High Pulse Count](#) 10 [Range](#) 175 Days

Peak Inst Stage: 3.57 **Discharge:** 149.06 10/22/2017 [TQ Mean \(Use Daily Avg\)](#) 0.42 [R-B Index](#) 0.12

Discharge is determined by comparing continuous stage records with field flow measurements.

Thurston County

Annual Discharge (cfs)-- Mean — Max ---- Min —



04/15/2019 3:13:56 PM by Nat Kale

14a--Spurgeon Creek @ Rich Road bridge

Water Year: 2018

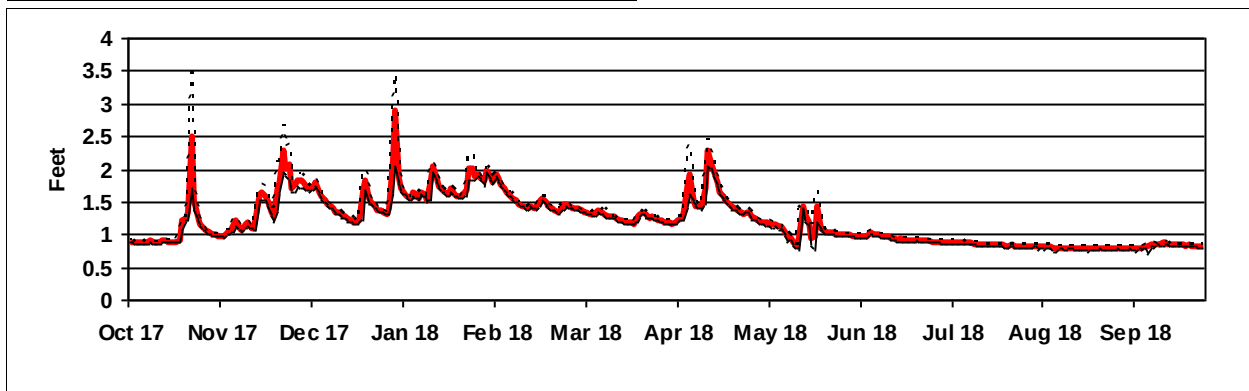
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.90	0.98	1.70	1.71	1.81	1.40	1.19	1.25	1.00	0.90	0.82	0.80
02	0.90	0.99	1.75	1.63	1.92	1.39	1.19	1.23	1.00	0.90	0.82	0.79
03	0.89	1.04	1.80	1.60	1.87	1.36	1.17	1.19	0.99	0.89	0.82	0.79
04	0.88	1.04	1.66	1.57	1.78	1.35	1.20	1.18	0.99	0.89	0.83	0.80
05	0.89	1.17	1.58	1.65	1.71	1.34	1.23	1.18	0.98	0.90	0.82	0.80
06	0.88	1.21	1.52	1.62	1.66	1.32	1.25	1.17	0.97	0.89	0.81	0.80
07	0.89	1.10	1.48	1.57	1.60	1.30	1.34	1.15	0.97	0.89	0.81	0.78
08	0.91	1.08	1.42	1.65	1.57	1.34	1.77	1.16	0.99	0.89	0.81	0.80
09	0.88	1.16	1.39	1.62	1.52	1.38	1.93	1.13	1.04	0.88	0.81	0.79
10	0.89	1.18	1.35	1.54	1.48	1.34	1.53	1.12	1.01	0.88	0.80	0.81
11	0.88	1.11	1.33	1.84	1.45	1.32	1.44	1.05	1.01	0.88	0.79	0.82
12	0.91	1.10	1.30	2.05	1.42	1.28	1.43	0.98	1.00	0.88	0.80	0.84
13	0.92	1.25	1.27	1.87	1.40	1.27	1.42	0.94	0.98	0.88	0.80	0.84
14	0.90	1.62	1.24	1.75	1.45	1.27	1.70	0.89	0.97	0.87	0.80	0.85
15	0.89	1.64	1.23	1.67	1.41	1.25	2.30	0.83	0.97	0.86	0.80	0.84
16	0.89	1.59	1.20	1.64	1.42	1.22	2.09	0.98	0.96	0.85	0.80	0.88
17	0.90	1.52	1.19	1.63	1.54	1.21	1.97	1.44	0.94	0.85	0.79	0.88
18	0.93	1.34	1.23	1.71	1.57	1.20	1.80	1.32	0.93	0.85	0.80	0.86
19	1.21	1.27	1.69	1.63	1.50	1.19	1.66	1.18	0.94	0.85	0.79	0.85
20	1.26	1.72	1.84	1.60	1.44	1.18	1.58	0.95	0.92	0.85	0.79	0.84
21	1.33	1.79	1.57	1.58	1.39	1.17	1.54	0.99	0.91	0.85	0.80	0.84
22	2.50	2.30	1.49	1.61	1.37	1.29	1.48	1.45	0.91	0.84	0.79	0.85
23	1.54	2.03	1.45	1.68	1.34	1.30	1.43	1.11	0.91	0.84	0.78	0.84
24	1.28	2.09	1.38	2.01	1.38	1.35	1.39	1.06	0.92	0.84	0.79	0.83
25	1.16	1.72	1.37	2.03	1.48	1.31	1.36	1.04	0.93	0.83	0.79	0.84
26	1.10	1.78	1.35	1.88	1.47	1.26	1.34	1.03	0.92	0.83	0.80	0.83
27	1.06	1.83	1.32	1.93	1.42	1.28	1.32	1.03	0.92	0.84	0.79	0.83
28	1.03	1.82	1.39	1.85	1.41	1.25	1.35	1.01	0.91	0.83	0.80	0.83
29	1.00	1.79	2.13	1.84		1.23	1.34	1.00	0.91	0.83	0.80	0.82
30	1.00	1.72	2.89	2.00		1.21	1.27	1.00	0.90	0.83	0.80	0.83
31	0.98		1.87	1.89		1.20		1.00		0.82	0.80	
Avg Stage	1.05	1.47	1.53	1.74	1.53	1.28	1.50	1.10	0.96	0.86	0.80	0.83
Max Instantaneous	3.6	2.7	3.5	2.3	2.0	1.4	2.5	1.7	1.1	0.92	0.85	0.92
Max Mean Daily	2.5	2.3	2.9	2.1	1.9	1.4	2.3	1.5	1.0	0.90	0.83	0.88

Average Stage for Water Year 2018: 1.22

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 786-5549 or (360) 867-2072

Annual Stage (ft)-- Mean — Max ----- Min —



17a--Chambers Creek @ Rich Road bridge

Water Year: 2018

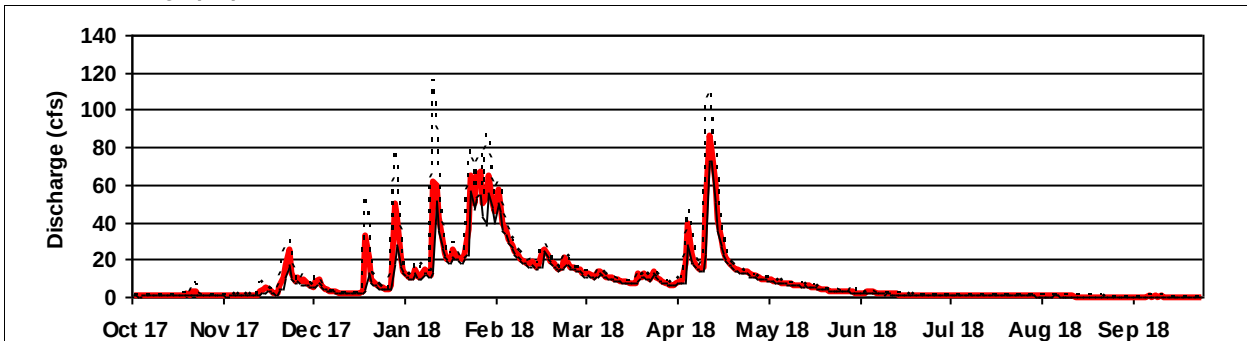
Elv: 166

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.81	0.75	5.7	14	46	15	7.8	11	3.2	1.3	0.67	0.42
02	0.78	0.90	8.7	11	57	15	6.6	10	2.9	1.2	0.67	0.39
03	0.67	1.2	9.2	11	49	13	6.9	10	3.2	1.2	0.66	0.39
04	0.74	1.1	6.2	11	40	12	7.6	9.9	2.5	1.2	0.66	0.39
05	0.90	1.6	4.6	15	36	13	8.3	9.5	2.5	1.2	0.62	0.38
06	0.83	1.2	3.9	11	30	12	8.8	9.2	2.4	1.2	0.62	0.39
07	1.0	0.98	3.4	12	27	11	18	9.0	2.4	1.2	0.59	0.38
08	0.97	1.0	3.0	15	25	14	39	8.4	3.0	1.2	0.58	0.39
09	0.88	1.4	2.7	14	23	14	23	8.2	3.5	1.1	0.56	0.38
10	0.81	1.2	2.5	12	21	12	20	8.0	2.7	1.1	0.55	0.40
11	0.79	0.94	2.3	62	19	11	16	7.5	2.3	1.1	0.62	0.46
12	0.81	1.1	2.2	59	18	10	15	7.2	2.0	1.1	0.62	0.55
13	0.73	3.2	2.1	43	18	11	16	7.0	2.0	1.2	0.57	0.51
14	0.71	4.1	2.1	30	19	9.8	51	6.6	1.9	1.0	0.55	0.68
15	0.69	5.2	1.9	23	16	9.3	86	6.8	1.8	0.97	0.55	0.47
16	0.68	4.0	1.9	21	17	8.9	79	6.4	1.8	0.97	0.55	0.73
17	0.69	3.2	2.0	20	24	8.5	61	6.4	1.7	0.88	0.55	0.51
18	0.94	2.2	3.2	26	26	8.0	42	6.2	1.7	0.87	0.51	0.38
19	1.8	2.2	33	21	22	7.9	31	5.9	1.6	0.88	0.49	0.30
20	1.3	6.4	21	21	19	7.7	25	5.6	1.5	0.86	0.50	0.25
21	3.0	11	9.6	21	18	7.7	21	5.5	1.5	0.85	0.50	0.23
22	3.3	17	7.2	24	16	12	18	5.0	1.5	0.82	0.49	0.23
23	1.3	26	6.1	36	15	11	17	4.7	1.5	0.82	0.50	0.22
24	1.0	13	4.9	65	17	13	15	4.6	1.4	0.80	0.50	0.21
25	0.90	8.2	4.9	50	21	10	15	4.3	1.5	0.80	0.49	0.22
26	0.90	10	4.6	65	18	9.8	14	3.7	1.4	0.78	0.47	0.21
27	0.80	8.4	4.1	67	16	14	13	3.7	1.3	0.73	0.47	0.21
28	0.76	9.2	6.3	50	16	11	14	3.6	1.3	0.70	0.43	0.22
29	0.83	7.4	50	54		9.6	12	3.5	1.3	0.69	0.42	0.20
30	0.80	6.5	43	65		8.2	12	3.2	1.3	0.68	0.42	0.22
31	0.76		21	50		7.7		3.5		0.69	0.44	
Avg Discharge	1.0	5.3	9.1	32	25	11	24	6.6	2.0	0.97	0.54	0.36
Max Instantaneous	8.6	31	79	116	62	16	111	12	7.0	1.4	0.76	1.2
Max Mean Daily	3.3	26	50	67	57	15	86	11	3.5	1.3	0.67	0.73

Average Discharge for Water Year 2018:		9.8	Low Flow (Cal Year)--7 day	0.19	12/06/2018	--30 day	0.25	10/10/201
Lowest Stage:	0.48	Discharge:	0.17	09/29/2018	Metrics	High Pulse Count	8	Range 142 Days
Peak Inst Stage:	2.52	Discharge:	116.33	01/11/2018	TQ Mean (Use Daily Avg)	0.32	R-B Index	0.23
Discharge is determined by comparing continuous stage records with field flow measurements.								

Thurston County

Annual Discharge (cfs)-- Mean — Max ---- Min —



04/15/2019 3:14:24 PM by Nat Kale

17a--Chambers Creek @ Rich Road bridge

Water Year: 2018

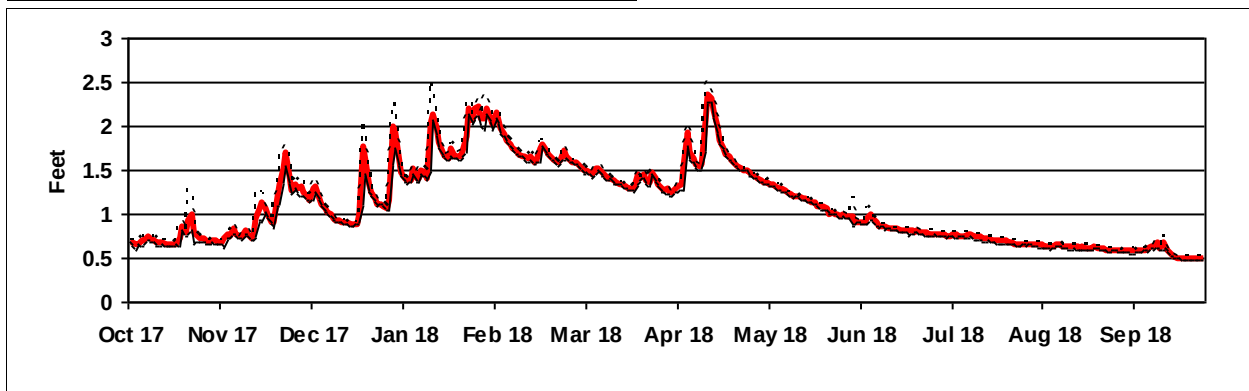
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.69	0.69	1.17	1.48	2.03	1.58	1.29	1.43	0.98	0.78	0.67	0.59
02	0.68	0.72	1.29	1.40	2.15	1.57	1.24	1.41	0.97	0.77	0.67	0.59
03	0.66	0.77	1.32	1.38	2.07	1.53	1.25	1.39	0.98	0.77	0.66	0.58
04	0.67	0.76	1.19	1.38	1.97	1.50	1.29	1.37	0.92	0.77	0.66	0.59
05	0.71	0.84	1.11	1.52	1.92	1.50	1.32	1.36	0.92	0.76	0.65	0.58
06	0.70	0.77	1.06	1.41	1.85	1.47	1.33	1.34	0.91	0.76	0.65	0.58
07	0.74	0.74	1.02	1.41	1.80	1.45	1.57	1.33	0.91	0.77	0.64	0.58
08	0.72	0.75	0.99	1.51	1.76	1.52	1.94	1.31	0.96	0.77	0.64	0.59
09	0.71	0.81	0.96	1.48	1.72	1.52	1.71	1.30	1.01	0.76	0.63	0.58
10	0.69	0.78	0.94	1.42	1.69	1.47	1.64	1.29	0.95	0.76	0.63	0.59
11	0.69	0.73	0.93	2.05	1.67	1.45	1.56	1.27	0.90	0.76	0.65	0.61
12	0.69	0.77	0.92	2.13	1.65	1.42	1.54	1.25	0.87	0.77	0.65	0.64
13	0.67	0.96	0.91	1.97	1.63	1.42	1.57	1.23	0.87	0.77	0.64	0.63
14	0.67	1.06	0.90	1.81	1.65	1.39	2.06	1.21	0.86	0.74	0.63	0.68
15	0.66	1.13	0.88	1.70	1.59	1.37	2.37	1.21	0.85	0.74	0.63	0.62
16	0.66	1.06	0.88	1.65	1.61	1.35	2.32	1.20	0.84	0.74	0.63	0.69
17	0.67	1.00	0.89	1.64	1.76	1.34	2.19	1.19	0.84	0.72	0.63	0.63
18	0.72	0.92	1.01	1.74	1.80	1.32	1.99	1.18	0.83	0.72	0.63	0.58
19	0.87	0.90	1.77	1.67	1.73	1.30	1.85	1.16	0.82	0.72	0.62	0.55
20	0.79	1.20	1.63	1.67	1.68	1.29	1.76	1.14	0.81	0.71	0.63	0.52
21	0.93	1.34	1.33	1.66	1.64	1.29	1.69	1.13	0.82	0.71	0.62	0.51
22	0.99	1.52	1.24	1.72	1.61	1.45	1.65	1.10	0.81	0.70	0.62	0.50
23	0.80	1.71	1.19	1.88	1.58	1.41	1.61	1.08	0.81	0.70	0.62	0.50
24	0.75	1.44	1.12	2.20	1.62	1.45	1.57	1.08	0.80	0.70	0.63	0.50
25	0.72	1.28	1.12	2.07	1.72	1.38	1.55	1.06	0.82	0.70	0.62	0.50
26	0.72	1.35	1.10	2.20	1.66	1.36	1.53	1.01	0.80	0.69	0.62	0.49
27	0.70	1.29	1.07	2.23	1.61	1.48	1.51	1.02	0.79	0.68	0.62	0.50
28	0.69	1.31	1.17	2.08	1.60	1.40	1.51	1.01	0.79	0.67	0.60	0.50
29	0.71	1.25	1.99	2.09		1.35	1.48	1.00	0.78	0.67	0.59	0.50
30	0.70	1.21	1.95	2.21		1.30	1.45	0.98	0.78	0.67	0.60	0.51
31	0.69		1.63	2.08		1.28		1.00		0.67	0.60	
Avg Stage	0.72	1.04	1.18	1.77	1.74	1.42	1.64	1.19	0.87	0.73	0.63	0.57
Max Instantaneous	1.3	1.8	2.3	2.5	2.2	1.6	2.5	1.5	1.2	0.80	0.69	0.78
Max Mean Daily	0.99	1.7	2.0	2.2	2.2	1.6	2.4	1.4	1.0	0.78	0.67	0.69

Average Stage for Water Year 2018: 1.13

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 786-5549 or (360) 867-2072

Annual Stage (ft)-- Mean — Max ----- Min —



18a--Woodland Creek @ Pleasant Glade Road bridge

Water Year: 2018

Elv: 27

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	16	23	48	46	57	47	37	42	25	17	12	14
02	16	23	50	43	58	47	36	41	24	17	12	13
03	17	26	50	42	55	45	36	42	25	17	14	13
04	17	25	47	42	52	44	39	41	25	19	14	13
05	17	32	47	47	52	44	40	40	25	19	13	13
06	17	28	47	44	52	44	39	39	25	19	13	13
07	16	26	46	45	51	44	45	37	23	20	13	13
08	17	27	45	46	50	44	54	34	24	21	12	13
09	18	30	44	45	49	43	47	35	25	20	12	13
10	17	29	43	44	49	42	46	35	24	20	12	14
11	17	27	43	70	48	41	45	36	23	20	12	14
12	17	29	44	61	48	41	47	36	23	18	12	14
13	18	38	43	55	48	40	46	35	24	17	13	14
14	18	43	42	52	49	39	66	35	24	18	13	14
15	18	43	41	51	49	38	88	35	24	17	12	14
16	18	44	34	50	49	37	74	35	23	17	12	14
17	18	35	31	50	54	37	60	35	23	17	12	13
18	21	31	33	53	52	37	53	34	23	17	12	12
19	26	35	56	51	50	37	51	33	24	17	12	12
20	21	46	42	49	50	37	50	32	21	17	13	12
21	29	54	38	48	51	37	50	32	19	16	13	12
22	36	54	37	49	52	41	49	31	18	17	13	11
23	23	60	35	57	52	39	47	31	18	19	12	11
24	23	53	34	68	53	39	46	30	18	17	13	11
25	25	48	34	56	56	37	44	29	19	15	13	11
26	24	52	33	59	51	36	43	29	18	14	13	11
27	25	49	35	63	47	38	44	28	18	14	14	12
28	24	56	38	58	47	38	45	27	18	13	14	12
29	23	53	65	61		37	44	26	17	13	14	11
30	23	48	56	63		37	44	26	17	13	14	11
31	23		48	59		36		26		13	14	

Avg Discharge	21	39	43	52	51	40	49	34	22	17	13	13
Max Instantaneous	61	80	84	104	62	51	115	44	30	23	16	16
Max Mean Daily	36	60	65	70	58	47	88	42	25	21	14	14

Average Discharge for Water Year 2018: 33 [Low Flow \(Cal Year\)--7 day](#) 11.2 10/21/2018 [--30 day](#) 11.7 10/10/201

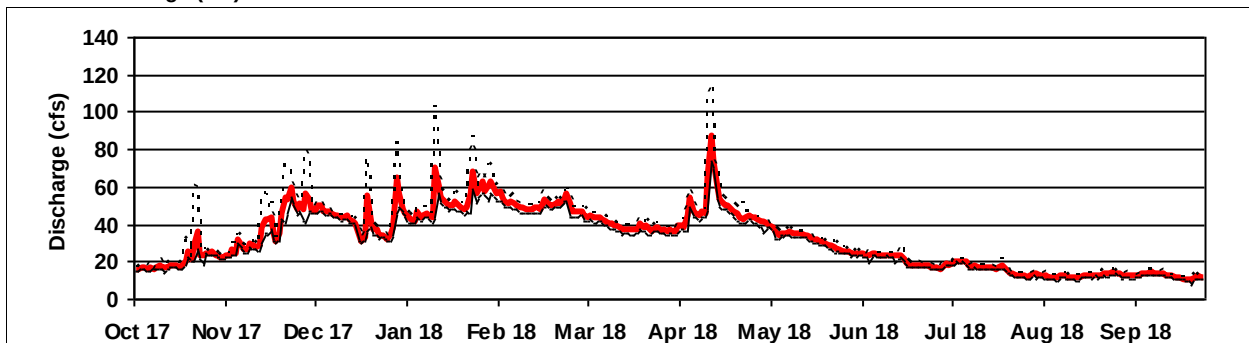
Lowest Stage: 0.39 **Discharge:** 7.28 09/26/2018 **Metrics** [High Pulse Count](#) 6 [Range](#) 106 Days

Peak Inst Stage: 1.81 **Discharge:** 115.23 04/15/2018 [TQ Mean \(Use Daily Avg\)](#) 0.51 [R-B Index](#) 0.06

Discharge is determined by comparing continuous stage records with field flow measurements.

Thurston County

Annual Discharge (cfs)-- Mean — Max ---- Min —



18a--Woodland Creek @ Pleasant Glade Road b

Water Year: 2018

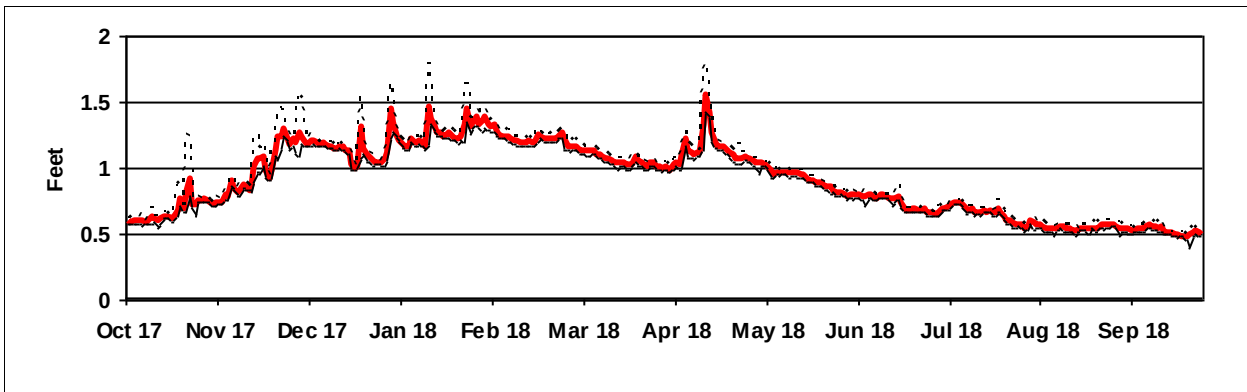
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.60	0.75	1.18	1.21	1.32	1.16	1.01	1.06	0.81	0.66	0.55	0.56
02	0.59	0.75	1.21	1.18	1.33	1.17	1.00	1.04	0.79	0.65	0.56	0.54
03	0.61	0.81	1.21	1.17	1.29	1.14	0.99	1.05	0.80	0.67	0.60	0.54
04	0.61	0.79	1.19	1.16	1.26	1.13	1.03	1.04	0.80	0.70	0.59	0.55
05	0.60	0.91	1.18	1.23	1.25	1.13	1.04	1.03	0.80	0.70	0.57	0.54
06	0.61	0.85	1.19	1.19	1.25	1.13	1.03	1.02	0.80	0.71	0.57	0.53
07	0.59	0.82	1.18	1.20	1.24	1.13	1.11	0.99	0.79	0.72	0.56	0.53
08	0.61	0.83	1.17	1.21	1.23	1.13	1.23	0.95	0.79	0.74	0.55	0.54
09	0.63	0.88	1.16	1.19	1.21	1.11	1.13	0.97	0.81	0.74	0.55	0.54
10	0.62	0.86	1.15	1.17	1.21	1.10	1.12	0.97	0.80	0.74	0.54	0.55
11	0.60	0.84	1.15	1.47	1.20	1.09	1.10	0.97	0.78	0.73	0.54	0.56
12	0.62	0.88	1.17	1.38	1.20	1.08	1.12	0.97	0.78	0.69	0.55	0.57
13	0.64	1.01	1.16	1.32	1.19	1.08	1.12	0.97	0.80	0.68	0.56	0.56
14	0.64	1.08	1.14	1.28	1.21	1.06	1.34	0.97	0.80	0.69	0.56	0.56
15	0.64	1.08	1.13	1.27	1.20	1.05	1.56	0.97	0.79	0.67	0.54	0.55
16	0.62	1.09	1.03	1.25	1.20	1.04	1.43	0.97	0.78	0.67	0.54	0.56
17	0.63	0.98	1.00	1.26	1.26	1.04	1.28	0.96	0.78	0.66	0.53	0.53
18	0.68	0.93	1.02	1.28	1.24	1.04	1.19	0.95	0.78	0.68	0.53	0.52
19	0.78	0.98	1.32	1.25	1.22	1.03	1.17	0.93	0.79	0.67	0.53	0.52
20	0.70	1.13	1.15	1.23	1.22	1.03	1.16	0.91	0.75	0.68	0.55	0.51
21	0.82	1.24	1.10	1.22	1.23	1.03	1.16	0.91	0.70	0.66	0.55	0.50
22	0.93	1.24	1.09	1.24	1.23	1.09	1.14	0.90	0.68	0.67	0.55	0.50
23	0.73	1.31	1.06	1.33	1.22	1.06	1.12	0.90	0.68	0.70	0.54	0.49
24	0.73	1.23	1.05	1.46	1.24	1.05	1.11	0.89	0.69	0.67	0.55	0.49
25	0.76	1.18	1.05	1.32	1.28	1.03	1.08	0.87	0.69	0.64	0.55	0.49
26	0.76	1.22	1.04	1.35	1.22	1.01	1.07	0.87	0.68	0.61	0.55	0.50
27	0.78	1.19	1.07	1.39	1.16	1.04	1.07	0.86	0.68	0.60	0.57	0.52
28	0.76	1.27	1.12	1.33	1.16	1.04	1.09	0.84	0.69	0.59	0.57	0.53
29	0.74	1.25	1.45	1.36		1.01	1.08	0.82	0.67	0.58	0.58	0.51
30	0.73	1.20	1.35	1.39		1.01	1.08	0.82	0.66	0.58	0.58	0.50
31	0.74		1.25	1.34		1.00		0.82		0.57	0.57	
Avg Stage	0.68	1.02	1.15	1.28	1.23	1.07	1.14	0.94	0.75	0.67	0.56	0.53
Max Instantaneous	1.3	1.5	1.7	1.8	1.4	1.2	1.8	1.1	0.90	0.78	0.63	0.61
Max Mean Daily	0.93	1.3	1.5	1.5	1.3	1.2	1.6	1.1	0.81	0.74	0.60	0.57

Average Stage for Water Year 2018: 0.92

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 786-5549 or (360) 867-2072

Annual Stage (ft)-- Mean — Max ----- Min —



20a--Woodard Creek @ 36th Ave. NE

Water Year: 2018

Elv: 117

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	5.3	4.1	9.5	12	20	13	9.0	8.5	7.9	4.6	3.1	3.2
02	4.9	4.6	13	8.7	26	13	8.9	8.3	8.0	4.4	3.1	3.0
03	4.5	6.1	15	7.5	25	12	8.6	7.7	7.6	4.1	3.3	3.0
04	4.3	7.6	10	7.3	20	11	10	7.8	7.6	4.2	3.1	3.1
05	4.2	12	7.9	12	17	11	11	7.8	7.0	4.7	3.1	3.1
06	4.2	12	7.2	11	15	11	12	8.1	7.2	4.7	3.1	3.0
07	4.7	7.3	6.5	11	14	11	15	8.1	7.0	5.0	3.3	3.0
08	4.4	6.5	6.2	14	14	13	27	8.1	8.3	5.0	3.4	3.1
09	4.0	8.2	6.1	13	13	15	22	8.1	10	4.6	3.1	3.1
10	3.9	8.7	5.9	12	12	13	12	8.5	8.9	4.5	3.2	3.2
11	4.0	6.9	5.6	27	12	12	10.0	8.1	8.6	4.4	3.1	3.5
12	4.1	7.7	5.5	37	11	11	9.9	8.3	7.0	4.5	3.3	3.8
13	4.6	15	14	27	11	11	11	8.2	7.1	4.6	3.3	3.5
14	4.6	31	11	15	14	12	29	8.3	7.2	4.5	3.1	3.7
15	4.1	28	6.9	12	13	11	40	8.7	7.2	4.2	3.0	16
16	3.8	22	5.2	11	13	11	27	8.9	6.4	4.1	3.0	11
17	3.7	13	5.2	11	21	11	17	8.6	6.0	3.8	3.2	6.7
18	5.1	7.7	8.0	17	22	11	13	8.1	5.8	14	3.1	6.7
19	18	5.7	30	16	15	11	10	8.3	5.6	11	3.0	6.4
20	18	14	29	14	13	11	8.8	7.9	5.6	5.5	3.2	5.3
21	15	23	15	13	12	11	8.6	8.4	5.6	4.3	3.4	4.8
22	31	32	13	15	12	17	8.0	8.2	5.4	3.5	3.3	4.4
23	24	33	9.8	21	11	17	7.9	8.1	5.1	3.5	3.3	4.0
24	8.9	26	7.2	36	13	15	7.8	8.7	5.1	3.4	3.3	3.7
25	6.0	14	7.5	29	17	13	7.7	8.5	5.0	3.4	3.2	3.3
26	4.3	16	7.8	26	17	11	7.5	7.7	5.2	3.5	3.1	3.1
27	3.6	17	7.4	31	13	12	7.8	7.2	4.6	3.3	3.1	2.8
28	3.6	13	8.7	26	12	12	9.1	7.3	4.6	3.1	3.3	2.8
29	3.5	13	30	25		11	9.2	7.5	4.7	3.3	3.3	2.7
30	3.6	11	37	30		9.7	8.8	7.3	4.3	3.2	3.2	3.0
31	3.7		21	23		9.1		7.5		3.1	3.2	

Avg Discharge	7.1	14	12	18	15	12	13	8.1	6.5	4.6	3.2	4.4
Max Instantaneous	34	35	42	39	28	19	44	9.5	11	22	3.7	20
Max Mean Daily	31	33	37	37	26	17	40	8.9	10	14	3.4	16

Average Discharge for Water Year 2018: 9.9 [Low Flow \(Cal Year\)--7 day](#) 2.17 11/18/2018 [--30 day](#) 3.15 08/27/201

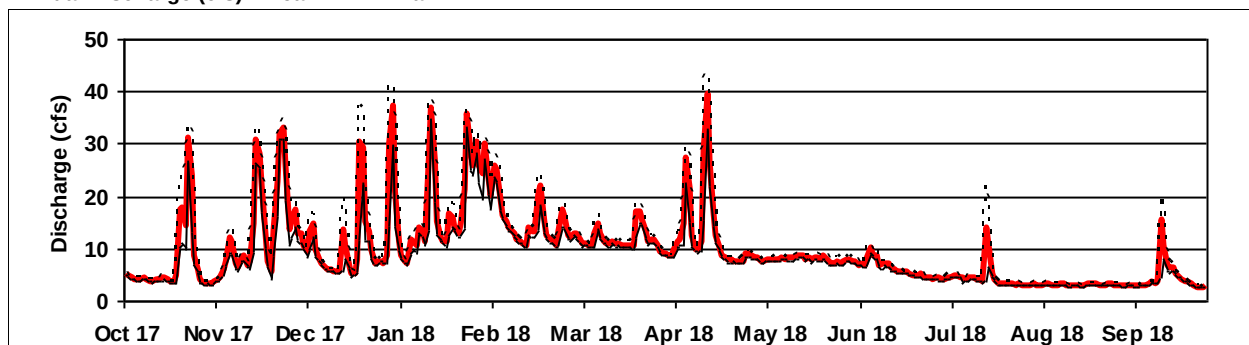
Lowest Stage: 0.93 **Discharge:** 2.53 09/28/2018 **Metrics** [High Pulse Count](#) 10 [Range](#) 174 Days

Peak Inst Stage: 2.74 **Discharge:** 44 04/15/2018 [TQ Mean \(Use Daily Avg\)](#) 0.39 [R-B Index](#) 0.20

Discharge is determined by comparing continuous stage records with field flow measurements.

Thurston County

Annual Discharge (cfs)-- Mean — Max ---- Min —



04/15/2019 3:16:16 PM by Nat Kale

20a--Woodard Creek @ 36th Ave. NE

Water Year: 2018

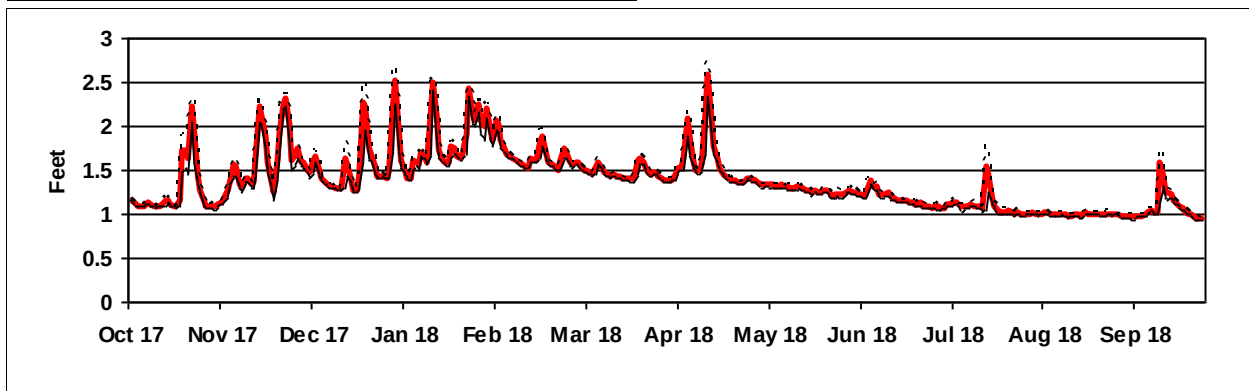
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	1.16	1.14	1.47	1.61	1.85	1.59	1.39	1.38	1.26	1.10	1.00	1.00
02	1.15	1.18	1.61	1.49	2.06	1.58	1.39	1.36	1.27	1.08	1.00	0.98
03	1.12	1.28	1.67	1.42	2.03	1.52	1.39	1.33	1.25	1.06	1.02	0.98
04	1.10	1.37	1.50	1.41	1.83	1.50	1.46	1.33	1.25	1.07	1.00	0.98
05	1.10	1.57	1.40	1.61	1.74	1.49	1.52	1.33	1.22	1.11	1.00	0.98
06	1.10	1.54	1.36	1.60	1.69	1.47	1.54	1.33	1.22	1.11	1.01	0.97
07	1.14	1.35	1.33	1.56	1.65	1.46	1.65	1.33	1.21	1.13	1.02	0.97
08	1.12	1.30	1.32	1.70	1.64	1.54	2.08	1.32	1.28	1.14	1.02	0.98
09	1.09	1.40	1.31	1.67	1.62	1.60	1.89	1.32	1.38	1.11	0.99	0.98
10	1.08	1.42	1.30	1.60	1.58	1.53	1.59	1.33	1.32	1.10	1.00	0.99
11	1.10	1.33	1.29	2.16	1.57	1.47	1.50	1.31	1.31	1.09	1.00	1.02
12	1.11	1.37	1.29	2.51	1.55	1.45	1.50	1.31	1.23	1.10	1.01	1.05
13	1.15	1.65	1.64	2.12	1.53	1.44	1.56	1.30	1.23	1.11	1.01	1.02
14	1.15	2.22	1.56	1.72	1.64	1.45	2.19	1.30	1.23	1.10	0.99	1.03
15	1.11	2.12	1.38	1.61	1.62	1.43	2.58	1.31	1.24	1.09	0.98	1.60
16	1.09	1.88	1.28	1.59	1.61	1.43	2.10	1.32	1.20	1.08	0.98	1.44
17	1.09	1.58	1.28	1.59	1.84	1.41	1.77	1.30	1.18	1.06	1.00	1.25
18	1.17	1.37	1.45	1.77	1.89	1.41	1.63	1.27	1.16	1.54	0.99	1.24
19	1.72	1.25	2.27	1.75	1.68	1.40	1.53	1.27	1.15	1.45	0.98	1.23
20	1.73	1.61	2.23	1.67	1.59	1.40	1.46	1.25	1.15	1.18	1.00	1.16
21	1.63	1.93	1.74	1.63	1.56	1.40	1.44	1.27	1.15	1.10	1.02	1.12
22	2.23	2.26	1.69	1.70	1.55	1.62	1.41	1.26	1.14	1.04	1.01	1.09
23	1.97	2.31	1.55	1.91	1.51	1.63	1.39	1.25	1.13	1.03	1.01	1.06
24	1.43	2.02	1.43	2.44	1.61	1.59	1.39	1.28	1.12	1.03	1.01	1.03
25	1.28	1.61	1.44	2.17	1.74	1.52	1.37	1.28	1.12	1.03	1.00	1.01
26	1.15	1.68	1.44	2.07	1.71	1.45	1.36	1.24	1.13	1.04	0.99	0.99
27	1.10	1.74	1.42	2.24	1.58	1.47	1.37	1.21	1.09	1.02	0.99	0.96
28	1.09	1.60	1.49	2.06	1.56	1.48	1.42	1.22	1.09	1.00	1.01	0.95
29	1.09	1.59	2.26	2.00		1.44	1.42	1.23	1.09	1.02	1.01	0.95
30	1.10	1.51	2.53	2.21		1.41	1.40	1.22	1.07	1.01	1.00	0.98
31	1.11		1.93	1.95		1.39		1.23		1.00	1.00	
Avg Stage	1.25	1.61	1.58	1.82	1.68	1.48	1.59	1.29	1.20	1.10	1.00	1.07
Max Instantaneous	2.3	2.4	2.7	2.6	2.2	1.7	2.7	1.4	1.4	1.8	1.1	1.8
Max Mean Daily	2.2	2.3	2.5	2.5	2.1	1.6	2.6	1.4	1.4	1.5	1.0	1.6

Average Stage for Water Year 2018: 1.39

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 786-5549 or (360) 867-2072

Annual Stage (ft)-- Mean — Max ----- Min —



32b--Green Cove Creek @ Butler Cove Fire Station

Water Year: 2018

Elv: 105

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.31	2.7	9.5	14	16	4.9	2.5	1.7	0.53	0.28	0.12	0.13
02	0.35	3.1	18	8.9	19	4.1	2.4	1.6	0.53	0.27	0.12	0.11
03	0.35	4.0	16	7.1	14	3.5	2.3	1.6	0.53	0.26	0.11	0.12
04	0.39	4.7	9.6	5.9	9.6	3.3	3.0	1.4	0.53	0.24	0.09	0.11
05	0.39	6.0	7.3	11	7.6	3.1	3.2	1.4	0.50	0.26	0.10	0.12
06	0.44	3.4	5.6	8.4	6.4	2.8	3.8	1.4	0.49	0.26	0.10	0.12
07	0.50	2.3	4.6	7.3	5.4	2.6	8.2	1.3	0.50	0.25	0.11	0.13
08	0.52	2.3	4.1	10	4.7	4.1	23	1.2	0.50	0.24	0.11	0.11
09	0.48	3.7	3.7	7.7	4.3	4.8	11	1.2	0.52	0.22	0.12	0.11
10	0.48	3.9	3.5	6.1	3.9	3.8	5.9	1.3	0.51	0.21	0.13	0.11
11	0.52	2.8	3.3	29	3.6	3.4	4.5	1.2	0.44	0.20	0.14	0.17
12	0.57	3.6	3.3	24	3.2	3.0	4.4	1.1	0.43	0.20	0.14	0.12
13	0.66	14	3.2	20	3.0	3.0	6.6	1.1	0.42	0.21	0.14	0.10
14	0.65	20	3.1	14	4.0	3.0	30	1.1	0.40	0.21	0.13	0.11
15	0.72	21	3.0	9.2	3.5	2.6	27	1.0	0.42	0.20	0.12	0.10
16	0.75	13	3.0	6.9	3.9	2.6	18	0.91	0.41	0.20	0.12	0.12
17	0.91	7.3	3.2	6.6	7.8	2.4	12	0.85	0.37	0.21	0.12	0.10
18	1.7	4.8	5.7	16	7.2	2.3	7.1	0.86	0.37	0.22	0.12	0.10
19	1.9	4.7	36	14	5.3	2.2	5.4	0.85	0.37	0.21	0.12	0.11
20	1.8	15	19	11	4.2	2.2	4.1	0.81	0.38	0.20	0.12	0.09
21	6.4	23	10.0	11	3.8	2.3	3.6	0.78	0.37	0.17	0.12	0.08
22	10	27	8.0	14	3.6	4.5	3.0	0.78	0.35	0.15	0.11	0.09
23	3.3	27	6.7	22	3.1	4.3	2.5	0.77	0.33	0.14	0.11	0.10
24	2.2	16	5.2	37	4.2	3.9	2.4	0.74	0.33	0.13	0.10	0.10
25	1.8	11	5.4	29	7.1	3.3	2.2	0.65	0.35	0.13	0.10	0.10
26	1.7	20	5.1	28	5.4	3.0	2.0	0.64	0.33	0.13	0.11	0.12
27	1.6	18	4.5	32	3.9	3.4	1.9	0.64	0.31	0.12	0.12	0.12
28	1.6	17	5.6	25	4.0	3.2	2.0	0.64	0.28	0.12	0.12	0.12
29	1.6	13	35	26		3.1	1.9	0.63	0.27	0.12	0.13	0.12
30	1.9	9.9	30	25		2.9	1.9	0.59	0.27	0.12	0.12	0.11
31	2.2		21	19		2.5		0.54		0.13	0.13	
Avg Discharge	1.6	11	9.7	16	6.1	3.2	6.9	1.0	0.41	0.19	0.12	0.11
Max Instantaneous	23	47	66	56	24	6.5	46	2.0	0.65	0.31	0.16	1.2
Max Mean Daily	10	27	36	37	19	4.9	30	1.7	0.53	0.28	0.14	0.17

Average Discharge for Water Year 2018: 4.7 [Low Flow \(Cal Year\)--7 day](#) 0.1 09/24/2018 [--30 day](#) 0.11 09/22/201

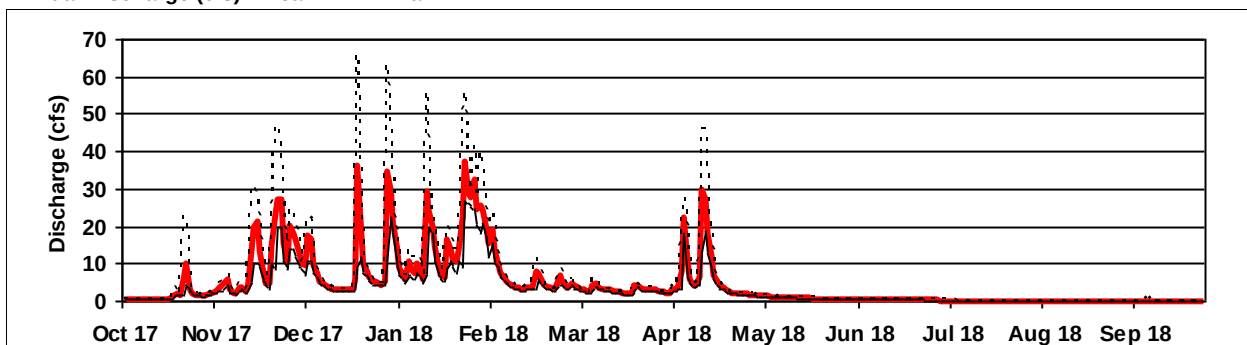
Lowest Stage: 1.42 **Discharge:** 0.08 08/03/2018 **Metrics** [High Pulse Count](#) 11 [Range](#) 174 Days

Peak Inst Stage: 2.28 **Discharge:** 66.16 12/19/2017 [TQ Mean \(Use Daily Avg\)](#) 0.26 [R-B Index](#) 0.32

Discharge is determined by comparing continuous stage records with field flow measurements.

Thurston County

Annual Discharge (cfs)-- Mean — Max ---- Min —



04/15/2019 3:18:14 PM by Nat Kale

32b--Green Cove Creek @ Butler Cove Fire Stati

Water Year: 2018

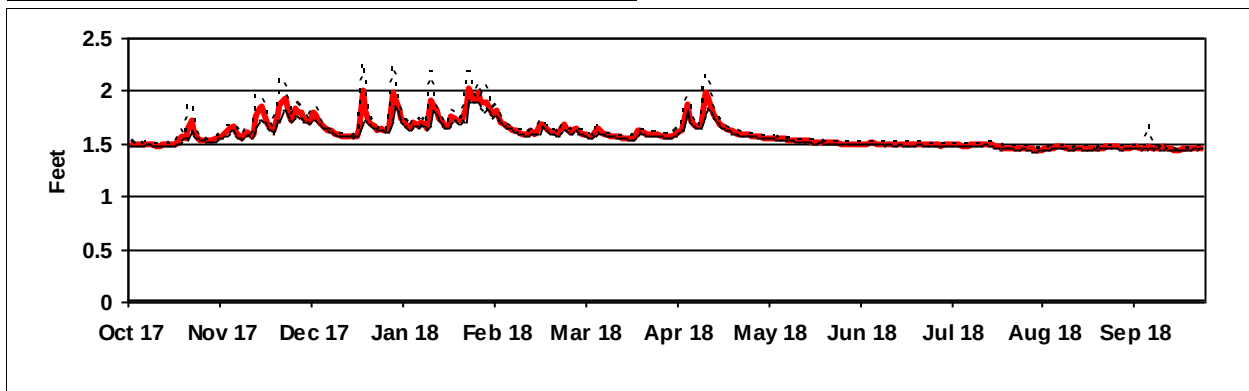
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	1.49	1.58	1.71	1.75	1.78	1.64	1.58	1.58	1.50	1.49	1.46	1.47
02	1.49	1.60	1.80	1.70	1.81	1.62	1.57	1.57	1.50	1.49	1.45	1.46
03	1.49	1.62	1.78	1.67	1.76	1.60	1.57	1.57	1.50	1.48	1.45	1.46
04	1.49	1.64	1.71	1.65	1.71	1.59	1.60	1.56	1.50	1.49	1.43	1.46
05	1.49	1.67	1.68	1.71	1.69	1.59	1.61	1.56	1.50	1.49	1.44	1.46
06	1.49	1.61	1.65	1.69	1.67	1.58	1.63	1.56	1.50	1.49	1.44	1.47
07	1.50	1.57	1.63	1.67	1.65	1.57	1.71	1.56	1.50	1.49	1.45	1.47
08	1.50	1.56	1.62	1.71	1.63	1.62	1.88	1.55	1.50	1.49	1.45	1.46
09	1.49	1.61	1.61	1.68	1.62	1.64	1.75	1.55	1.51	1.49	1.46	1.46
10	1.48	1.61	1.60	1.65	1.61	1.61	1.69	1.55	1.51	1.48	1.46	1.46
11	1.48	1.58	1.59	1.92	1.60	1.60	1.66	1.55	1.50	1.48	1.47	1.48
12	1.49	1.60	1.58	1.87	1.59	1.59	1.66	1.54	1.50	1.48	1.47	1.46
13	1.49	1.76	1.58	1.81	1.59	1.58	1.70	1.54	1.50	1.49	1.47	1.45
14	1.49	1.83	1.58	1.75	1.62	1.58	1.99	1.54	1.49	1.49	1.46	1.46
15	1.49	1.85	1.57	1.70	1.60	1.57	1.95	1.53	1.50	1.49	1.45	1.45
16	1.49	1.75	1.58	1.67	1.61	1.57	1.84	1.53	1.50	1.49	1.45	1.47
17	1.50	1.68	1.58	1.66	1.68	1.56	1.78	1.53	1.50	1.49	1.45	1.45
18	1.55	1.64	1.64	1.77	1.68	1.56	1.72	1.53	1.50	1.50	1.46	1.45
19	1.57	1.63	2.00	1.75	1.65	1.55	1.69	1.53	1.49	1.49	1.46	1.46
20	1.56	1.77	1.81	1.72	1.62	1.55	1.66	1.52	1.50	1.49	1.45	1.44
21	1.64	1.87	1.71	1.72	1.61	1.55	1.65	1.52	1.49	1.48	1.46	1.43
22	1.73	1.92	1.68	1.75	1.61	1.63	1.63	1.52	1.49	1.47	1.46	1.44
23	1.61	1.93	1.66	1.85	1.59	1.62	1.62	1.52	1.49	1.47	1.46	1.45
24	1.56	1.77	1.63	2.02	1.62	1.61	1.61	1.51	1.49	1.46	1.45	1.45
25	1.54	1.73	1.64	1.93	1.68	1.60	1.60	1.51	1.50	1.46	1.45	1.45
26	1.54	1.83	1.63	1.92	1.65	1.59	1.59	1.51	1.50	1.46	1.46	1.45
27	1.53	1.80	1.62	1.98	1.61	1.60	1.59	1.51	1.49	1.46	1.46	1.46
28	1.53	1.79	1.64	1.89	1.62	1.59	1.59	1.51	1.49	1.46	1.47	1.45
29	1.53	1.75	1.98	1.90		1.59	1.59	1.51	1.49	1.45	1.47	1.46
30	1.55	1.72	1.94	1.89		1.58	1.58	1.50	1.49	1.46	1.47	1.45
31	1.56		1.83	1.81		1.58		1.50		1.46	1.47	
Avg Stage	1.53	1.71	1.69	1.78	1.65	1.59	1.68	1.53	1.50	1.48	1.46	1.46
Max Instantaneous	1.9	2.1	2.3	2.2	1.9	1.7	2.2	1.6	1.5	1.5	1.5	1.7
Max Mean Daily	1.7	1.9	2.0	2.0	1.8	1.6	2.0	1.6	1.5	1.5	1.5	1.5

Average Stage for Water Year 2018: 1.59

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 786-5549 or (360) 867-2072

Annual Stage (ft)-- Mean — Max ----- Min —



52a--Salmon Creek @ Littlerock Rd.

Water Year: 2018

Elv: 162

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.99	3.4	35	43	57	25	12	12	4.5	1.8	0.48	0.16
02	1.1	3.5	43	32	66	23	10	11	4.6	1.8	0.46	0.14
03	1.0	4.3	41	28	61	21	9.6	11	4.4	1.7	0.44	0.14
04	1.0	4.7	31	26	53	20	11	9.5	4.3	1.6	0.44	0.13
05	1.1	7.9	25	37	46	19	13	8.6	4.1	1.6	0.42	0.12
06	1.4	7.1	21	35	40	18	16	8.7	3.9	1.4	0.37	0.12
07	1.1	5.5	18	33	37	17	18	8.7	3.8	1.4	0.35	0.11
08	1.2	4.8	16	38	36	18	46	8.8	4.3	1.4	0.35	0.13
09	1.2	6.7	14	35	31	20	43	8.8	5.5	1.4	0.31	0.13
10	1.2	7.7	13	30	27	19	32	16	5.0	1.4	0.30	0.14
11	1.3	6.6	12	62	25	17	25	14	4.7	1.5	0.32	0.18
12	1.5	8.0	11	70	23	16	22	9.5	4.4	1.3	0.35	0.27
13	1.5	19	11	58	21	16	25	7.8	4.2	1.3	0.35	0.28
14	1.5	38	9.8	51	25	15	65	7.1	3.9	1.2	0.32	0.38
15	1.5	47	9.3	41	23	15	77	6.9	3.8	1.1	0.28	0.42
16	1.6	42	8.3	35	24	14	69	13	3.6	1.1	0.26	0.48
17	1.8	33	9.8	33	38	13	69	16	3.3	1.0	0.23	0.53
18	2.8	23	18	40	40	13	55	12	3.0	0.97	0.22	0.49
19	7.3	18	57	37	33	12	42	9.6	2.8	0.95	0.21	0.41
20	7.0	40	56	36	28	11	34	8.2	2.6	0.93	0.20	0.36
21	15	55	38	35	24	12	31	7.5	2.5	0.88	0.18	0.38
22	34	67	29	39	23	18	26	6.8	2.6	0.91	0.17	0.40
23	21	75	24	48	21	19	23	6.4	2.6	0.81	0.16	0.40
24	13	62	20	68	25	17	21	6.1	2.4	0.76	0.15	0.37
25	7.9	50	19	62	32	16	19	5.9	2.5	0.74	0.17	0.36
26	6.1	53	18	70	31	15	16	5.7	2.4	0.67	0.17	0.44
27	5.1	47	16	73	27	22	13	5.6	2.1	0.66	0.19	0.51
28	4.3	49	23	65	25	19	13	5.5	2.1	0.59	0.17	0.50
29	3.8	47	75	63		16	13	5.3	2.1	0.54	0.18	0.46
30	3.5	39	77	69		13	13	5.1	1.9	0.55	0.16	0.52
31	3.3		59	61		12		4.8		0.53	0.16	

Avg Discharge	5.0	29	28	47	34	17	29	8.8	3.5	1.1	0.27	0.32
Max Instantaneous	50	80	91	83	71	28	87	19	6.0	2.0	0.53	0.63
Max Mean Daily	34	75	77	73	66	25	77	16	5.5	1.8	0.48	0.53

Average Discharge for Water Year 2018: 17 [Low Flow \(Cal Year\)--7 day](#) 0.13 09/08/2018 [--30 day](#) 0.18 08/31/201

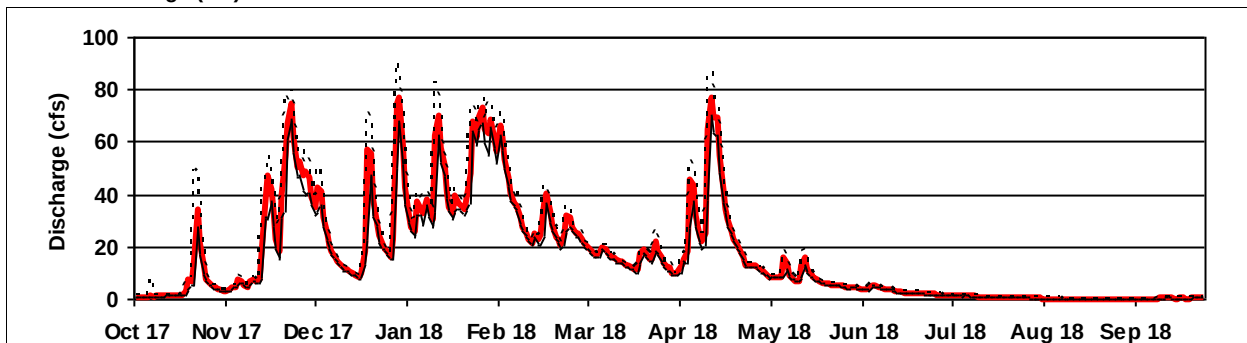
Lowest Stage: 0.86 **Discharge:** 0.1 09/07/2018 **Metrics** [High Pulse Count](#) 11 [Range](#) 174 Days

Peak Inst Stage: 2.83 **Discharge:** 90.54 12/29/2017 [TQ Mean \(Use Daily Avg\)](#) 0.37 [R-B Index](#) 0.18

Discharge is determined by comparing continuous stage records with field flow measurements.

Thurston County

Annual Discharge (cfs)-- Mean — Max ---- Min —



04/15/2019 3:18:44 PM by Nat Kale

52a--Salmon Creek @ Littlerock Rd.

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.94	1.10	1.88	2.00	2.14	1.66	1.46	1.47	1.16	1.05	0.97	0.92
02	0.95	1.11	1.98	1.87	2.30	1.63	1.40	1.44	1.16	1.04	0.96	0.91
03	0.94	1.14	1.95	1.80	2.21	1.59	1.40	1.42	1.16	1.04	0.96	0.90
04	0.94	1.16	1.82	1.77	2.08	1.56	1.43	1.38	1.15	1.03	0.97	0.89
05	0.94	1.28	1.73	1.93	1.99	1.54	1.49	1.36	1.15	1.03	0.96	0.88
06	0.95	1.26	1.66	1.89	1.91	1.52	1.56	1.35	1.14	1.02	0.95	0.88
07	0.94	1.20	1.61	1.86	1.86	1.50	1.62	1.35	1.13	1.02	0.95	0.87
08	0.94	1.17	1.58	1.94	1.85	1.53	2.04	1.34	1.15	1.02	0.95	0.87
09	0.94	1.25	1.55	1.90	1.78	1.56	2.02	1.34	1.21	1.02	0.95	0.88
10	0.94	1.29	1.52	1.82	1.72	1.54	1.87	1.50	1.19	1.02	0.94	0.88
11	0.95	1.25	1.49	2.30	1.69	1.50	1.76	1.45	1.18	1.03	0.95	0.90
12	0.96	1.30	1.47	2.40	1.65	1.48	1.73	1.34	1.17	1.02	0.97	0.94
13	0.96	1.53	1.46	2.20	1.62	1.47	1.79	1.28	1.16	1.02	0.97	0.95
14	0.96	1.86	1.44	2.09	1.68	1.45	2.37	1.26	1.15	1.02	0.96	0.98
15	0.95	1.98	1.43	1.96	1.64	1.44	2.58	1.24	1.14	1.01	0.96	0.98
16	0.96	1.92	1.41	1.88	1.66	1.42	2.45	1.41	1.13	1.01	0.95	1.00
17	0.97	1.81	1.45	1.84	1.86	1.39	2.45	1.47	1.12	1.00	0.94	1.01
18	1.02	1.65	1.65	1.94	1.89	1.38	2.21	1.36	1.11	1.00	0.94	0.99
19	1.21	1.57	2.24	1.90	1.79	1.37	2.03	1.31	1.10	1.00	0.93	0.97
20	1.21	1.91	2.20	1.88	1.71	1.36	1.93	1.28	1.09	1.00	0.94	0.95
21	1.35	2.13	1.96	1.86	1.65	1.36	1.87	1.25	1.08	1.00	0.93	0.95
22	1.75	2.31	1.84	1.92	1.63	1.52	1.79	1.24	1.09	1.01	0.93	0.95
23	1.55	2.44	1.76	2.05	1.59	1.54	1.74	1.23	1.09	1.00	0.93	0.96
24	1.38	2.23	1.69	2.35	1.66	1.52	1.69	1.21	1.08	0.99	0.92	0.94
25	1.25	2.05	1.67	2.24	1.77	1.49	1.66	1.21	1.08	0.99	0.93	0.93
26	1.20	2.08	1.64	2.37	1.75	1.49	1.60	1.20	1.08	0.99	0.94	0.95
27	1.15	2.02	1.61	2.42	1.69	1.63	1.52	1.19	1.07	0.99	0.95	0.98
28	1.13	2.05	1.71	2.28	1.66	1.57	1.51	1.19	1.07	0.97	0.95	0.97
29	1.11	2.01	2.52	2.25		1.52	1.50	1.18	1.06	0.97	0.94	0.96
30	1.10	1.92	2.54	2.35		1.47	1.49	1.18	1.05	0.97	0.93	0.98
31	1.09		2.23	2.22		1.45		1.17		0.97	0.92	
Avg Stage	1.08	1.67	1.76	2.05	1.80	1.50	1.80	1.31	1.12	1.01	0.95	0.94
Max Instantaneous	2.0	2.5	2.8	2.6	2.4	1.7	2.8	1.6	1.2	1.1	0.99	1.0
Max Mean Daily	1.8	2.4	2.5	2.4	2.3	1.7	2.6	1.5	1.2	1.1	0.97	1.0

Average Stage for Water Year 2018: 1.42

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 786-5549 or (360) 867-2072

Annual Stage (ft)-- Mean — Max ----- Min —



55a--Scatter Creek @ James Rd.

Water Year: 2018

Elv: 136

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.00	0.00	114	202	193	115	60	68	12	3.6	0.00	0.00
02	0.00	0.00	111	163	188	110	57	66	11	3.1	0.00	0.00
03	0.00	0.00	107	137	182	102	54	65	11	3.2	0.00	0.00
04	0.00	0.00	99	117	178	95	55	61	9.7	2.9	0.00	0.00
05	0.00	0.00	96	111	167	88	55	58	8.9	3.2	0.00	0.00
06	0.00	0.00	85	100	153	82	57	56	8.8	3.1	0.00	0.00
07	0.00	0.00	78	94	139	78	64	52	8.2	3.1	0.00	0.00
08	0.00	0.00	71	98	127	76	89	49	8.8	3.0	0.00	0.00
09	0.00	0.00	64	95	118	75	125	46	9.3	2.8	0.00	0.00
10	0.00	0.00	57	96	108	73	207	44	8.3	2.8	0.00	0.00
11	0.00	0.00	51	113	100	71	188	42	8.4	2.9	0.00	0.00
12	0.00	0.00	45	141	92	68	160	41	8.1	2.2	0.00	0.00
13	0.00	0.06	41	200	85	66	138	38	8.5	1.9	0.00	0.00
14	0.00	4.5	38	198	85	64	141	35	7.9	1.6	0.00	0.00
15	0.00	7.6	34	170	79	61	172	32	7.5	1.2	0.00	0.00
16	0.00	6.5	31	147	79	58	205	31	5.6	1.5	0.00	0.00
17	0.00	5.6	29	131	84	55	221	30	4.0	1.1	0.00	0.00
18	0.00	2.4	28	123	93	52	202	28	4.2	0.86	0.00	0.00
19	0.00	1.2	48	111	107	50	183	27	3.3	0.58	0.00	0.00
20	0.00	9.0	61	105	116	48	161	25	3.4	0.39	0.00	0.00
21	0.25	23	74	99	109	46	142	23	3.7	0.51	0.00	0.00
22	3.3	58	101	97	100	51	126	23	3.5	0.40	0.00	0.00
23	0.46	104	94	97	91	50	115	21	3.3	0.25	0.00	0.00
24	0.00	138	83	113	90	54	105	20	3.1	0.15	0.00	0.00
25	0.00	148	78	129	91	55	96	19	3.2	0.00	0.00	0.00
26	0.00	139	69	153	94	58	88	17	2.8	0.00	0.00	0.00
27	0.00	122	62	170	104	61	84	17	3.1	0.00	0.00	0.00
28	0.00	116	60	190	115	64	80	15	3.0	0.00	0.00	0.00
29	0.00	117	97	189		64	75	14	3.2	0.00	0.00	0.00
30	0.00	116	159	188		63	71	14	3.3	0.00	0.00	0.00
31	0.00		240	194		62		13		0.00	0.00	

Avg Discharge	0.13	37	78	138	117	68	119	35	6.3	1.5	0.00	0.00
Max Instantaneous	4.2	151	250	225	197	119	231	71	14	4.2	0.00	0.00
Max Mean Daily	3.3	148	240	202	193	115	221	68	12	3.6	0.00	0.00

Average Discharge for Water Year 2018: 50 [Low Flow \(Cal Year\)--7 day](#) 0 12/07/2018 [--30 day](#) 0 11/26/201

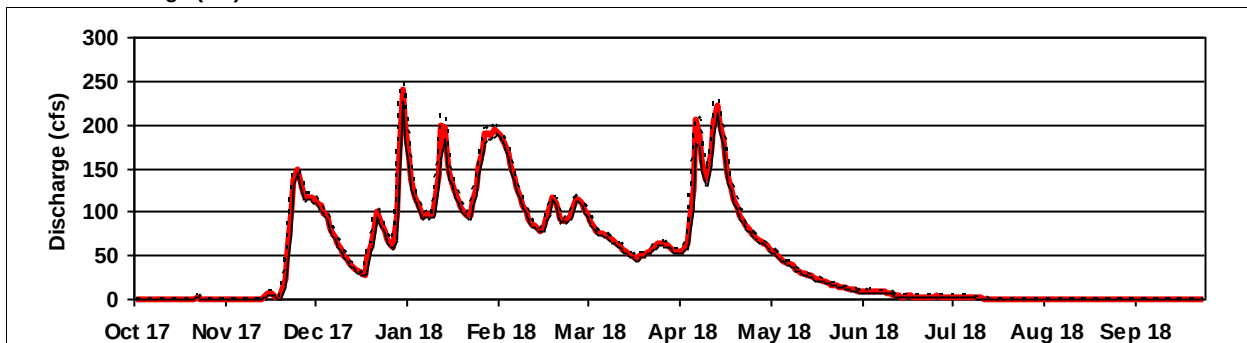
Lowest Stage: 0.35 **Discharge:** 0 10/01/2017 **Metrics** [High Pulse Count](#) 9 [Range](#) 137 Days

Peak Inst Stage: 3.73 **Discharge:** 249.55 12/31/2017 [TQ Mean \(Use Daily Avg\)](#) 0.43 [R-B Index](#) 0.10

Discharge is determined by comparing continuous stage records with field flow measurements.

Thurston County

Annual Discharge (cfs)-- Mean — Max ---- Min —



04/15/2019 3:20:10 PM by Nat Kale

55a--Scatter Creek @ James Rd.

Water Year: 2018

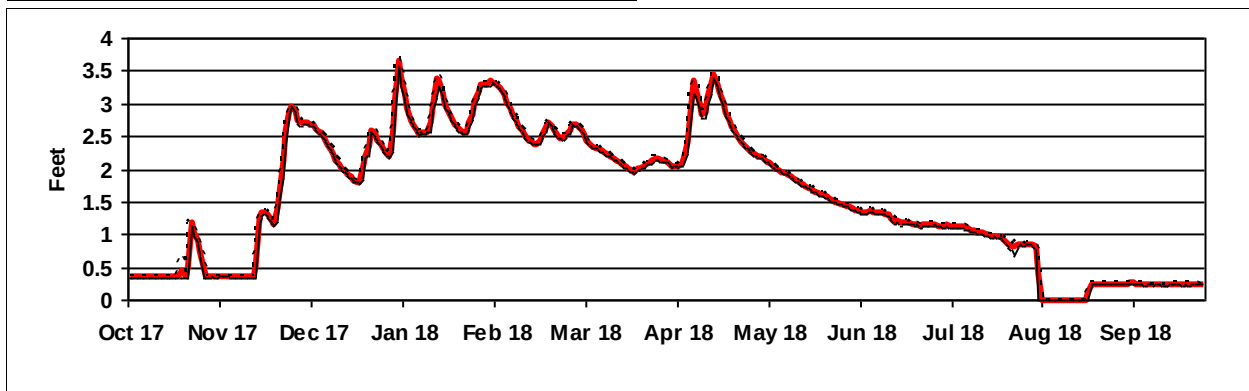
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	0.37	0.37	2.70	3.41	3.34	2.70	2.12	2.22	1.44	1.16	0.87	0.25
02	0.37	0.37	2.68	3.13	3.30	2.66	2.09	2.20	1.42	1.14	0.87	0.25
03	0.36	0.37	2.64	2.93	3.26	2.59	2.05	2.19	1.41	1.14	0.86	0.25
04	0.36	0.36	2.57	2.76	3.24	2.52	2.06	2.16	1.38	1.14	0.81	0.25
05	0.36	0.37	2.55	2.70	3.14	2.45	2.06	2.12	1.37	1.15	0.43	0.26
06	0.36	0.37	2.45	2.60	3.03	2.39	2.08	2.10	1.35	1.13	0.00	0.26
07	0.36	0.37	2.38	2.54	2.92	2.35	2.16	2.05	1.34	1.13	0.00	0.25
08	0.36	0.36	2.30	2.58	2.83	2.33	2.41	2.02	1.35	1.13	0.00	0.25
09	0.37	0.36	2.23	2.55	2.74	2.31	2.74	1.99	1.37	1.12	0.00	0.25
10	0.36	0.36	2.15	2.56	2.66	2.29	3.36	1.96	1.34	1.12	0.00	0.24
11	0.36	0.36	2.09	2.71	2.59	2.27	3.23	1.94	1.33	1.12	0.00	0.24
12	0.36	0.36	2.02	2.95	2.52	2.23	3.01	1.93	1.33	1.09	0.00	0.24
13	0.36	0.53	1.97	3.39	2.45	2.21	2.83	1.90	1.34	1.08	0.00	0.24
14	0.36	1.27	1.92	3.37	2.45	2.18	2.86	1.86	1.32	1.06	0.00	0.24
15	0.36	1.35	1.88	3.17	2.39	2.14	3.10	1.82	1.31	1.04	0.00	0.24
16	0.36	1.33	1.83	3.00	2.39	2.11	3.33	1.79	1.25	1.05	0.00	0.24
17	0.36	1.31	1.81	2.87	2.44	2.07	3.45	1.78	1.20	1.03	0.00	0.24
18	0.40	1.21	1.80	2.80	2.52	2.04	3.31	1.75	1.21	1.01	0.00	0.23
19	0.45	1.15	2.05	2.70	2.65	2.01	3.18	1.72	1.18	1.00	0.00	0.24
20	0.37	1.39	2.21	2.65	2.73	1.98	3.02	1.70	1.18	0.98	0.00	0.24
21	0.53	1.66	2.36	2.59	2.67	1.96	2.87	1.66	1.18	0.99	0.00	0.24
22	1.19	2.13	2.61	2.57	2.59	2.03	2.75	1.65	1.18	0.98	0.11	0.24
23	1.04	2.59	2.55	2.57	2.50	2.01	2.65	1.63	1.17	0.97	0.25	0.24
24	0.91	2.89	2.45	2.72	2.48	2.05	2.57	1.61	1.16	0.95	0.25	0.25
25	0.74	2.97	2.39	2.85	2.49	2.07	2.49	1.59	1.16	0.90	0.25	0.24
26	0.50	2.90	2.31	3.04	2.52	2.10	2.42	1.56	1.14	0.87	0.25	0.25
27	0.36	2.76	2.23	3.17	2.61	2.14	2.37	1.54	1.15	0.82	0.25	0.25
28	0.37	2.71	2.20	3.31	2.70	2.16	2.33	1.51	1.15	0.81	0.25	0.25
29	0.37	2.73	2.57	3.31		2.16	2.29	1.50	1.16	0.87	0.25	0.24
30	0.37	2.72	3.09	3.31		2.15	2.25	1.48	1.16	0.87	0.25	0.24
31	0.37		3.67	3.35		2.14		1.47		0.84	0.25	
Avg Stage	0.46	1.33	2.34	2.91	2.72	2.22	2.65	1.82	1.27	1.02	0.20	0.24
Max Instantaneous	1.2	3.0	3.7	3.6	3.4	2.7	3.5	2.3	1.5	1.2	0.89	0.30
Max Mean Daily	1.2	3.0	3.7	3.4	3.3	2.7	3.5	2.2	1.4	1.2	0.87	0.26

Average Stage for Water Year 2018: 1.60

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 786-5549 or (360) 867-2072

Annual Stage (ft)-- Mean — Max ----- Min —



Appendix D – Stream Temperature Data

10a--Eaton Creek @ Yelm Hwy

Water Year: 2018 WaterTemperatures in degrees Celsius

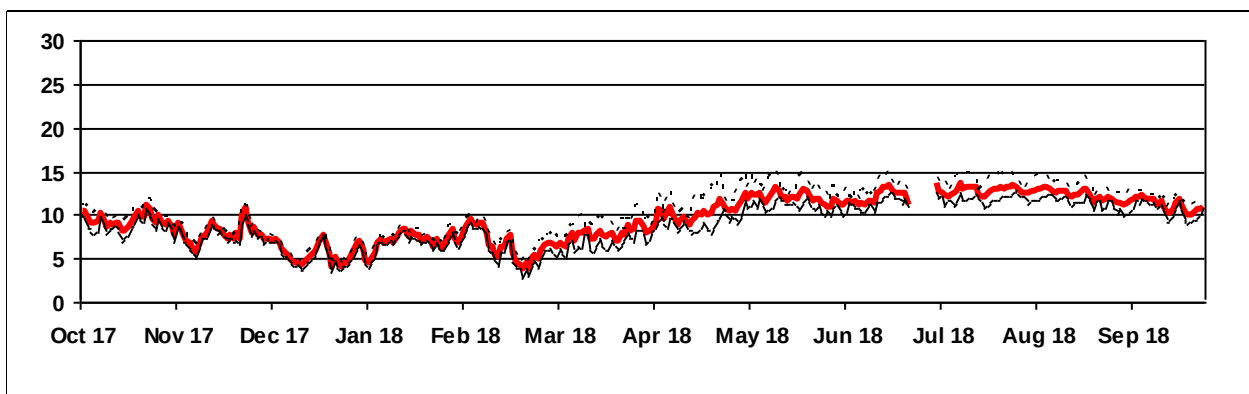
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	10.6	9.2	7.4	4.9	7.4	7.0	8.8	10.5	10.9		13.1	11.6
02	10.4	8.8	7.2	4.7	8.4	7.0	8.0	11.0	11.8		12.6	11.3
03	9.6	7.5	7.3	5.1	9.0	6.7	8.3	11.8	11.7		12.5	11.5
04	9.1	7.0	6.9	5.8	9.6	6.3	8.5	12.5	11.2		12.5	11.1
05	9.1	6.9	6.1	6.9	9.1	6.9	9.2	11.9	11.2	13.7	12.8	11.3
06	9.4	6.0	5.7	7.3	8.9	6.7	10.8	12.6	11.6	12.9	12.9	11.6
07	10.2	5.8	5.4	7.0	9.2	6.4	10.6	12.5	11.7	12.7	13.0	11.8
08	9.4	6.9	4.8	7.1	9.2	7.4	9.5	12.5	11.4	12.5	13.1	12.0
09	8.7	7.7	4.6	7.4	8.1	7.9	10.5	12.5	11.7	12.2	13.2	12.1
10	9.2	7.7	4.7	7.0	6.8	7.2	10.9	11.7	11.3	12.3	13.2	12.3
11	9.0	8.2	4.3	7.5	6.4	7.9	9.7	11.5	11.5	12.5	13.0	12.0
12	9.3	9.3	4.7	8.0	5.6	8.1	9.0	12.2	11.3	12.9	12.9	11.8
13	9.1	9.0	5.1	8.5	5.3	8.2	9.4	12.7	11.8	13.8	12.7	11.8
14	8.1	8.4	5.2	8.5	6.3	8.4	9.9	13.3	11.6	13.0	12.9	11.8
15	8.4	8.5	5.6	7.5	6.5	7.3	9.4	12.9	11.5	13.2	12.9	11.3
16	8.6	7.7	6.0	8.1	7.4	7.4	9.0	12.1	12.5	13.3	12.9	11.6
17	9.4	7.4	7.2	7.7	7.8	7.8	9.3	12.1	12.9	13.2	12.4	11.0
18	9.9	7.7	7.9	7.8	5.8	8.3	9.9	11.7	13.2	13.2	12.2	10.2
19	10.5	7.4	7.1	7.1	4.6	7.8	10.3	12.1	13.2	12.3	12.4	10.4
20	10.0	8.1	5.7	7.4	4.2	7.6	10.1	12.2	13.6	12.2	12.4	10.9
21	9.8	7.4	4.1	7.6	3.9	7.7	10.5	11.9	12.9	12.2	12.6	11.4
22	11.1	10.2	5.3	7.0	4.6	8.1	10.0	12.3	12.6	12.5	13.0	12.0
23	10.7	11.0	4.7	6.5	3.9	7.1	10.4	13.0	12.6	12.9	13.1	11.1
24	9.7	9.3	4.1	7.4	5.2	7.1	11.0	12.9	12.6	13.0	12.5	10.2
25	9.2	8.1	4.6	6.7	5.5	7.9	11.3	12.3	12.7	13.1	11.4	10.1
26	10.1	8.7	4.6	6.3	5.0	7.8	11.9	11.7	11.3	13.3	11.9	10.1
27	9.3	7.9	4.9	6.8	5.9	8.8	11.3	12.0		13.2	12.2	10.4
28	9.0	7.8	5.9	7.9	6.6	8.3	10.7	11.9		13.2	11.7	10.7
29	9.5	7.3	6.9	8.4		8.5	10.5	11.4		13.4	11.9	10.7
30	8.7	7.4	7.0	7.4		9.5	10.7	11.2		13.4	12.2	11.1
31	7.8		6.2	6.9		9.4		11.1		13.3	12.0	
Avg Temp	9.4	8.0	5.7	7.1	6.6	7.7	10.0	12	12	13	13	11
Max Temp	12	11	8.0	9.1	10	11	15	15	15	15	15	13
Max Mean Daily	11	11	7.9	8.5	9.6	9.5	12	13	14	14	13	12

Avg Water Temp for Water Year 2018: 9.6

Notes:

Thurston County

Annual Water Temp-- Mean, Maximum, Minimum:



14a--Spurgeon Creek @ Rich Road bridge

Water Year: 2018 WaterTemperatures in degrees Celsius

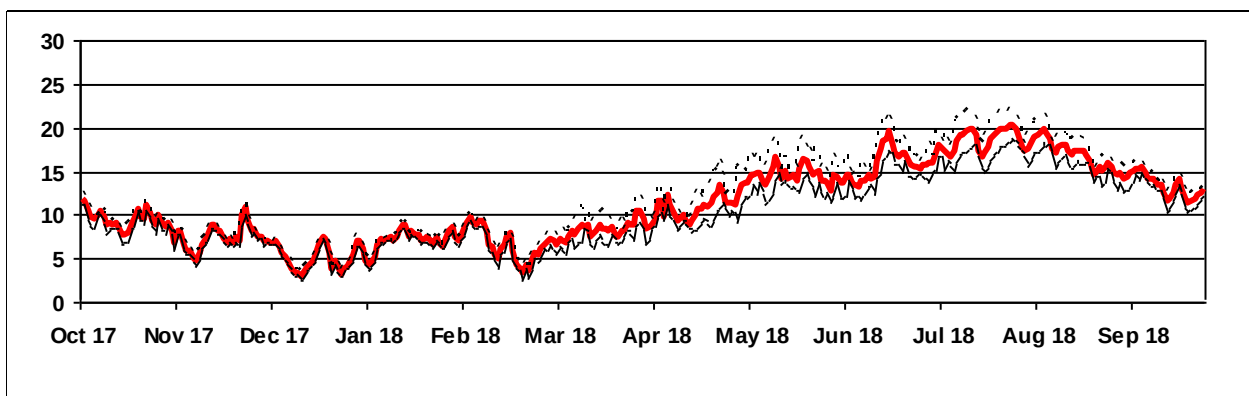
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	11.9	8.3	7.0	4.8	7.6	7.2	9.5	11.2	12.9	15.8	19.2	15.0
02	11.8	8.2	6.9	4.3	8.6	7.4	8.5	12.2	14.6	15.8	17.9	14.6
03	10.6	6.5	7.1	4.7	9.2	7.1	8.8	13.5	14.5	16.1	17.5	14.9
04	9.9	5.9	6.3	5.3	9.8	6.6	9.0	13.7	13.7	16.1	17.6	14.2
05	9.6	6.1	5.8	6.7	9.2	7.3	9.6	13.8	13.8	17.5	18.5	14.5
06	10.2	5.1	5.3	7.3	9.0	7.2	11.6	14.7	14.7	18.1	19.0	14.8
07	10.6	4.8	4.9	7.0	9.4	6.8	11.6	14.6	14.8	17.5	19.3	15.1
08	9.8	5.6	3.9	7.4	9.3	7.6	9.9	14.8	13.6	17.5	19.4	15.4
09	8.9	6.8	3.4	7.5	8.2	8.2	12.3	14.9	13.6	17.0	19.9	15.2
10	9.2	7.3	3.5	7.2	6.7	7.7	11.3	13.8	13.3	16.7	19.5	15.7
11	9.0	7.7	3.0	7.7	6.3	8.6	10.3	13.4	13.9	17.4	18.7	14.8
12	9.1	8.9	3.5	8.3	5.5	8.8	9.4	14.5	14.0	18.6	17.7	14.3
13	8.7	8.8	4.1	8.9	5.0	8.7	9.6	15.6	14.6	19.2	17.2	14.2
14	7.7	8.3	4.4	8.9	6.2	8.9	10.0	16.7	14.2	19.3	17.9	14.3
15	7.8	8.3	4.9	7.7	6.6	7.5	9.4	15.6	14.4	19.6	18.2	13.5
16	8.1	7.4	5.5	8.2	7.5	7.9	9.0	14.1	16.4	19.9	18.2	13.6
17	9.1	6.8	6.8	7.8	8.0	8.3	9.3	15.1	17.6	19.8	17.4	12.7
18	9.7	7.2	7.7	7.8	6.0	8.9	10.2	14.2	18.5	19.3	17.0	11.8
19	10.7	6.8	7.2	7.2	4.5	8.5	10.8	14.5	18.7	17.4	17.4	12.0
20	9.9	7.7	5.7	7.4	3.9	8.4	10.7	14.7	19.7	16.7	17.4	12.7
21	9.6	7.0	3.9	7.5	3.5	8.3	11.3	14.0	18.0	17.1	17.4	13.4
22	11.1	10.1	4.9	7.0	4.4	8.8	11.1	15.3	17.1	17.8	17.3	14.2
23	10.2	11.1	4.3	6.6	3.6	7.7	11.4	16.5	16.8	18.8	17.1	13.1
24	9.4	9.4	3.3	7.5	4.9	7.6	12.2	16.2	17.1	19.3	16.2	12.0
25	9.0	8.1	3.9	6.9	5.8	8.4	12.7	15.7	17.3	19.6	14.6	11.5
26	10.0	8.4	4.2	6.5	5.5	8.2	13.5	14.7	16.2	20.0	14.9	11.6
27	9.1	7.6	4.5	7.1	6.1	9.1	12.5	14.9	15.7	19.9	15.5	11.9
28	8.7	7.6	5.6	8.1	6.8	8.9	11.4	15.1	15.6	20.0	15.2	12.3
29	9.3	7.0	7.2	8.7		8.8	11.4	14.1	15.6	20.3	15.5	12.5
30	8.3	7.1	7.1	7.6		10.4	11.5	14.0	15.4	20.4	16.1	13.0
31	7.0		6.3	7.0		10.5		13.7		20.0	15.5	
Avg Temp	9.5	7.5	5.2	7.2	6.7	8.2	11	15	16	18	17	14
Max Temp	13	11	8.0	9.4	10	13	17	19	22	22	22	16
Max Mean Daily	12	11	7.7	8.9	9.8	11	13	17	20	20	20	16

Avg Water Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Water Temp-- Mean, Maximum, Minimum:



17a--Chambers Creek @ Rich Road bridge

Water Year: 2018 WaterTemperatures in degrees Celsius

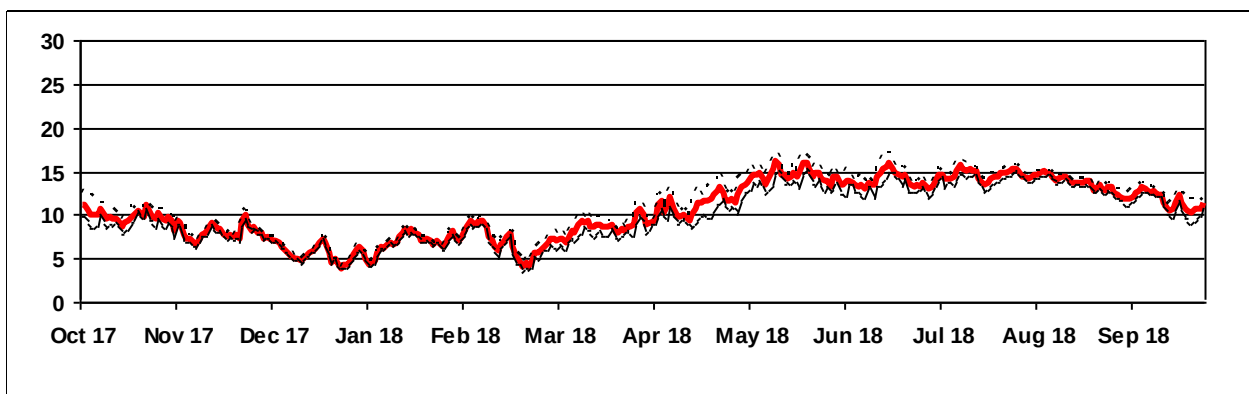
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	11.1	9.3	7.3	5.0	7.4	7.0	10.1	11.5	13.4	13.7	15.1	12.7
02	11.2	9.2	7.1	4.5	8.2	7.4	9.0	12.3	14.4	13.2	14.5	12.4
03	10.6	7.8	7.2	4.5	8.8	7.4	9.2	13.3	14.4	13.0	14.5	12.2
04	10.2	7.3	6.8	4.7	9.4	7.1	9.2	13.6	13.6	13.4	14.3	11.9
05	10.0	7.3	6.4	5.7	9.2	7.3	9.6	13.8	13.6	14.3	14.4	11.8
06	10.2	6.8	6.0	6.4	9.0	7.3	11.2	14.5	14.0	14.7	14.7	11.9
07	10.8	6.7	5.7	6.3	9.3	7.0	11.6	14.6	14.0	14.7	14.8	12.2
08	10.0	7.3	5.3	6.6	9.4	7.4	10.2	14.7	13.8	14.2	14.8	12.6
09	9.6	7.9	5.1	7.0	8.8	8.2	11.1	15.0	13.6	14.1	15.0	12.8
10	9.8	8.0	5.1	6.7	7.6	8.1	12.1	14.3	13.4	14.2	14.9	13.2
11	9.6	8.4	4.7	6.9	7.1	8.9	10.9	13.6	13.5	14.4	14.9	13.0
12	9.6	9.2	5.0	7.5	6.5	9.3	9.7	14.4	13.2	15.2	14.5	12.8
13	9.4	9.0	5.5	8.1	6.1	9.1	9.8	15.3	13.8	15.7	14.0	12.7
14	8.7	8.5	5.6	8.5	6.7	9.3	10.0	16.2	13.5	15.4	14.2	12.7
15	9.1	8.5	5.9	8.0	7.0	8.8	9.8	15.7	13.5	15.1	14.3	12.3
16	9.4	7.9	6.1	8.4	7.5	8.6	9.5	14.7	14.3	15.3	14.4	12.4
17	9.9	7.5	6.9	8.0	8.0	8.9	10.0	14.6	14.8	15.2	14.1	11.5
18	10.1	7.8	7.4	7.8	6.5	8.9	10.8	14.1	15.4	15.1	13.7	10.7
19	10.6	7.5	6.8	7.2	5.2	8.7	11.6	14.4	15.5	14.2	13.8	10.6
20	10.3	7.8	5.8	7.2	4.6	8.7	11.4	14.9	16.1	13.8	13.8	10.8
21	10.0	7.4	4.7	7.4	4.1	8.7	11.6	14.4	15.4	13.5	13.8	11.5
22	11.2	9.4	5.1	7.0	4.7	8.8	11.6	14.9	14.9	13.8	13.8	12.3
23	10.2	10.2	4.7	6.6	4.2	8.0	11.9	16.1	14.7	14.2	14.0	11.5
24	9.7	9.0	4.0	7.1	4.8	8.0	12.4	16.0	14.5	14.4	13.9	10.9
25	9.6	8.3	4.3	6.9	5.8	8.4	12.8	15.4	14.7	14.5	12.8	10.6
26	10.4	8.6	4.4	6.3	5.7	8.2	13.4	14.5	13.7	14.8	13.0	10.4
27	9.6	8.1	4.7	6.7	6.0	8.8	12.7	14.8	13.4	14.8	13.5	10.7
28	9.4	8.0	5.6	7.6	6.4	8.8	11.7	14.9	13.3	15.0	13.0	10.8
29	9.8	7.4	6.2	8.2		8.9	11.7	14.3	13.5	15.1	12.8	10.8
30	9.4	7.5	6.3	7.5		10.2	11.9	14.1	13.4	15.3	13.3	11.5
31	8.3		5.9	7.1		10.8		13.9		15.4	13.2	
Avg Temp	9.9	8.1	5.7	6.9	6.9	8.4	11	14	14	14	14	12
Max Temp	13	11	7.5	8.8	10.0	12	15	17	17	17	15	14
Max Mean Daily	11	10	7.4	8.5	9.4	11	13	16	16	16	15	13

Avg Water Temp for Water Year 2018: 10

Notes:

Thurston County

Annual Water Temp-- Mean, Maximum, Minimum:



18a--Woodland Creek @ Pleasant Glade Road bridge

Water Year: 2018 WaterTemperatures in degrees Celsius

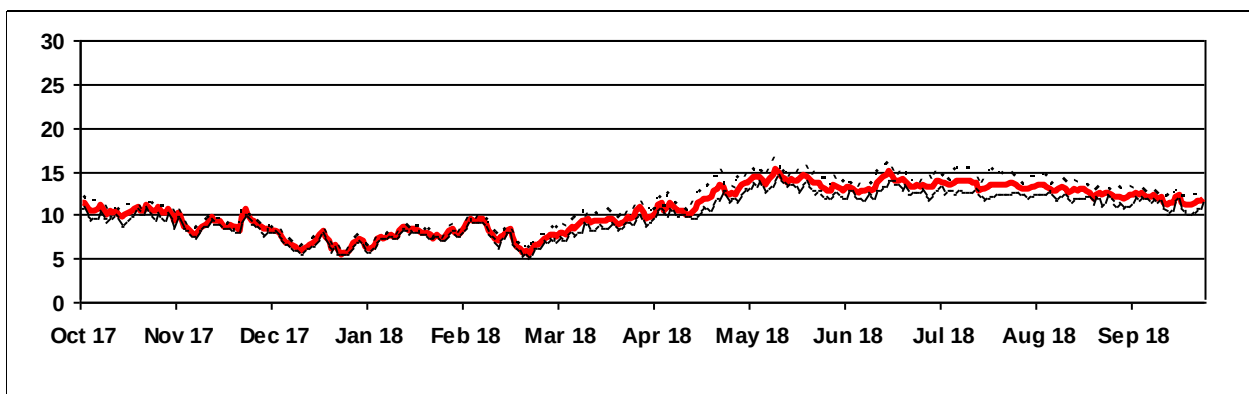
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	11.5	10.3	8.4	6.4	8.1	7.6	10.3	12.4	12.7	13.5	13.3	12.2
02	11.4	10.0	8.2	6.1	8.6	7.7	9.7	12.8	13.5	13.2	12.9	12.1
03	10.9	8.8	8.3	6.2	9.1	7.7	9.9	13.5	13.2	13.2	13.0	12.2
04	10.6	8.6	8.1	6.6	9.6	7.6	9.8	13.7	13.0	13.2	13.1	12.0
05	10.6	8.2	7.5	7.2	9.4	8.0	10.3	13.8	12.9	14.0	13.3	12.1
06	10.7	7.9	7.0	7.5	9.4	7.9	11.3	14.3	13.2	13.9	13.4	12.3
07	11.2	7.9	6.9	7.4	9.6	7.8	11.4	14.3	13.2	13.8	13.4	12.4
08	10.5	8.5	6.6	7.7	9.6	8.3	10.6	14.4	13.0	13.7	13.4	12.5
09	10.1	8.7	6.3	7.8	9.0	8.6	11.1	14.5	12.7	13.4	13.5	12.5
10	10.4	8.9	6.2	7.6	8.2	8.5	11.5	13.9	12.5	13.5	13.4	12.6
11	10.2	9.2	5.9	7.6	7.8	8.9	11.1	13.6	12.8	13.7	13.1	12.2
12	10.4	9.9	6.2	8.2	7.4	9.3	10.4	14.1	12.7	14.0	12.9	12.2
13	10.2	9.4	6.4	8.7	7.0	9.4	10.5	14.7	13.1	14.0	12.9	12.2
14	9.8	9.3	6.6	8.7	7.6	9.6	10.5	15.3	12.9	13.9	13.1	12.3
15	10.0	9.3	6.9	8.2	7.8	9.1	10.2	15.0	13.1	14.0	13.2	11.9
16	10.2	8.8	7.0	8.5	8.3	9.3	10.2	14.4	13.8	14.0	13.0	12.0
17	10.5	8.6	7.8	8.4	8.4	9.3	10.3	14.3	14.1	13.8	12.7	11.5
18	10.8	8.8	8.2	8.3	7.5	9.5	10.8	13.8	14.5	13.7	12.7	11.2
19	10.9	8.6	7.5	8.0	6.5	9.4	11.4	14.1	14.6	12.9	13.0	11.4
20	10.6	8.7	7.1	8.0	6.1	9.5	11.6	14.1	15.1	13.0	12.9	11.6
21	10.5	8.3	6.1	8.1	5.7	9.5	11.9	13.9	14.3	13.0	13.0	12.2
22	11.2	9.9	6.6	7.7	5.9	9.6	11.9	14.1	14.1	13.2	13.0	12.3
23	10.8	10.7	6.1	7.3	5.5	9.1	12.1	14.7	14.0	13.6	12.9	11.5
24	10.5	10.0	5.6	7.7	6.1	8.9	12.7	14.5	14.2	13.5	12.5	11.3
25	10.4	9.4	5.8	7.6	6.6	9.3	13.1	14.1	14.0	13.6	12.0	11.1
26	10.9	9.5	5.8	7.2	6.6	9.2	13.5	13.7	13.6	13.6	12.5	11.2
27	10.3	8.9	6.1	7.6	7.0	9.7	13.3	13.8	13.2	13.5	12.6	11.4
28	10.2	8.7	6.8	8.2	7.4	9.7	12.7	13.7	13.3	13.6	12.3	11.6
29	10.7	8.4	7.1	8.6		9.8	12.4	13.2	13.4	13.7	12.5	11.7
30	10.1	8.5	7.4	8.1		10.5	12.5	13.1	13.3	13.7	12.7	12.0
31	9.4		7.2	7.8		10.9		12.9		13.5	12.4	
Avg Temp	11	9.0	6.9	7.7	7.7	9.0	11	14	13	14	13	12
Max Temp	12	11	8.6	9.0	10	12	15	17	16	15	15	13
Max Mean Daily	12	11	8.4	8.7	9.6	11	14	15	15	14	13	13

Avg Water Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Water Temp-- Mean, Maximum, Minimum:



20a--Woodard Creek @ 36th Ave. NE

Water Year: 2018 WaterTemperatures in degrees Celsius

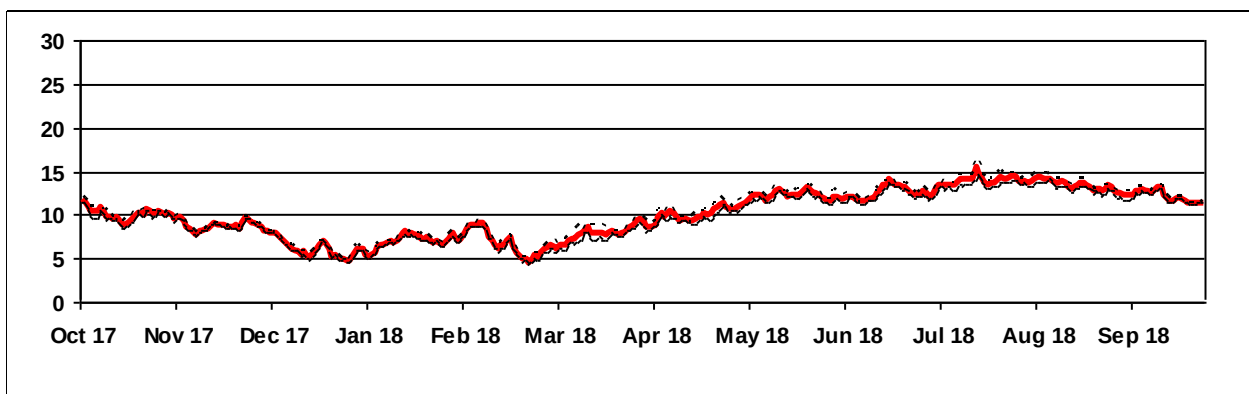
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	12.0	9.9	8.1	5.6	7.4	6.4	9.3	10.8	11.6	12.8	14.0	12.8
02	11.8	9.9	8.0	5.3	8.0	6.7	8.7	10.9	12.2	12.6	13.8	12.5
03	11.1	9.3	7.9	5.5	8.5	6.5	8.7	11.3	12.2	12.3	14.0	12.6
04	10.6	8.7	7.7	5.8	9.0	6.3	8.7	11.5	11.9	12.4	13.8	12.3
05	10.4	8.5	7.3	6.3	9.0	6.7	9.0	11.7	11.9	13.2	14.0	12.3
06	10.4	8.0	6.8	6.6	8.9	6.6	10.0	12.1	12.1	13.5	14.2	12.4
07	10.9	7.9	6.6	6.6	9.1	6.6	10.3	12.3	12.2	13.6	14.4	12.5
08	10.3	8.1	6.3	6.9	9.1	7.1	9.9	12.3	12.2	13.5	14.4	12.8
09	9.9	8.3	6.1	7.0	8.5	7.4	10.2	12.5	12.0	13.5	14.3	12.9
10	10.0	8.4	5.9	6.9	7.6	7.3	10.6	12.1	11.7	13.4	14.3	13.1
11	9.7	8.6	5.6	7.1	7.2	7.8	10.2	11.8	11.8	13.5	14.2	12.8
12	9.8	9.0	5.8	7.4	6.6	8.1	9.5	12.1	11.6	13.8	14.0	12.8
13	9.5	9.2	5.3	8.0	6.2	8.3	9.5	12.4	12.0	14.2	13.8	12.7
14	9.0	9.0	5.2	8.2	6.6	8.6	9.6	12.9	12.0	14.1	13.8	12.8
15	9.0	9.0	5.7	7.8	6.7	8.1	9.6	13.0	12.2	14.2	13.9	13.3
16	9.2	8.8	6.0	8.1	7.2	8.0	9.3	12.8	12.7	14.3	13.7	13.4
17	9.6	8.6	6.8	7.8	7.5	7.9	9.4	12.6	13.0	14.2	13.3	12.4
18	9.9	8.7	7.1	7.7	6.7	8.1	9.6	12.3	13.4	15.6	13.2	11.8
19	10.4	8.7	6.9	7.4	5.8	7.9	9.8	12.4	13.6	15.0	13.4	11.8
20	10.3	8.9	6.2	7.4	5.3	7.9	10.0	12.5	14.2	14.3	13.6	11.7
21	10.1	8.5	5.4	7.5	4.9	8.1	10.2	12.4	13.8	13.7	13.8	11.9
22	10.7	9.1	5.6	7.2	5.0	8.3	10.2	12.5	13.5	13.5	13.8	12.1
23	10.5	9.8	5.2	6.8	4.7	8.0	10.2	12.9	13.4	13.6	13.5	11.9
24	10.2	9.6	5.0	7.1	5.1	7.9	10.7	13.3	13.3	13.9	13.3	11.6
25	10.3	9.3	5.1	6.9	5.4	8.0	11.0	13.1	13.4	14.2	12.7	11.5
26	10.5	9.3	4.8	6.6	5.3	8.1	11.3	12.6	12.9	14.5	13.0	11.4
27	10.3	8.8	4.9	6.8	5.6	8.6	11.4	12.5	12.5	14.3	13.1	11.4
28	10.2	8.8	5.5	7.4	6.1	8.7	11.1	12.5	12.3	14.2	12.9	11.4
29	10.3	8.3	6.2	7.9		8.9	10.8	12.1	12.5	14.3	13.0	11.5
30	10.0	8.2	6.2	7.5		9.4	10.8	11.9	12.4	14.6	13.4	11.6
31	9.6		6.1	7.2		9.6		11.8		14.4	13.2	
Avg Temp	10	8.8	6.2	7.0	6.9	7.8	10.0	12	13	14	14	12
Max Temp	12	10	8.2	8.4	9.6	10	12	14	15	17	15	14
Max Mean Daily	12	9.9	8.1	8.2	9.1	9.6	11	13	14	16	14	13

Avg Water Temp for Water Year 2018: 10

Notes:

Thurston County

Annual Water Temp-- Mean, Maximum, Minimum:



32b--Green Cove Creek @ Butler Cove Fire Station

Water Year: 2018 WaterTemperatures in degrees Celsius

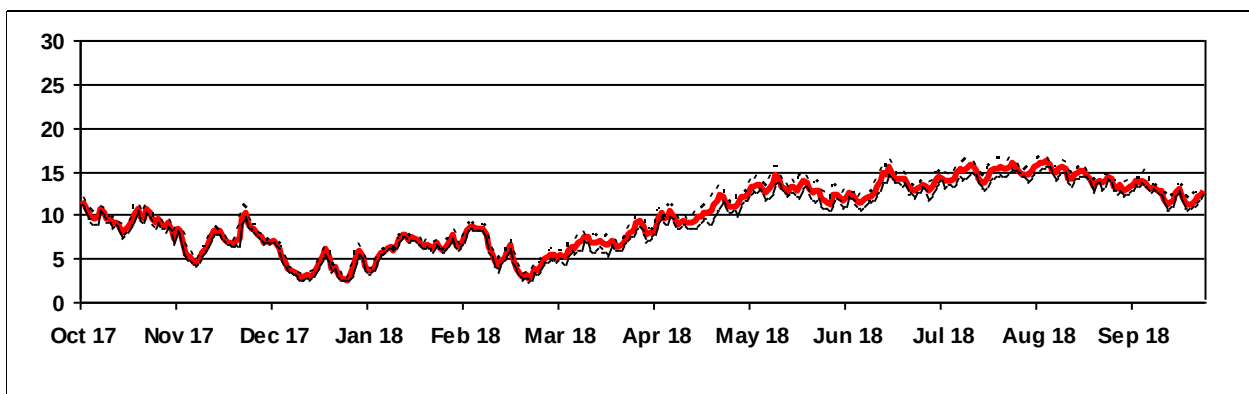
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	11.6	8.6	6.9	4.2	6.7	5.2	8.8	11.0	11.3	13.5	15.1	13.4
02	11.2	8.2	7.0	3.6	7.6	5.6	7.8	11.2	12.4	13.2	14.6	13.2
03	10.3	6.3	7.0	3.7	8.2	5.4	7.9	12.2	12.4	12.8	14.6	13.4
04	9.9	5.4	6.2	4.0	8.7	5.1	8.0	12.1	11.9	13.2	14.6	12.9
05	9.7	5.2	5.3	5.1	8.7	5.4	8.5	12.4	11.7	14.1	15.1	13.1
06	9.8	4.6	4.5	5.8	8.5	5.3	9.7	13.2	12.2	14.4	15.5	13.4
07	10.8	4.5	3.9	5.8	8.5	5.2	10.4	13.3	12.6	14.2	15.7	13.4
08	10.2	5.1	3.6	6.1	8.5	6.0	9.6	13.5	12.3	14.0	16.0	13.9
09	9.6	5.7	3.5	6.4	7.8	6.5	10.0	13.6	11.9	14.0	16.1	13.7
10	9.6	6.2	3.2	6.1	6.3	6.3	10.5	12.8	11.5	13.9	16.2	13.9
11	9.1	6.7	2.8	6.6	5.6	6.8	9.9	12.5	11.5	14.3	15.7	13.8
12	9.2	7.8	2.9	7.4	4.7	7.2	9.0	13.0	11.8	14.8	15.1	13.3
13	8.9	8.2	3.1	7.9	4.2	7.5	9.1	13.8	12.3	15.3	14.8	13.0
14	8.1	8.1	3.0	7.9	4.9	7.5	9.5	14.6	12.1	15.0	15.3	13.2
15	8.3	8.2	3.3	7.2	5.1	7.0	9.2	14.1	12.6	15.4	15.6	12.7
16	8.6	7.4	3.6	7.5	5.8	6.8	9.1	13.4	13.2	15.8	15.3	12.7
17	9.3	6.8	4.6	7.2	6.6	6.8	9.1	13.1	14.0	15.7	14.2	12.0
18	10.0	6.9	5.5	7.1	5.3	7.1	9.5	12.7	14.8	15.2	14.1	11.3
19	10.9	6.7	6.1	6.6	4.0	6.8	9.9	13.2	14.8	14.1	14.7	11.4
20	9.8	7.1	5.3	6.5	3.3	6.7	10.0	13.2	15.5	13.7	14.8	11.7
21	9.6	7.4	3.8	6.7	2.9	6.6	10.2	12.9	14.6	13.8	15.1	12.6
22	10.7	9.7	4.0	6.4	3.1	7.1	10.3	13.3	14.2	14.4	15.1	13.1
23	10.3	10.4	3.5	6.2	2.7	6.5	10.5	14.0	14.1	15.1	14.7	12.3
24	9.5	9.2	2.8	7.0	3.3	6.5	11.2	13.7	14.1	15.3	14.2	11.4
25	9.3	8.5	2.7	6.4	3.8	6.7	11.8	13.1	14.1	15.4	13.2	11.2
26	9.5	8.5	2.6	5.9	3.6	7.0	12.4	12.6	13.3	15.6	13.8	11.3
27	8.9	7.8	2.9	6.3	4.2	7.8	12.2	12.8	13.1	15.3	14.1	11.7
28	8.7	7.6	4.0	6.9	5.0	8.1	11.4	12.8	12.7	15.3	13.8	12.1
29	9.2	7.0	5.8	7.7		8.3	10.9	12.0	13.2	15.7	13.9	12.3
30	8.4	7.0	5.9	7.0		9.2	10.9	11.7	13.3	16.0	14.4	12.8
31	7.4		5.2	6.4		9.5		11.5		15.6	14.1	
Avg Temp	9.6	7.2	4.3	6.3	5.6	6.8	9.9	13	13	15	15	13
Max Temp	12	11	7.3	8.5	9.1	10	14	16	17	17	17	15
Max Mean Daily	12	10	7.0	7.9	8.7	9.5	12	15	16	16	16	14

Avg Water Temp for Water Year 2018: 9.8

Notes:

Thurston County

Annual Water Temp-- Mean, Maximum, Minimum:



44a--Black Lake Ditch @ Belmore Road SW

Water Year: 2018 WaterTemperatures in degrees Celsius

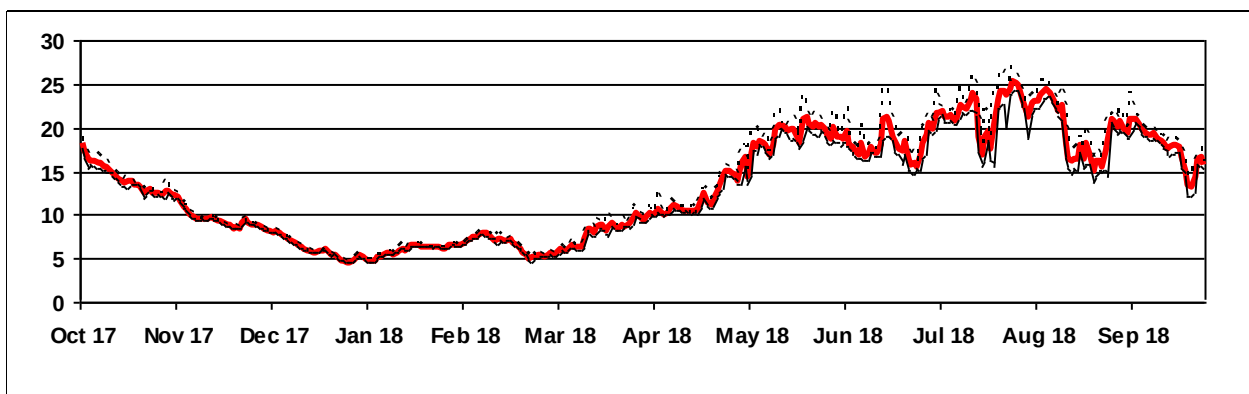
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	18.2	12.2	8.2	5.0	6.6	5.6	9.5	14.7	18.9	18.3	24.9	20.8
02	17.3	11.7	8.1	4.8	6.8	5.7	9.8	14.1	20.2	19.3	23.4	20.2
03	16.4	11.1	8.2	4.8	7.0	5.6	10.2	16.0	19.0	20.6	22.6	20.8
04	16.4	10.7	8.0	4.9	7.3	5.7	10.2	16.8	18.9	19.9	21.4	19.9
05	16.3	10.2	7.7	5.3	7.5	6.1	10.3	14.5	18.9	21.8	22.8	19.5
06	16.1	9.9	7.5	5.4	7.6	6.0	10.9	17.2	19.8	21.8	23.2	21.1
07	16.1	9.6	7.3	5.4	7.8	5.9	10.3	18.3	18.2	22.0	23.1	21.1
08	15.6	9.6	7.0	5.7	7.9	6.2	10.2	17.9	17.8	21.3	23.8	21.0
09	15.5	9.6	6.8	5.8	8.0	6.7	10.3	18.5	17.3	21.3	24.4	20.5
10	15.2	9.6	6.7	5.6	7.7	6.4	10.8	18.4	17.0	21.4	24.5	20.0
11	15.0	9.6	6.4	5.8	7.4	6.4	11.2	18.2	18.2	20.8	24.1	19.4
12	14.5	9.8	6.2	6.1	7.1	6.4	10.9	16.9	16.6	21.1	23.6	19.3
13	14.2	9.5	6.0	6.3	7.3	7.3	10.7	18.0	17.1	22.6	22.6	19.2
14	13.9	9.4	5.9	6.0	7.3	8.4	10.6	19.9	17.9	22.3	22.0	19.4
15	13.7	9.3	5.8	6.3	7.2	8.4	10.6	20.4	17.3	22.2	22.6	18.7
16	13.9	9.1	5.8	6.7	7.2	8.0	10.5	20.3	17.2	23.1	18.3	18.6
17	13.9	8.8	5.9	6.6	7.3	8.7	10.6	20.1	18.1	24.1	16.6	18.3
18	13.6	8.9	6.0	6.6	6.9	8.9	10.6	19.6	21.0	23.3	16.4	17.6
19	13.5	8.6	6.1	6.5	6.6	8.8	10.8	19.9	21.4	19.1	16.5	17.9
20	13.3	8.6	5.8	6.4	6.2	8.2	11.9	20.0	20.9	16.9	16.6	18.2
21	12.6	8.5	5.5	6.4	5.8	8.8	12.6	19.0	19.1	18.9	18.1	18.1
22	12.8	9.3	5.5	6.4	5.6	9.1	11.5	18.4	18.7	19.7	16.5	17.8
23	13.1	9.6	5.3	6.3	5.1	8.6	11.2	21.1	17.7	17.5	18.2	16.8
24	12.6	9.3	4.9	6.5	5.3	8.6	12.0	21.3	17.3	20.5	16.9	15.2
25	12.6	9.0	4.8	6.4	5.3	9.0	12.8	20.3	18.5	23.4	15.0	13.6
26	12.6	9.0	4.7	6.2	5.5	8.8	13.5	20.2	16.4	24.3	16.3	13.4
27	12.4	8.9	4.7	6.3	5.4	8.9	14.6	20.5	15.7	24.2	16.3	14.3
28	12.9	8.7	4.8	6.6	5.4	9.2	15.0	20.1	16.1	23.9	15.6	16.5
29	12.8	8.5	5.2	6.7		9.9	15.0	20.3	15.7	24.5	17.4	16.7
30	12.3	8.4	5.4	6.6		10.4	14.9	19.8	16.9	25.4	18.7	15.7
31	12.3		5.2	6.5		9.9		19.2		25.2	21.1	
Avg Temp	14	9.5	6.2	6.0	6.7	7.8	11	19	18	22	20	18
Max Temp	19	13	8.4	7.0	8.5	11	16	24	25	27	26	24
Max Mean Daily	18	12	8.2	6.7	8.0	10	15	21	21	25	25	21

Avg Water Temp for Water Year 2018: 13

Notes:

Thurston County

Annual Water Temp-- Mean, Maximum, Minimum:



45a--Black River @ 110th Ave. SW

Water Year: 2018 WaterTemperatures in degrees Celsius

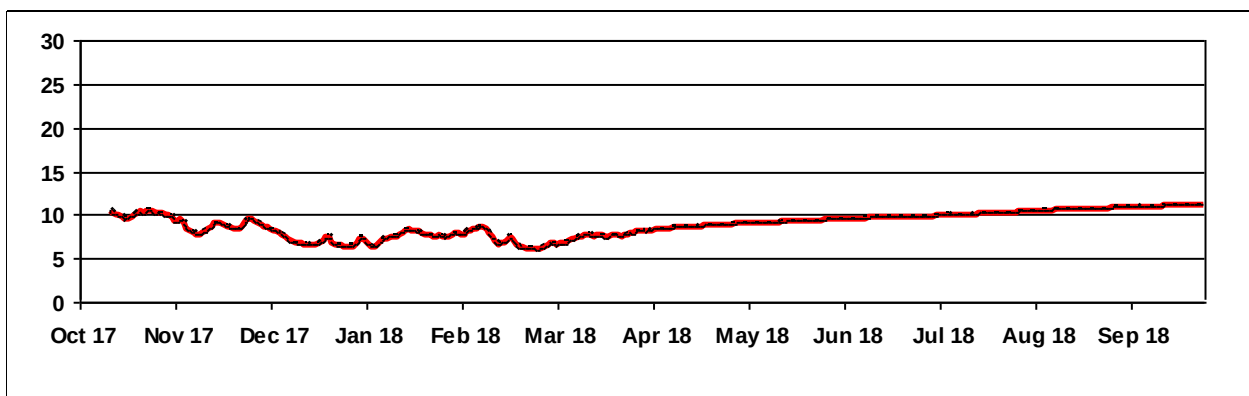
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01		9.4	8.4	7.2	7.8	6.6	8.3	9.1	9.6	10.0	10.4	10.9
02		9.5	8.3	6.7	7.9	6.8	8.3	9.1	9.6	10.0	10.5	10.9
03		9.2	8.3	6.5	8.2	6.8	8.3	9.1	9.6	10.0	10.5	10.9
04		8.6	8.1	6.5	8.4	6.7	8.3	9.1	9.6	10.0	10.5	10.9
05		8.4	7.8	6.6	8.5	6.8	8.4	9.1	9.6	10.0	10.5	10.9
06		8.1	7.5	7.1	8.6	6.9	8.4	9.2	9.7	10.1	10.5	10.9
07		7.8	7.3	7.3	8.6	6.8	8.5	9.2	9.7	10.1	10.6	11.0
08		7.8	7.0	7.4	8.7	7.0	8.5	9.2	9.7	10.1	10.6	11.0
09		7.9	6.9	7.6	8.6	7.3	8.6	9.2	9.7	10.1	10.6	11.0
10	10.5	8.2	6.8	7.6	8.1	7.4	8.6	9.2	9.7	10.1	10.6	11.1
11	10.3	8.4	6.8	7.6	7.6	7.5	8.6	9.2	9.7	10.1	10.6	11.0
12	10.2	8.8	6.7	7.9	7.1	7.6	8.7	9.3	9.7	10.1	10.6	11.0
13	10.1	9.1	6.7	8.1	6.7	7.8	8.7	9.3	9.8	10.2	10.7	11.0
14	9.8	9.2	6.7	8.3	6.8	7.9	8.7	9.3	9.8	10.2	10.7	11.0
15	9.6	9.2	6.7	8.4	6.9	7.8	8.7	9.3	9.8	10.2	10.7	11.0
16	9.6	9.0	6.7	8.4	7.2	7.7	8.8	9.3	9.8	10.2	10.7	11.1
17	9.9	8.8	6.8	8.2	7.6	7.7	8.8	9.4	9.8	10.2	10.7	11.1
18	10.0	8.6	7.2	8.1	7.4	7.8	8.8	9.4	9.8	10.2	10.7	11.1
19	10.3	8.5	7.5	8.0	6.7	7.7	8.8	9.4	9.8	10.2	10.7	11.1
20	10.4	8.5	7.5	7.9	6.4	7.7	8.8	9.4	9.8	10.3	10.7	11.1
21	10.3	8.4	7.0	7.9	6.4	7.6	8.9	9.4	9.9	10.3	10.7	11.1
22	10.5	8.8	6.7	7.7	6.3	7.8	8.9	9.4	9.9	10.3	10.7	11.1
23	10.6	9.3	6.6	7.6	6.3	7.8	8.9	9.5	9.9	10.3	10.7	11.1
24	10.5	9.6	6.5	7.7	6.3	7.7	8.9	9.5	9.9	10.3	10.8	11.1
25	10.3	9.6	6.5	7.7	6.2	7.6	8.9	9.5	9.9	10.3	10.8	11.1
26	10.3	9.4	6.5	7.6	6.1	7.8	9.0	9.5	9.9	10.4	10.8	11.1
27	10.2	9.2	6.5	7.5	6.2	7.9	9.0	9.5	9.9	10.4	10.8	11.1
28	10.0	9.0	6.5	7.6	6.4	8.0	9.0	9.5	9.9	10.4	10.8	11.1
29	10.0	8.7	6.8	7.9		8.0	9.0	9.5	10.0	10.4	10.8	11.1
30	9.9	8.6	7.3	8.0		8.2	9.0	9.6	10.0	10.4	10.9	11.1
31	9.4		7.4	7.9		8.3		9.6		10.4	10.9	
Avg Temp	10	8.8	7.1	7.6	7.3	7.5	8.7	9.3	9.7	10	11	11
Max Temp	11	9.7	8.5	8.4	8.7	8.3	9.1	9.6	10.0	10	11	11
Max Mean Daily	11	9.6	8.4	8.4	8.7	8.3	9.0	9.6	10.0	10	11	11

Avg Water Temp for Water Year 2018: 9.0

Notes:

Thurston County

Annual Water Temp-- Mean, Maximum, Minimum:



52a--Salmon Creek @ Littlerock Rd.

Water Year: 2018 WaterTemperatures in degrees Celsius

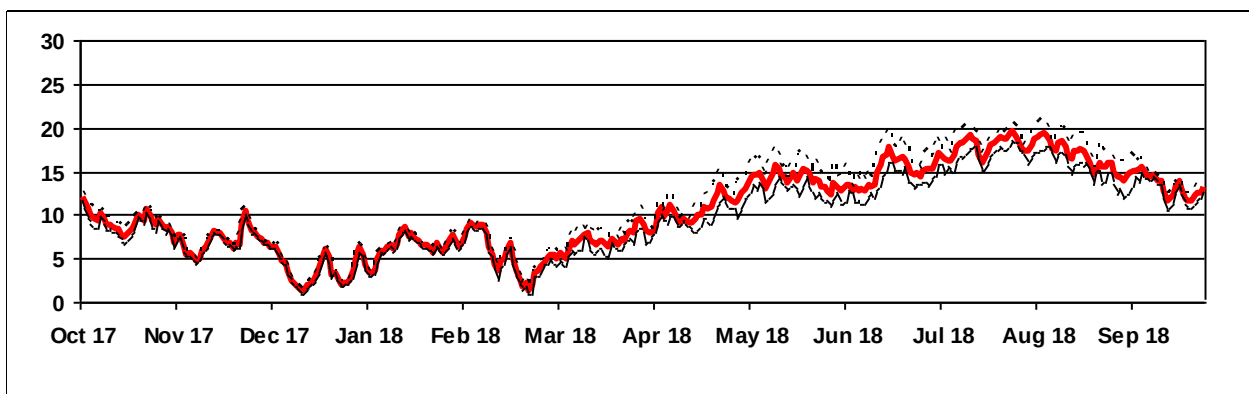
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	12.2	7.8	6.4	4.3	6.7	5.3	9.0	11.4	12.3	15.1	18.5	14.9
02	11.7	7.9	6.4	3.4	7.6	5.6	8.1	11.7	13.8	15.4	17.7	14.5
03	10.7	6.5	6.4	3.4	8.4	5.4	8.0	12.6	13.4	15.3	17.4	14.5
04	10.1	5.5	5.5	3.7	9.1	5.1	8.0	13.1	12.8	15.2	17.4	14.1
05	9.7	5.7	4.9	5.0	8.9	5.6	8.6	13.5	13.0	16.5	18.2	14.6
06	9.5	5.2	4.6	5.9	8.7	5.5	10.3	14.4	13.6	17.1	18.7	14.8
07	10.3	4.8	3.7	5.8	9.0	5.1	11.0	14.6	13.5	16.7	18.9	15.1
08	9.7	5.1	2.5	6.3	8.9	5.9	9.9	14.7	12.9	16.6	19.2	15.2
09	9.0	5.9	2.0	6.7	8.0	7.1	10.5	14.8	13.2	16.3	19.4	15.2
10	8.9	6.4	1.8	6.1	6.5	6.7	11.2	13.9	12.8	16.2	19.2	15.6
11	8.7	6.9	1.3	6.7	5.5	7.2	10.5	13.1	13.0	16.9	18.5	14.8
12	8.6	7.9	1.5	7.8	4.4	7.5	9.4	14.0	12.8	17.9	17.7	14.4
13	8.4	8.2	2.0	8.4	3.6	7.7	9.2	14.9	13.6	18.4	17.5	14.4
14	7.7	8.1	2.2	8.6	4.7	8.0	9.6	15.8	13.4	18.2	18.4	14.7
15	7.5	8.1	2.4	7.6	5.0	7.1	9.4	15.4	13.6	18.7	18.6	14.0
16	8.0	7.4	3.0	7.9	5.9	6.8	9.1	14.5	14.8	19.1	18.0	14.0
17	8.5	6.8	4.2	7.4	6.8	6.7	9.2	14.5	15.8	18.9	16.8	12.8
18	8.9	7.0	5.5	7.2	5.3	7.2	9.7	13.7	16.6	18.7	16.6	11.7
19	10.1	6.3	6.1	6.7	3.7	7.1	10.1	14.5	16.9	17.1	17.3	11.8
20	9.8	6.9	5.2	6.6	2.5	6.7	10.1	14.8	17.9	16.1	17.4	12.3
21	9.3	6.7	3.3	6.7	1.9	6.5	11.0	13.9	16.7	16.5	17.6	13.2
22	10.7	9.3	3.5	6.2	2.3	7.3	10.8	14.5	16.4	17.3	17.4	13.9
23	10.1	10.6	3.0	5.8	1.3	6.9	11.0	15.4	16.4	18.1	17.0	12.9
24	9.3	9.4	2.0	6.8	2.2	6.7	11.8	15.2	16.7	18.4	16.1	11.9
25	8.9	8.3	2.2	6.4	3.4	7.2	12.7	14.8	16.5	18.7	14.7	11.7
26	9.6	8.3	2.2	5.7	3.7	7.0	13.5	13.7	15.6	19.0	15.2	11.7
27	9.0	7.7	2.5	6.2	4.1	8.0	12.9	14.1	15.0	18.7	16.1	12.3
28	8.5	7.4	3.6	7.0	4.7	8.3	12.2	13.9	14.6	18.8	15.6	12.7
29	8.7	6.9	5.7	7.7		8.0	11.8	13.2	14.8	19.4	15.5	12.7
30	7.9	6.8	6.3	7.3		9.3	11.8	13.2	14.3	19.7	16.1	13.2
31	6.8		5.6	6.4		9.7		12.9		19.1	16.0	
Avg Temp	9.2	7.2	3.8	6.4	5.4	6.9	10	14	15	18	17	14
Max Temp	13	11	6.8	8.9	9.6	11	16	18	20	21	21	17
Max Mean Daily	12	11	6.4	8.6	9.1	9.7	14	16	18	20	19	16

Avg Water Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Water Temp-- Mean, Maximum, Minimum:



55a--Scatter Creek @ James Rd.

Water Year: 2018 WaterTemperatures in degrees Celsius

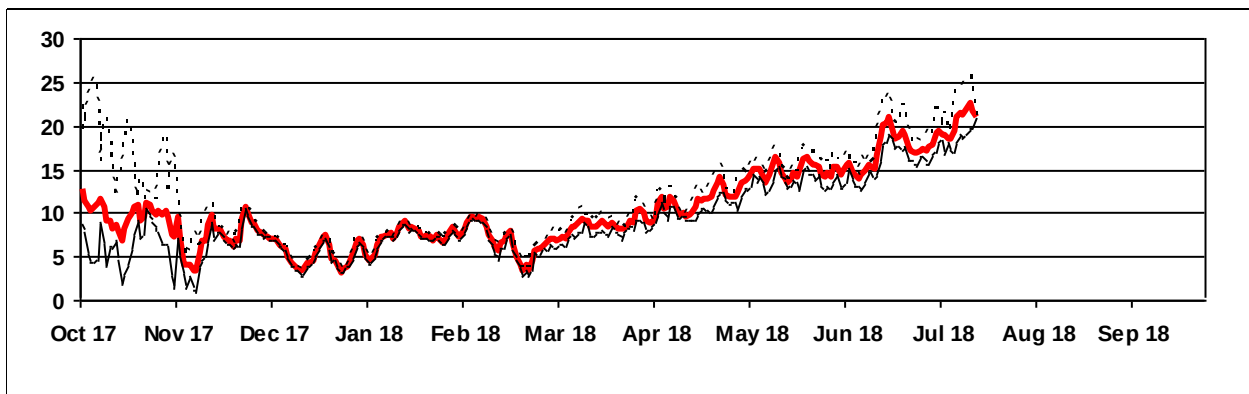
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	12.9	9.5	7.1	5.3	7.5	6.8	10.0	11.8	14.2	17.4		
02	11.5	7.3	7.1	4.6	8.2	7.0	9.1	12.3	15.4	17.1		
03	10.7	4.2	7.1	4.8	8.9	7.2	9.0	13.6	15.3	17.5		
04	10.4	4.1	6.5	5.3	9.5	6.8	8.9	13.7	14.5	17.9		
05	10.7	4.2	6.2	6.5	9.7	7.2	9.5	13.9	14.8	19.3		
06	11.2	3.5	6.1	7.4	9.4	7.4	11.3	14.8	15.5	19.5		
07	11.6	3.5	5.1	7.4	9.6	7.1	11.9	15.0	15.7	19.0		
08	10.9	5.4	4.3	7.6	9.4	7.7	10.5	15.1	14.6	18.9		
09	9.2	6.8	3.9	7.8	8.5	8.5	10.9	15.0	14.4	18.6		
10	9.2	6.9	3.7	7.1	7.5	8.4	11.8	14.1	13.9	18.5		
11	8.2	8.8	3.3	7.7	6.9	9.0	11.4	13.4	14.5	19.5		
12	8.7	9.8	3.7	8.4	6.2	9.4	10.2	14.4	15.0	21.0		
13	8.1	8.2	4.2	9.0	5.7	9.3	9.8	15.7	15.5	21.6		
14	6.9	8.2	4.4	9.2	6.6	9.2	10.0	16.6	15.2	21.3		
15	8.2	8.2	4.7	8.3	6.9	8.4	9.7	15.8	15.2	22.0		
16	9.4	7.3	5.5	8.5	7.6	8.4	9.8	14.7	16.7	22.6		
17	10.0	6.8	6.4	8.2	8.1	8.4	10.0	13.9	18.8	21.8		
18	10.8	7.0	7.3	8.0	6.6	8.8	10.7	13.5	20.2	21.2		
19	10.9	6.3	7.5	7.4	5.2	9.1	11.6	14.0	20.4			
20	9.1	7.0	6.4	7.4	4.1	8.7	11.5	14.8	21.2			
21	9.6	7.0	4.9	7.5	3.4	8.5	11.6	14.3	19.5			
22	11.3	9.5	4.6	7.2	4.1	9.0	11.6	14.9	18.6			
23	10.9	10.8	4.1	7.0	3.5	8.5	11.9	16.2	18.8			
24	10.4	10.0	3.3	7.5	4.7	8.2	12.6	16.4	19.5			
25	9.9	9.0	3.6	7.2	5.8	8.2	13.6	16.0	19.0			
26	10.3	8.8	3.9	6.7	5.8	8.1	14.1	15.5	17.7			
27	9.9	8.0	4.4	7.0	5.9	8.7	13.3	15.6	17.3			
28	10.3	7.9	5.4	7.7	6.4	9.3	12.2	15.4	16.8			
29	9.7	7.5	7.0	8.4		9.0	11.9	14.4	17.0			
30	7.5	7.4	7.2	8.1		10.2	12.0	14.2	17.3			
31	7.3		6.5	7.4		10.5		14.7				
Avg Temp	9.9	7.3	5.3	7.3	6.8	8.4	11	15	17	20		
Max Temp	26	11	7.8	9.6	10	12	16	18	24	26		
Max Mean Daily	13	11	7.5	9.2	9.7	11	14	17	21	23		

Avg Water Temp for Water Year 2018: 11

Notes:

Thurston County

Annual Water Temp-- Mean, Maximum, Minimum:



65a--Prairie Creek @ Old Highway 99

Water Year: 2018 WaterTemperatures in degrees Celsius

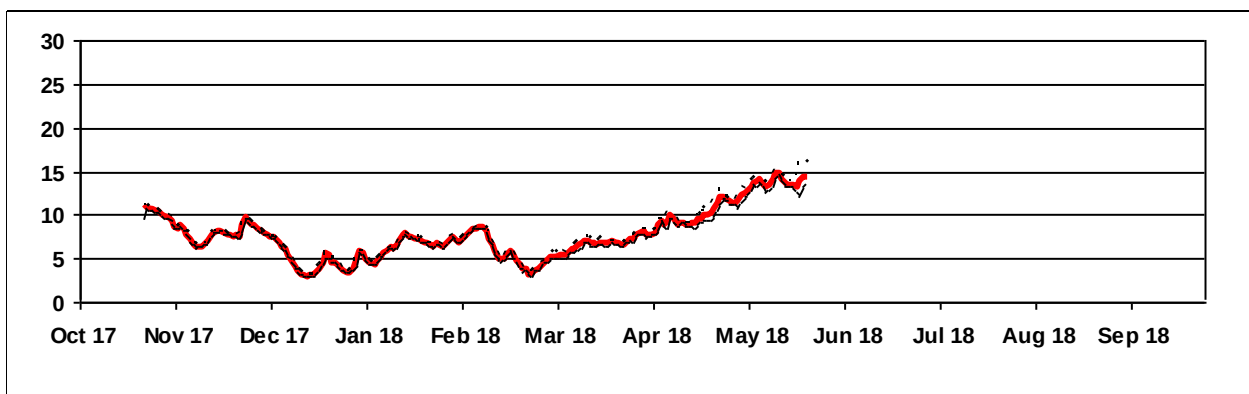
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01		8.6	7.6	5.1	7.1	5.0	8.2	11.5				
02		8.9	7.5	4.6	7.5	5.2	7.9	11.7				
03		8.5	7.3	4.5	7.9	5.4	7.8	12.3				
04		7.9	6.8	4.4	8.3	5.3	7.8	12.5				
05		7.3	6.5	4.8	8.5	5.4	8.1	12.8				
06		6.7	6.2	5.4	8.5	5.5	8.9	13.3				
07		6.5	5.5	5.6	8.7	5.5	9.5	13.8				
08		6.5	4.8	6.0	8.6	5.7	9.0	13.9				
09		6.5	4.2	6.3	8.2	6.1	9.5	14.2				
10		6.8	3.7	6.1	7.4	6.2	10.0	13.6				
11		7.2	3.3	6.6	6.7	6.6	9.6	13.2				
12		7.7	3.2	7.2	5.9	6.8	9.0	13.5				
13		8.1	3.1	7.7	5.1	7.0	9.1	14.1				
14		8.2	3.1	8.0	5.0	7.2	9.2	14.8				
15		8.3	3.2	7.5	5.1	6.9	9.0	14.8				
16		8.0	3.4	7.6	5.5	6.8	9.0	14.3				
17		7.8	3.9	7.4	6.1	6.8	9.1	13.8				
18		7.8	4.6	7.4	5.7	6.9	9.2	13.4				
19		7.5	5.6	7.0	4.8	7.0	9.6	13.5				
20		7.7	5.5	6.9	4.4	6.9	9.7	13.6				
21	10.7	7.5	4.6	6.8	3.9	6.9	10.0	13.4				
22	11.1	8.8	4.6	6.6	3.8	7.0	10.1	14.1				
23	10.9	9.7	4.5	6.4	3.3	6.8	10.3	14.5				
24	10.7	9.4	3.9	6.8	3.3	6.8	10.8	14.5				
25	10.5	8.9	3.6	6.7	3.7	6.7	11.5					
26	10.4	8.9	3.5	6.4	3.9	6.7	12.1					
27	10.2	8.4	3.5	6.6	4.2	7.1	12.2					
28	9.9	8.3	3.9	7.1	4.7	7.4	11.9					
29	9.9	7.9	5.2	7.6		7.4	11.6					
30	9.5	7.8	5.9	7.4		7.8	11.5					
31	8.8		5.7	7.0		8.1						
Avg Temp	10	7.9	4.8	6.5	5.9	6.5	9.7	14				
Max Temp	11	9.9	7.7	8.1	9.0	8.7	13	17				
Max Mean Daily	11	9.7	7.6	8.0	8.7	8.1	12	15				

Avg Water Temp for Water Year 2018: 8.1

Notes:

Thurston County

Annual Water Temp-- Mean, Maximum, Minimum:



Appendix E – Groundwater Data

ET1--8538 9th Way SE

Water Year: 2018 Well Water Levels are in feet

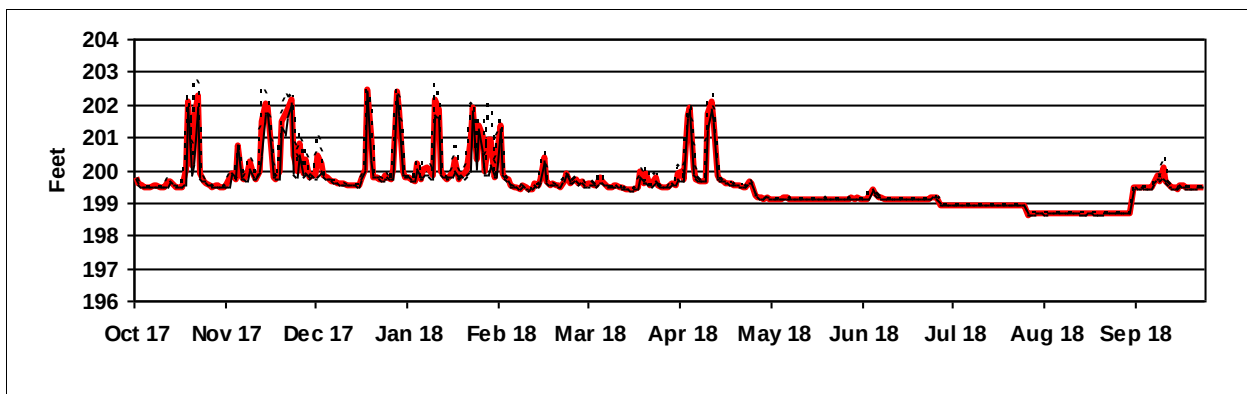
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	199.76	199.52	199.84	199.80	200.41	199.62	199.54	199.20	199.14	199.15	198.65	198.67
02	199.61	199.76	200.48	199.77	201.40	199.66	199.60	199.15	199.15	198.96	198.66	198.67
03	199.52	199.89	200.23	199.70	199.93	199.54	199.57	199.14	199.14	198.96	198.66	198.67
04	199.50	199.72	199.82	199.69	199.77	199.59	199.92	199.15	199.15	198.95	198.66	198.67
05	199.51	200.78	199.76	200.20	199.70	199.61	199.96	199.14	199.14	198.95	198.67	198.68
06	199.51	199.77	199.72	199.75	199.52	199.54	199.70	199.14	199.14	198.95	198.66	199.46
07	199.56	199.71	199.68	200.03	199.50	199.52	201.66	199.13	199.14	198.95	198.66	199.46
08	199.54	199.98	199.64	200.09	199.49	199.78	201.95	199.14	199.25	198.96	198.66	199.46
09	199.51	200.25	199.61	200.01	199.43	199.64	200.11	199.13	199.45	198.95	198.67	199.46
10	199.51	199.82	199.58	199.84	199.55	199.54	199.75	199.17	199.27	198.95	198.66	199.46
11	199.51	199.75	199.58	202.18	199.47	199.50	199.67	199.16	199.19	198.96	198.67	199.46
12	199.64	200.00	199.56	201.85	199.39	199.49	199.65	199.14	199.16	198.95	198.66	199.46
13	199.69	201.51	199.54	199.94	199.41	199.53	199.69	199.14	199.13	198.95	198.67	199.60
14	199.57	202.06	199.54	199.76	199.62	199.53	201.73	199.14	199.13	198.95	198.66	199.82
15	199.51	201.93	199.54	199.73	199.52	199.48	202.13	199.14	199.14	198.94	198.67	199.65
16	199.51	200.52	199.52	199.81	199.73	199.46	201.47	199.14	199.14	198.95	198.66	200.09
17	199.51	199.81	199.70	199.95	200.42	199.42	199.84	199.13	199.13	198.95	198.67	199.64
18	200.05	199.75	200.06	200.36	199.66	199.40	199.71	199.14	199.13	198.95	198.66	199.53
19	202.11	199.99	202.45	199.74	199.55	199.39	199.65	199.14	199.13	198.95	198.66	199.46
20	200.14	201.47	201.07	199.86	199.58	199.43	199.61	199.14	199.14	198.94	198.66	199.46
21	201.54	201.74	199.81	199.88	199.53	199.49	199.61	199.14	199.13	198.95	198.66	199.45
22	202.29	201.85	199.80	200.04	199.53	199.95	199.58	199.14	199.14	198.95	198.66	199.56
23	199.90	202.17	199.75	200.97	199.51	199.61	199.55	199.14	199.14	198.95	198.66	199.52
24	199.68	200.47	199.71	201.95	199.68	199.88	199.56	199.14	199.14	198.95	198.66	199.46
25	199.62	200.00	199.85	200.32	199.92	199.54	199.52	199.14	199.14	198.95	198.66	199.46
26	199.55	200.83	199.78	201.40	199.61	199.61	199.51	199.14	199.14	198.95	198.66	199.46
27	199.51	199.93	199.72	201.08	199.64	199.79	199.49	199.13	199.14	198.95	198.66	199.46
28	199.52	200.33	200.02	199.97	199.73	199.54	199.67	199.14	199.14	198.94	198.67	199.46
29	199.52	199.78	202.43	200.93		199.50	199.62	199.14	199.15	198.95	198.67	199.46
30	199.51	199.87	201.86	200.93		199.49	199.25	199.14	199.15	198.95	198.66	199.46
31	199.51		199.94	199.81		199.48		199.14		198.94	198.66	
Avg WL	199.84	200.43	200.05	200.30	199.72	199.57	200.01	199.14	199.16	198.96	198.66	199.39
Max WL	202.84	202.57	203	202.68	201.53	200.16	202.37	199.21	199.45	199.15	198.67	200.46
Max Day Mean	202.29	202.17	202.45	202.18	201.40	199.95	202.13	199.20	199.45	199.15	198.67	200.09

Average Well Water Level for Water Year 2018: 199.60

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



HFB-01--628 Hidden Forest Dr SE

Water Year: 2018 Well Water Levels are in feet

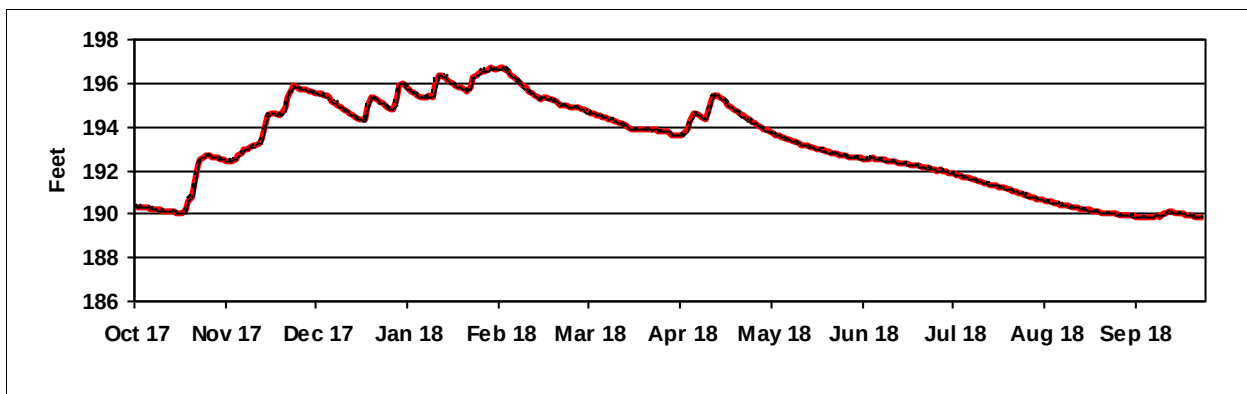
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	190.32	192.42	195.54	195.86	196.60	194.89	193.74	194.08	192.63	192.00	190.83	189.97
02	190.35	192.41	195.50	195.75	196.69	194.82	193.63	193.99	192.62	192.01	190.77	189.96
03	190.35	192.44	195.49	195.63	196.75	194.75	193.60	193.90	192.60	191.98	190.73	189.93
04	190.31	192.49	195.47	195.52	196.65	194.67	193.61	193.84	192.58	191.95	190.70	189.93
05	190.28	192.65	195.40	195.46	196.51	194.62	193.63	193.78	192.55	191.90	190.67	189.91
06	190.25	192.79	195.31	195.35	196.39	194.59	193.66	193.72	192.53	191.86	190.64	189.90
07	190.21	192.92	195.20	195.35	196.26	194.56	193.84	193.63	192.50	191.82	190.60	189.88
08	190.19	192.98	195.11	195.37	196.13	194.53	194.27	193.60	192.53	191.80	190.57	189.86
09	190.17	193.05	195.00	195.39	195.98	194.46	194.61	193.52	192.56	191.75	190.54	189.85
10	190.15	193.11	194.90	195.34	195.86	194.42	194.61	193.47	192.54	191.71	190.50	189.84
11	190.12	193.17	194.81	195.88	195.76	194.36	194.55	193.42	192.52	191.68	190.48	189.83
12	190.14	193.23	194.71	196.38	195.62	194.34	194.44	193.39	192.51	191.64	190.44	189.83
13	190.11	193.42	194.62	196.37	195.52	194.29	194.35	193.34	192.46	191.60	190.42	189.82
14	190.09	194.16	194.55	196.29	195.43	194.22	194.58	193.29	192.44	191.56	190.38	189.90
15	190.07	194.49	194.45	196.19	195.31	194.17	195.28	193.24	192.44	191.51	190.36	189.88
16	190.04	194.65	194.36	196.04	195.25	194.11	195.42	193.18	192.40	191.48	190.32	190.01
17	190.03	194.61	194.32	195.96	195.31	194.04	195.43	193.14	192.39	191.44	190.30	190.06
18	190.17	194.57	194.30	195.91	195.31	193.96	195.38	193.10	192.36	191.40	190.28	190.08
19	190.61	194.55	194.92	195.84	195.25	193.91	195.26	193.06	192.34	191.35	190.25	190.09
20	190.77	194.57	195.31	195.78	195.22	193.88	195.14	193.02	192.32	191.32	190.23	190.07
21	191.28	194.84	195.33	195.70	195.16	193.85	195.01	192.99	192.28	191.29	190.20	190.04
22	192.25	195.38	195.26	195.62	195.07	193.88	194.89	192.96	192.27	191.25	190.17	190.03
23	192.51	195.73	195.13	195.81	195.01	193.84	194.79	192.93	192.24	191.22	190.14	190.01
24	192.63	195.86	195.05	196.24	194.97	193.89	194.69	192.87	192.22	191.18	190.11	189.98
25	192.67	195.81	194.96	196.34	194.97	193.85	194.58	192.84	192.19	191.13	190.08	189.95
26	192.66	195.74	194.89	196.41	194.93	193.84	194.49	192.80	192.16	191.11	190.07	189.92
27	192.64	195.72	194.81	196.58	194.93	193.86	194.39	192.76	192.13	191.07	190.06	189.89
28	192.61	195.71	194.81	196.58	194.92	193.83	194.30	192.74	192.10	191.02	190.04	189.86
29	192.55	195.65	195.38	196.61		193.82	194.20	192.72	192.07	190.98	190.03	189.83
30	192.49	195.62	195.92	196.72		193.79	194.15	192.71	192.03	190.95	190.00	189.81
31	192.46		195.97	196.66		193.76		192.67		190.90	189.99	
Avg WL	191.02	194.16	195.06	195.97	195.63	194.19	194.48	193.25	192.38	191.48	190.35	189.93
Max WL	192.67	195.87	196	196.73	196.75	194.90	195.43	194.09	192.63	192.02	190.87	190.09
Max Day Mean	192.67	195.86	195.97	196.72	196.75	194.89	195.43	194.08	192.63	192.01	190.83	190.09

Average Well Water Level for Water Year 2018: 193.16

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



04/24/2019 2:25:39 PM

HFB-02--524 Hidden Forest Dr SE

Water Year: 2018 Well Water Levels are in feet

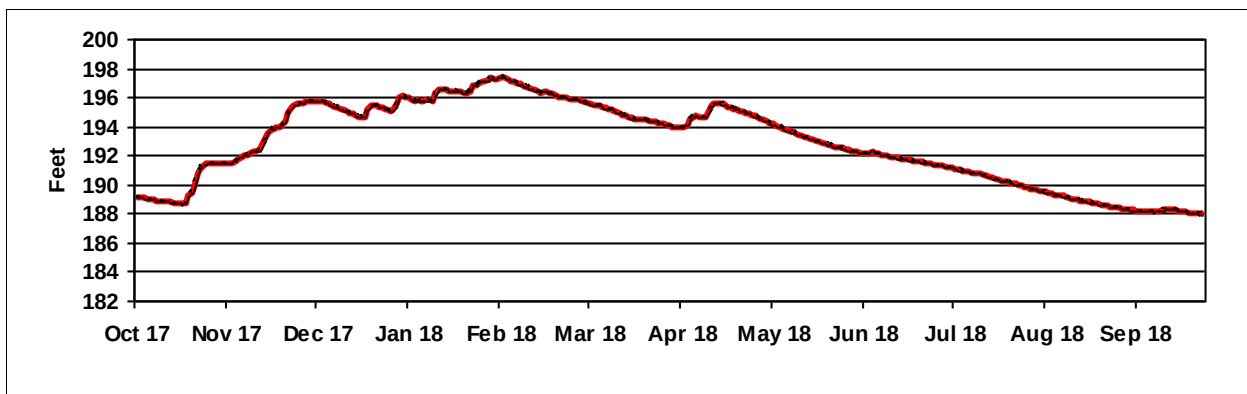
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	189.10	191.48	195.70	196.03	197.29	195.84	194.07	194.63	192.38	191.37	189.81	188.40
02	189.17	191.49	195.76	195.98	197.45	195.78	193.98	194.54	192.36	191.36	189.74	188.37
03	189.13	191.54	195.79	195.85	197.44	195.69	193.93	194.44	192.31	191.31	189.69	188.33
04	189.08	191.61	195.70	195.80	197.36	195.60	193.94	194.35	192.26	191.26	189.64	188.30
05	189.03	191.80	195.63	195.82	197.27	195.54	193.95	194.26	192.23	191.20	189.60	188.26
06	189.01	191.91	195.55	195.72	197.18	195.48	193.97	194.18	192.18	191.15	189.54	188.26
07	188.98	191.99	195.47	195.75	197.10	195.42	194.15	194.08	192.14	191.11	189.49	188.22
08	188.93	192.06	195.39	195.81	197.02	195.41	194.47	194.02	192.19	191.08	189.44	188.19
09	188.91	192.20	195.31	195.81	196.92	195.33	194.68	193.92	192.26	191.01	189.40	188.17
10	188.88	192.26	195.22	195.74	196.85	195.27	194.71	193.84	192.20	190.96	189.34	188.16
11	188.84	192.30	195.13	196.23	196.77	195.18	194.69	193.75	192.12	190.92	189.30	188.14
12	188.84	192.40	195.04	196.61	196.65	195.14	194.64	193.70	192.08	190.87	189.26	188.14
13	188.81	192.65	194.95	196.62	196.57	195.07	194.60	193.63	192.02	190.82	189.22	188.12
14	188.76	193.25	194.88	196.58	196.50	195.00	194.88	193.54	191.98	190.78	189.18	188.18
15	188.73	193.59	194.79	196.53	196.39	194.92	195.41	193.47	191.95	190.77	189.13	188.17
16	188.70	193.80	194.70	196.45	196.34	194.84	195.57	193.38	191.90	190.75	189.07	188.27
17	188.67	193.88	194.66	196.45	196.45	194.76	195.62	193.30	191.87	190.67	189.02	188.37
18	188.74	193.92	194.66	196.49	196.41	194.67	195.61	193.22	191.83	190.60	188.98	188.35
19	189.24	193.98	195.22	196.42	196.31	194.58	195.54	193.16	191.80	190.53	188.93	188.32
20	189.45	194.09	195.46	196.38	196.24	194.52	195.48	193.09	191.77	190.47	188.89	188.27
21	189.84	194.36	195.46	196.32	196.17	194.50	195.39	193.03	191.72	190.42	188.85	188.23
22	190.79	194.85	195.43	196.29	196.07	194.53	195.32	192.97	191.69	190.36	188.81	188.21
23	191.13	195.26	195.35	196.48	196.00	194.47	195.25	192.90	191.66	190.31	188.77	188.17
24	191.32	195.48	195.29	196.82	195.98	194.48	195.19	192.83	191.63	190.26	188.72	188.13
25	191.43	195.55	195.22	196.87	195.99	194.40	195.11	192.77	191.59	190.20	188.67	188.09
26	191.48	195.62	195.17	196.98	195.93	194.34	195.05	192.70	191.55	190.14	188.64	188.06
27	191.51	195.66	195.10	197.12	195.88	194.34	194.97	192.64	191.53	190.09	188.60	188.04
28	191.54	195.72	195.13	197.14	195.86	194.28	194.90	192.60	191.48	190.05	188.56	188.01
29	191.53	195.70	195.65	197.22		194.22	194.80	192.55	191.44	190.00	188.52	187.98
30	191.49	195.73	196.04	197.33		194.17	194.72	192.52	191.40	189.95	188.48	187.98
31	191.50		196.10	197.27		194.11		192.46		189.88	188.44	
Avg WL	189.76	193.54	195.32	196.42	196.59	194.90	194.82	193.43	191.92	190.67	189.09	188.20
Max WL	191.54	195.74	196	197.33	197.46	195.85	195.62	194.66	192.39	191.37	189.85	188.41
Max Day Mean	191.54	195.73	196.10	197.33	197.45	195.84	195.62	194.63	192.38	191.37	189.81	188.40

Average Well Water Level for Water Year 2018: 192.89

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



HFB-03--8836 6th Way SE

Water Year: 2018 Well Water Levels are in feet

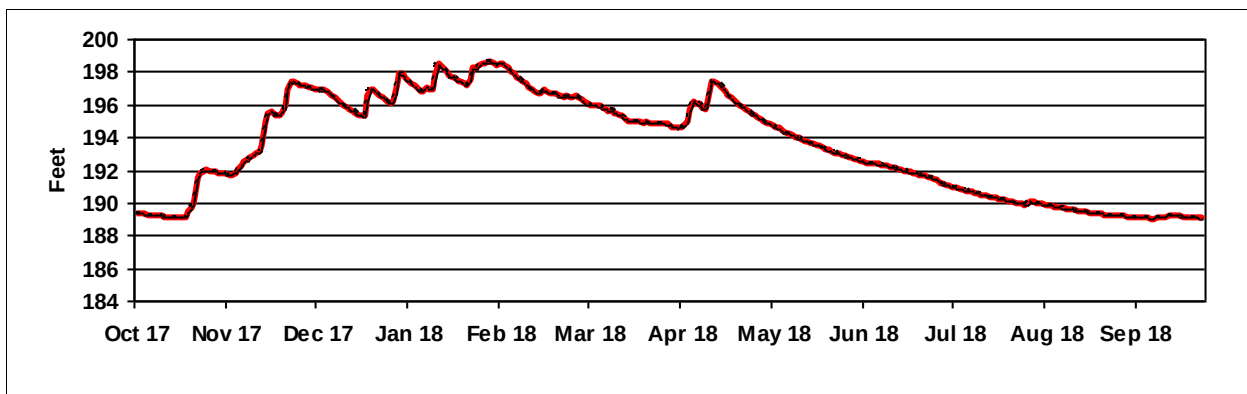
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	189.38	191.76	196.94	197.65	198.44	196.44	194.78	195.22	192.79	191.47	189.99	189.23
02	189.36	191.73	196.95	197.48	198.52	196.30	194.64	195.12	192.77	191.19	190.09	189.21
03	189.35	191.74	196.89	197.31	198.57	196.17	194.60	194.99	192.71	191.15	190.05	189.20
04	189.32	191.86	196.93	197.13	198.44	196.04	194.59	194.89	192.66	191.12	190.01	189.19
05	189.29	192.09	196.82	197.02	198.24	195.99	194.65	194.85	192.61	191.05	189.98	189.17
06	189.27	192.35	196.72	196.87	198.04	195.97	194.73	194.74	192.56	191.00	189.93	189.13
07	189.24	192.52	196.57	196.88	197.88	195.98	195.05	194.62	192.48	190.95	189.90	189.12
08	189.23	192.62	196.42	197.02	197.72	195.92	195.75	194.59	192.47	190.92	189.85	189.10
09	189.22	192.77	196.28	196.98	197.53	195.79	196.27	194.45	192.47	190.86	189.83	189.09
10	189.20	192.92	196.15	196.90	197.42	195.76	196.13	194.35	192.42	190.80	189.78	189.08
11	189.17	193.02	195.98	197.84	197.27	195.65	196.05	194.26	192.37	190.77	189.74	189.08
12	189.16	193.15	195.84	198.49	197.06	195.68	195.80	194.24	192.36	190.73	189.71	189.05
13	189.15	193.48	195.73	198.36	196.99	195.54	195.68	194.16	192.30	190.68	189.68	189.05
14	189.13	194.96	195.64	198.20	196.85	195.46	196.25	194.07	192.25	190.63	189.65	189.08
15	189.12	195.50	195.50	198.01	196.70	195.40	197.49	193.97	192.23	190.58	189.61	189.07
16	189.10	195.62	195.39	197.77	196.68	195.30	197.42	193.88	192.16	190.53	189.58	189.11
17	189.09	195.42	195.35	197.70	196.90	195.17	197.30	193.82	192.13	190.49	189.56	189.19
18	189.10	195.38	195.30	197.64	196.84	195.04	197.21	193.74	192.07	190.45	189.52	189.22
19	189.50	195.39	196.57	197.49	196.75	194.98	197.00	193.68	192.03	190.40	189.50	189.23
20	189.77	195.47	196.97	197.41	196.73	194.97	196.82	193.59	192.00	190.36	189.47	189.23
21	190.15	196.03	196.91	197.29	196.68	194.96	196.59	193.53	191.92	190.32	189.44	189.21
22	191.56	196.98	196.76	197.19	196.53	194.94	196.42	193.49	191.88	190.27	189.42	189.20
23	191.85	197.44	196.57	197.56	196.52	194.89	196.28	193.40	191.84	190.24	189.40	189.19
24	191.99	197.48	196.50	198.26	196.46	194.98	196.14	193.30	191.81	190.20	189.37	189.17
25	192.01	197.37	196.31	198.24	196.53	194.90	195.97	193.24	191.75	190.15	189.34	189.15
26	191.98	197.20	196.24	198.38	196.44	194.85	195.85	193.15	191.69	190.11	189.33	189.13
27	191.95	197.15	196.12	198.56	196.47	194.90	195.70	193.09	191.67	190.07	189.31	189.10
28	191.93	197.15	196.16	198.56	196.53	194.88	195.58	193.04	191.61	190.02	189.29	189.09
29	191.87	197.09	197.23	198.60		194.90	195.42	193.01	191.56	189.98	189.29	189.07
30	191.81	197.05	197.96	198.68		194.84	195.33	192.97	191.51	189.94	189.26	189.05
31	191.81		197.89	198.56		194.81		192.89		189.88	189.24	
Avg WL	190.13	194.69	196.44	197.74	197.20	195.40	195.92	193.95	192.17	190.56	189.62	189.14
Max WL	192.02	197.53	198	198.69	198.57	196.47	197.55	195.25	192.81	191.47	190.12	189.23
Max Day Mean	192.01	197.48	197.96	198.68	198.57	196.44	197.49	195.22	192.79	191.47	190.09	189.23

Average Well Water Level for Water Year 2018: 193.58

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



LRS7a--3804 93rd Ave SW

Water Year: 2018 Well Water Levels are in feet

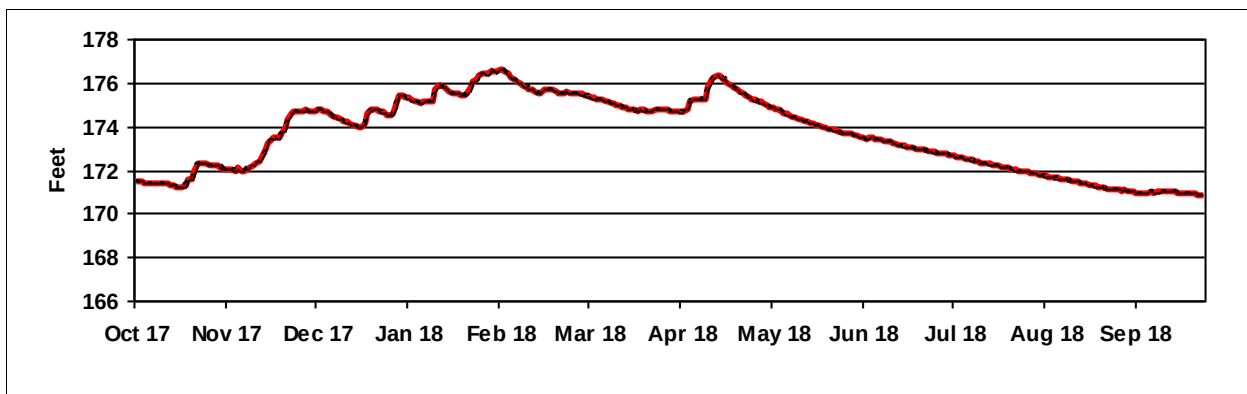
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	171.49	172.07	174.71	175.34	176.52	175.56	174.73	175.19	173.68	172.81	171.92	171.11
02	171.50	172.08	174.78	175.31	176.64	175.49	174.71	175.12	173.65	172.81	171.90	171.08
03	171.48	172.05	174.76	175.22	176.61	175.44	174.67	175.04	173.62	172.76	171.86	171.09
04	171.45	171.99	174.74	175.15	176.52	175.40	174.67	174.98	173.57	172.75	171.83	171.07
05	171.41	172.10	174.68	175.18	176.40	175.35	174.70	174.92	173.54	172.70	171.79	171.06
06	171.41	171.99	174.61	175.11	176.28	175.31	174.73	174.85	173.51	172.68	171.77	171.03
07	171.42	171.96	174.53	175.12	176.17	175.28	174.81	174.79	173.45	172.65	171.73	170.98
08	171.41	172.08	174.45	175.18	176.08	175.28	175.14	174.75	173.47	172.64	171.70	170.93
09	171.39	172.18	174.40	175.17	175.99	175.22	175.28	174.69	173.48	172.59	171.67	170.95
10	171.37	172.27	174.33	175.14	175.90	175.18	175.29	174.64	173.43	172.58	171.64	170.96
11	171.37	172.33	174.28	175.68	175.83	175.13	175.28	174.57	173.41	172.54	171.64	170.97
12	171.37	172.40	174.21	175.85	175.73	175.10	175.24	174.53	173.38	172.50	171.62	171.00
13	171.35	172.61	174.15	175.85	175.69	175.06	175.27	174.47	173.36	172.46	171.59	170.99
14	171.27	172.98	174.09	175.80	175.64	175.01	175.79	174.43	173.31	172.44	171.57	171.00
15	171.24	173.25	174.05	175.72	175.57	174.97	176.15	174.36	173.30	172.40	171.55	171.00
16	171.24	173.41	174.01	175.60	175.57	174.92	176.26	174.33	173.25	172.36	171.51	171.05
17	171.25	173.49	174.01	175.54	175.73	174.89	176.34	174.28	173.22	172.33	171.48	171.06
18	171.34	173.52	174.11	175.55	175.75	174.81	176.31	174.24	173.18	172.32	171.47	171.05
19	171.55	173.50	174.63	175.49	175.75	174.78	176.20	174.18	173.15	172.28	171.43	171.02
20	171.61	173.69	174.75	175.47	175.71	174.75	176.10	174.15	173.10	172.26	171.41	171.00
21	171.91	173.97	174.79	175.45	175.64	174.74	175.98	174.10	173.09	172.23	171.37	170.97
22	172.33	174.37	174.79	175.49	175.56	174.80	175.87	174.06	173.05	172.20	171.30	170.98
23	172.32	174.62	174.72	175.76	175.51	174.75	175.79	174.00	173.03	172.16	171.29	170.97
24	172.31	174.67	174.67	176.04	175.50	174.72	175.70	173.98	172.98	172.15	171.27	170.95
25	172.30	174.67	174.62	176.13	175.60	174.70	175.60	173.91	172.97	172.12	171.23	170.94
26	172.27	174.71	174.56	176.34	175.57	174.70	175.51	173.86	172.93	172.08	171.21	170.94
27	172.26	174.67	174.50	176.43	175.56	174.80	175.44	173.84	172.92	172.04	171.18	170.92
28	172.24	174.75	174.62	176.45	175.57	174.82	175.37	173.80	172.88	172.01	171.17	170.89
29	172.21	174.73	175.19	176.48		174.82	175.29	173.75	172.86	171.97	171.15	170.88
30	172.18	174.73	175.44	176.58		174.80	175.22	173.73	172.83	171.95	171.13	170.88
31	172.05		175.44	176.54		174.76		173.68		171.94	171.15	
Avg WL	171.69	173.26	174.57	175.68	175.88	175.01	175.45	174.36	173.25	172.38	171.50	170.99
Max WL	172.33	174.75	175	176.59	176.64	175.57	176.34	175.20	173.68	172.81	171.92	171.13
Max Day Mean	172.33	174.75	175.44	176.58	176.64	175.56	176.34	175.19	173.68	172.81	171.92	171.11

Average Well Water Level for Water Year 2018: 173.67

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



LRS8--8943 Walter Ct SW

Water Year: 2018 Well Water Levels are in feet

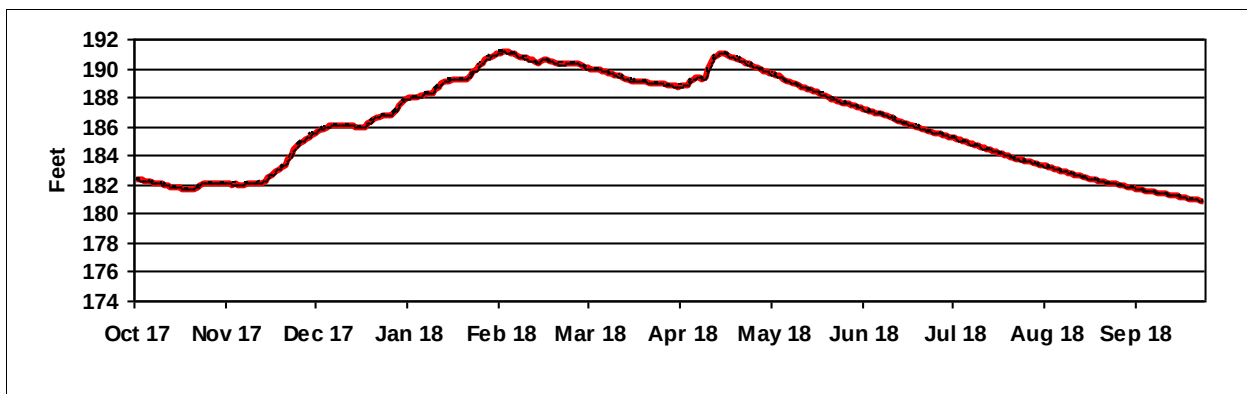
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	182.43	182.13	185.58	187.89	190.98	190.32	188.86	190.06	187.55	185.54	183.61	182.02
02	182.37	182.10	185.71	187.96	191.10	190.20	188.83	189.97	187.50	185.52	183.57	181.97
03	182.32	182.03	185.78	188.02	191.17	190.11	188.79	189.86	187.43	185.45	183.50	181.92
04	182.27	182.05	185.87	188.04	191.17	190.03	188.77	189.78	187.36	185.38	183.45	181.89
05	182.23	182.00	185.95	188.07	191.13	189.97	188.80	189.72	187.28	185.31	183.39	181.84
06	182.20	181.98	186.03	188.11	191.04	189.94	188.86	189.61	187.21	185.24	183.32	181.78
07	182.15	182.03	186.06	188.18	191.00	189.92	188.89	189.51	187.13	185.21	183.28	181.73
08	182.09	182.06	186.09	188.29	190.93	189.92	189.08	189.47	187.09	185.15	183.19	181.70
09	182.09	182.05	186.11	188.28	190.83	189.82	189.31	189.36	187.05	185.07	183.14	181.66
10	182.04	182.05	186.12	188.30	190.79	189.78	189.34	189.25	186.98	185.00	183.09	181.61
11	181.99	182.09	186.10	188.52	190.71	189.70	189.37	189.18	186.92	184.94	183.04	181.59
12	181.95	182.15	186.07	188.71	190.58	189.70	189.31	189.13	186.89	184.87	182.99	181.54
13	181.90	182.17	186.06	188.95	190.56	189.59	189.38	189.03	186.79	184.79	182.94	181.50
14	181.87	182.31	186.05	189.11	190.50	189.53	189.90	188.94	186.73	184.72	182.89	181.47
15	181.84	182.49	186.01	189.17	190.40	189.48	190.45	188.84	186.67	184.66	182.83	181.44
16	181.81	182.65	185.99	189.16	190.43	189.40	190.70	188.75	186.58	184.58	182.77	181.40
17	181.76	182.77	186.00	189.24	190.64	189.31	190.90	188.68	186.53	184.52	182.71	181.37
18	181.75	182.95	186.00	189.27	190.58	189.23	191.00	188.61	186.42	184.45	182.67	181.33
19	181.75	183.11	186.22	189.24	190.51	189.18	191.00	188.53	186.36	184.39	182.63	181.30
20	181.72	183.20	186.32	189.26	190.46	189.16	190.99	188.46	186.27	184.33	182.56	181.26
21	181.75	183.40	186.50	189.25	190.40	189.13	190.89	188.37	186.20	184.28	182.50	181.22
22	181.87	183.69	186.61	189.29	190.29	189.15	190.82	188.31	186.13	184.20	182.45	181.18
23	181.99	184.04	186.66	189.51	190.29	189.12	190.75	188.20	186.08	184.15	182.39	181.14
24	182.09	184.38	186.76	189.79	190.29	189.09	190.68	188.12	186.01	184.06	182.36	181.11
25	182.12	184.69	186.75	189.91	190.40	189.02	190.57	188.03	185.90	184.01	182.31	181.07
26	182.15	184.86	186.80	190.18	190.30	188.99	190.48	187.94	185.84	183.94	182.26	181.05
27	182.16	185.01	186.81	190.36	190.30	189.03	190.37	187.87	185.79	183.88	182.21	181.00
28	182.16	185.15	186.89	190.57	190.35	189.00	190.30	187.79	185.72	183.82	182.16	180.98
29	182.14	185.31	187.16	190.75		188.97	190.18	187.73	185.66	183.76	182.12	180.93
30	182.12	185.46	187.50	190.83		188.92	190.10	187.67	185.60	183.69	182.06	180.90
31	182.13		187.76	190.91		188.89		187.57		183.67	182.06	
Avg WL	182.04	183.08	186.33	189.13	190.65	189.47	189.92	188.79	186.59	184.60	182.79	181.43
Max WL	182.43	185.49	188	190.92	191.18	190.34	191.01	190.08	187.55	185.55	183.62	182.02
Max Day Mean	182.43	185.46	187.76	190.91	191.17	190.32	191.00	190.06	187.55	185.54	183.61	182.02

Average Well Water Level for Water Year 2018: 186.23

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



LRS9--2729 93rd Ave SW (Lathrop)

Water Year: 2018 Well Water Levels are in feet

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	178.58	178.40	181.79	183.76	186.15	185.47	184.12	185.05	182.96	181.26		
02	178.57	178.39	181.89	183.82	186.23	185.41	184.09	184.98	182.92	181.25		
03	178.52	178.35	181.97	183.86	186.31	185.36	184.05	184.92	182.85	181.19		
04	178.48	178.33	182.02	183.88	186.35	185.30	184.01	184.86	182.79	181.15		
05	178.44	178.36	182.09	183.89	186.35	185.26	184.01	184.80	182.72	181.08		
06	178.41	178.35	182.16	183.91	186.28	185.22	184.02	184.72	182.66	181.04		
07	178.37	178.36	182.21	183.93	186.23	185.21	183.98	184.64	182.59	180.99		
08	178.33	178.41	182.25	183.98	186.16	185.17	184.14	184.59	182.53	180.94		
09	178.30	178.43	182.28	183.98	186.06	185.11	184.35	184.51	182.49	180.88		
10	178.27	178.48	182.30	184.00	186.00	185.08	184.43	184.42	182.43	180.83		
11	178.23	178.52	182.31	184.15	185.94	185.01	184.47	184.36	182.37	180.78		
12	178.19	178.55	182.30	184.35	185.84	184.99	184.46	184.30	182.32	180.73		
13	178.16	178.63	182.31	184.55	185.80	184.93	184.47	184.23	182.26	180.68		
14	178.10	178.84	182.29	184.68	185.74	184.87	184.71	184.16	182.20	180.64		
15	178.07	179.02	182.27	184.75	185.67	184.83	185.14	184.08	182.15	180.58		
16	178.04	179.22	182.25	184.77	185.63	184.77	185.40	184.00	182.09	180.53		
17	178.00	179.39	182.24	184.80	185.72	184.71	185.55	183.95	182.03	180.48		
18	177.98	179.58	182.27	184.82	185.67	184.63	185.66	183.87	181.97	180.43		
19	178.12	179.71	182.45	184.80	185.63	184.58	185.71	183.81	181.92	180.38		
20	178.15	179.84	182.52	184.80	185.62	184.53	185.72	183.74	181.85	180.33		
21	178.24	180.02	182.62	184.81	185.59	184.52	185.66	183.67	181.80	180.29		
22	178.58	180.27	182.72	184.82	185.53	184.45	185.60	183.60	181.74	180.24		
23	178.62	180.53	182.78	184.92	185.52	184.41	185.55	183.53	181.68	180.20		
24	178.60	180.83	182.85	185.11	185.48	184.35	185.49	183.46	181.64	180.14		
25	178.56	181.10	182.87	185.26	185.49	184.30	185.41	183.39	181.58	180.09		
26	178.52	181.29	182.89	185.44	185.44	184.25	185.35	183.32	181.52	180.04		
27	178.48	181.38	182.91	185.63	185.45	184.23	185.28	183.25	181.47	179.99		
28	178.47	181.49	182.95	185.80	185.48	184.21	185.21	183.19	181.42	179.96		
29	178.44	181.60	183.16	185.93		184.19	185.14	183.12	181.36	179.90		
30	178.42	181.70	183.38	186.00		184.16	185.07	183.07	181.31	179.85		
31	178.38		183.63	186.09		184.13		182.99				

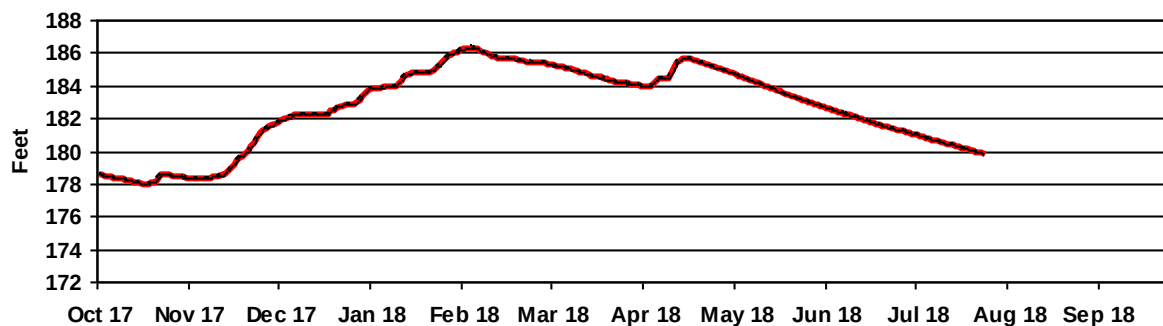
Avg WL	178.34	179.51	182.48	184.69	185.83	184.76	184.88	184.02	182.12	180.56
Max WL	178.62	181.72	184	186.10	186.36	185.47	185.72	185.06	182.97	181.26
Max Day Mean	178.62	181.70	183.63	186.09	186.35	185.47	185.72	185.05	182.96	181.26

Average Well Water Level for Water Year 2018: 182.72

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



LRS11a--9605 Tilley Rd S

Water Year: 2018 Well Water Levels are in feet

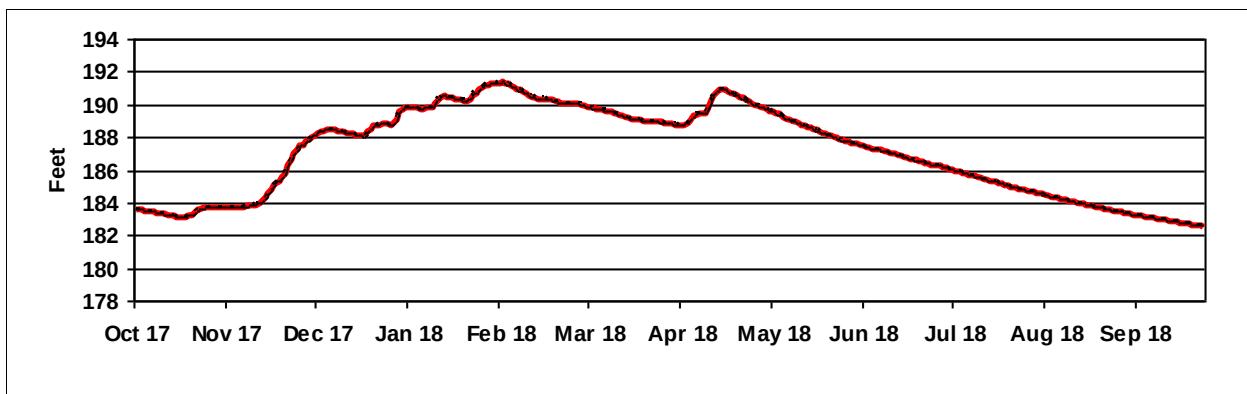
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	183.62	183.74	188.15	189.82	191.31	190.10	188.86	189.98	187.75	186.27	184.77	183.50
02	183.62	183.72	188.27	189.84	191.36	190.03	188.84	189.90	187.70	186.26	184.73	183.46
03	183.58	183.69	188.36	189.84	191.39	189.96	188.80	189.81	187.65	186.20	184.68	183.42
04	183.55	183.69	188.40	189.80	191.37	189.90	188.76	189.72	187.60	186.16	184.63	183.38
05	183.51	183.74	188.46	189.79	191.28	189.84	188.77	189.66	187.53	186.09	184.58	183.34
06	183.48	183.76	188.49	189.76	191.18	189.80	188.79	189.57	187.48	186.05	184.54	183.30
07	183.45	183.78	188.48	189.77	191.08	189.77	188.83	189.48	187.43	186.00	184.49	183.27
08	183.41	183.82	188.46	189.83	191.00	189.74	189.03	189.42	187.39	185.96	184.44	183.24
09	183.37	183.85	188.43	189.83	190.89	189.69	189.30	189.33	187.34	185.91	184.40	183.20
10	183.34	183.89	188.38	189.81	190.79	189.65	189.41	189.24	187.30	185.85	184.35	183.17
11	183.32	183.92	188.35	190.06	190.71	189.60	189.46	189.17	187.26	185.80	184.31	183.15
12	183.29	183.97	188.29	190.36	190.58	189.57	189.44	189.11	187.23	185.74	184.27	183.12
13	183.25	184.09	188.25	190.48	190.51	189.52	189.46	189.05	187.17	185.69	184.23	183.08
14	183.22	184.32	188.21	190.52	190.44	189.45	189.74	188.97	187.12	185.64	184.20	183.06
15	183.19	184.59	188.17	190.51	190.35	189.41	190.35	188.89	187.08	185.59	184.15	183.02
16	183.16	184.84	188.12	190.43	190.31	189.35	190.61	188.80	187.03	185.53	184.11	183.00
17	183.12	185.04	188.09	190.42	190.39	189.28	190.87	188.73	186.98	185.48	184.06	182.97
18	183.13	185.21	188.08	190.39	190.37	189.21	190.99	188.66	186.93	185.43	184.03	182.94
19	183.22	185.37	188.36	190.33	190.32	189.15	190.99	188.59	186.88	185.38	183.99	182.91
20	183.21	185.56	188.53	190.29	190.29	189.11	190.94	188.52	186.81	185.33	183.95	182.88
21	183.34	185.82	188.69	190.27	190.24	189.08	190.83	188.45	186.76	185.28	183.90	182.85
22	183.56	186.25	188.78	190.25	190.18	189.06	190.74	188.38	186.71	185.23	183.86	182.82
23	183.62	186.68	188.80	190.37	190.14	189.04	190.66	188.31	186.66	185.18	183.82	182.79
24	183.68	187.02	188.83	190.63	190.11	189.01	190.59	188.24	186.62	185.12	183.78	182.75
25	183.71	187.27	188.82	190.75	190.13	188.98	190.49	188.16	186.56	185.07	183.75	182.73
26	183.73	187.47	188.81	190.89	190.09	188.95	190.40	188.10	186.51	185.02	183.70	182.70
27	183.75	187.58	188.78	191.07	190.09	188.95	190.29	188.02	186.46	184.97	183.66	182.67
28	183.76	187.74	188.82	191.16	190.10	188.95	190.20	187.96	186.41	184.92	183.63	182.64
29	183.76	187.88	189.16	191.23		188.94	190.11	187.89	186.36	184.87	183.59	182.61
30	183.74	188.05	189.59	191.29		188.91	190.02	187.84	186.31	184.82	183.55	182.57
31	183.73		189.78	191.31		188.89		187.78		184.81	183.54	
Avg WL	183.47	185.21	188.55	190.36	190.61	189.38	189.89	188.83	187.03	185.54	184.12	183.02
Max WL	183.76	188.09	190	191.31	191.39	190.10	191.00	189.99	187.76	186.27	184.77	183.50
Max Day Mean	183.76	188.05	189.78	191.31	191.39	190.10	190.99	189.98	187.75	186.27	184.77	183.50

Average Well Water Level for Water Year 2018: 187.17

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



LRS12--9411 SW Kimmie St

Water Year: 2018 Well Water Levels are in feet

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	182.66	183.59	187.59	188.46	189.91	188.70	187.37	188.43	186.25	184.77		
02	182.66	183.58	187.64	188.43	189.97	188.64	187.35	188.33	186.20	184.77		
03	182.64	183.58	187.66	188.37	190.01	188.60	187.31	188.25	186.14	184.72		
04	182.62	183.60	187.67	188.31	189.99	188.53	187.27	188.16	186.09	184.68		
05	182.59	183.68	187.64	188.29	189.92	188.47	187.27	188.08	186.03	184.63		
06	182.58	183.70	187.58	188.25	189.83	188.43	187.27	188.00	185.97	184.59		
07	182.55	183.73	187.51	188.23	189.74	188.38	187.32	187.91	185.91	184.54		
08	182.53	183.77	187.44	188.28	189.65	188.34	187.53	187.85	185.87	184.50		
09	182.51	183.82	187.37	188.29	189.55	188.29	187.75	187.75	185.83	184.46		
10	182.49	183.88	187.30	188.28	189.45	188.24	187.85	187.68	185.78	184.41		
11	182.47	183.92	187.24	188.55	189.36	188.18	187.90	187.59	185.73	184.37		
12	182.45	183.99	187.15	188.85	189.24	188.14	187.89	187.53	185.69	184.33		
13	182.44	184.19	187.08	188.97	189.16	188.09	187.91	187.46	185.64	184.29		
14	182.42	184.47	187.01	189.00	189.08	188.03	188.21	187.39	185.59	184.25		
15	182.40	184.84	186.95	188.97	188.98	187.97	188.76	187.31	185.54	184.20		
16	182.38	185.10	186.88	188.89	188.91	187.92	189.07	187.23	185.49	184.16		
17	182.36	185.32	186.82	188.84	188.97	187.86	189.34	187.17	185.45	184.12		
18	182.47	185.47	186.81	188.82	188.97	187.77	189.46	187.09	185.40	184.08		
19	182.67	185.61	187.16	188.77	188.95	187.71	189.45	187.03	185.35	184.03		
20	182.71	185.77	187.38	188.73	188.92	187.66	189.41	186.97	185.29	183.99		
21	182.99	186.05	187.52	188.70	188.87	187.61	189.31	186.90	185.25	183.96		
22	183.33	186.48	187.58	188.70	188.82	187.60	189.22	186.84	185.20	183.91		
23	183.43	186.89	187.56	188.81	188.77	187.55	189.14	186.77	185.15	183.88		
24	183.51	187.17	187.55	189.09	188.73	187.51	189.05	186.71	185.10	183.83		
25	183.55	187.32	187.50	189.25	188.74	187.47	188.95	186.63	185.05	183.79		
26	183.57	187.40	187.46	189.43	188.70	187.44	188.86	186.57	185.00	183.75		
27	183.59	187.42	187.40	189.62	188.69	187.45	188.76	186.51	184.95	183.71		
28	183.60	187.49	187.46	189.73	188.70	187.45	188.66	186.44	184.91	183.67		
29	183.60	187.53	187.84	189.81		187.44	188.56	186.38	184.87	183.63		
30	183.59	187.58	188.30	189.86		187.42	188.46	186.32	184.82	183.59		
31	183.58		188.47	189.91		187.40		186.27				

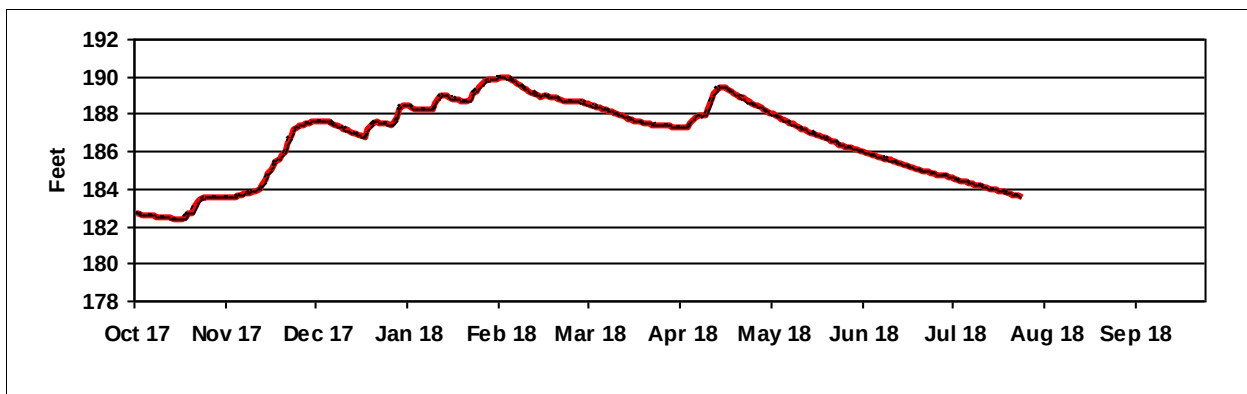
Avg WL	182.87	185.23	187.44	188.85	189.24	187.94	188.36	187.28	185.52	184.19
Max WL	183.61	187.59	188	189.91	190.01	188.70	189.47	188.44	186.26	184.77
Max Day Mean	183.60	187.58	188.47	189.91	190.01	188.70	189.46	188.43	186.25	184.77

Average Well Water Level for Water Year 2018: 186.69

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



MW1--10415 Littlerock Rd SW

Water Year: 2018 Well Water Levels are in feet

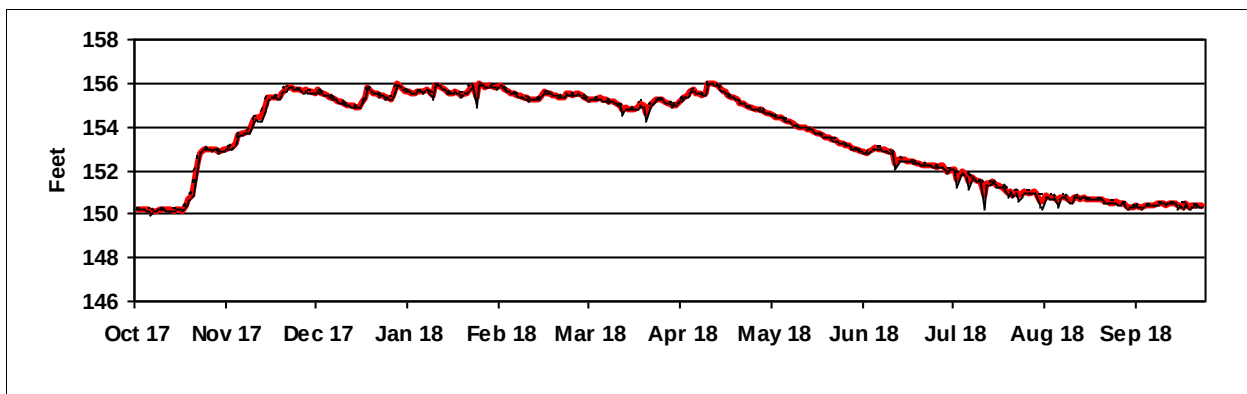
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	150.20	152.94	155.55	155.65	155.80	155.52	155.08	154.81	153.15	152.16	150.99	150.47
02	150.23	153.01	155.67	155.63	155.89	155.40	154.96	154.77	153.03	152.21	150.99	150.52
03	150.23	153.08	155.52	155.56	155.83	155.36	155.02	154.71	152.95	152.19	151.02	150.48
04	150.22	153.27	155.50	155.53	155.71	155.21	155.11	154.65	152.96	151.96	150.95	150.33
05	150.18	153.56	155.44	155.66	155.64	155.26	155.21	154.60	152.88	151.99	150.62	150.35
06	150.09	153.67	155.38	155.60	155.57	155.27	155.34	154.51	152.84	152.02	150.55	150.33
07	150.13	153.71	155.31	155.58	155.51	155.25	155.42	154.45	152.80	152.03	150.82	150.39
08	150.14	153.75	155.24	155.69	155.47	155.30	155.61	154.46	152.87	151.57	150.76	150.33
09	150.20	153.90	155.19	155.59	155.39	155.21	155.67	154.39	153.00	151.86	150.75	150.29
10	150.20	154.33	155.12	155.41	155.35	155.22	155.54	154.37	153.03	151.91	150.73	150.39
11	150.18	154.41	155.07	155.87	155.30	155.13	155.51	154.28	153.00	151.79	150.55	150.39
12	150.17	154.39	155.02	155.85	155.21	155.18	155.44	154.26	153.00	151.46	150.78	150.41
13	150.17	154.48	155.01	155.81	155.24	155.13	155.52	154.12	152.92	151.69	150.78	150.42
14	150.16	155.01	154.95	155.71	155.29	155.08	155.97	154.08	152.86	151.63	150.74	150.47
15	150.21	155.32	154.92	155.59	155.25	155.00	155.98	154.00	152.84	151.48	150.64	150.46
16	150.19	155.37	154.88	155.54	155.35	154.76	155.94	153.99	152.78	151.48	150.60	150.47
17	150.16	155.36	155.04	155.54	155.60	154.84	155.88	153.97	152.36	150.83	150.76	150.44
18	150.36	155.32	155.32	155.60	155.57	154.80	155.79	153.90	152.51	151.40	150.79	150.52
19	150.69	155.37	155.78	155.55	155.51	154.83	155.66	153.84	152.47	151.38	150.71	150.52
20	150.87	155.53	155.63	155.47	155.43	154.83	155.58	153.79	152.46	151.47	150.75	150.50
21	151.36	155.75	155.56	155.52	155.41	154.85	155.47	153.72	152.44	151.28	150.67	150.36
22	152.41	155.79	155.54	155.56	155.32	155.07	155.38	153.67	152.42	151.28	150.65	150.44
23	152.82	155.80	155.41	155.78	155.33	155.02	155.31	153.57	152.37	151.24	150.65	150.33
24	152.98	155.69	155.41	155.87	155.37	154.63	155.23	153.51	152.32	151.17	150.66	150.46
25	152.99	155.69	155.33	155.37	155.52	154.94	155.11	153.49	152.31	150.97	150.69	150.32
26	152.99	155.68	155.33	155.95	155.49	155.05	155.07	153.43	152.27	151.03	150.67	150.37
27	152.94	155.58	155.27	155.86	155.47	155.26	154.98	153.39	152.25	150.89	150.58	150.36
28	152.95	155.67	155.48	155.84	155.50	155.26	154.88	153.35	152.25	151.00	150.57	150.43
29	152.86	155.58	155.94	155.86		155.22	154.84	153.28	152.25	150.81	150.52	150.37
30	152.89	155.59	155.87	155.91		155.15	154.80	153.23	152.19	150.93	150.51	150.33
31	152.92		155.75	155.83		155.06		153.18		151.02	150.56	
Avg WL	151.13	154.75	155.37	155.67	155.48	155.10	155.38	153.99	152.66	151.49	150.71	150.41
Max WL	153.02	155.84	156	156.01	155.90	155.52	156.07	154.83	153.15	152.25	151.06	150.53
Max Day Mean	152.99	155.80	155.94	155.95	155.89	155.52	155.98	154.81	153.15	152.21	151.02	150.52

Average Well Water Level for Water Year 2018: 153.51

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



MW3a--3623 104TH Ave SW (Jones)

Water Year: 2018 Well Water Levels are in feet

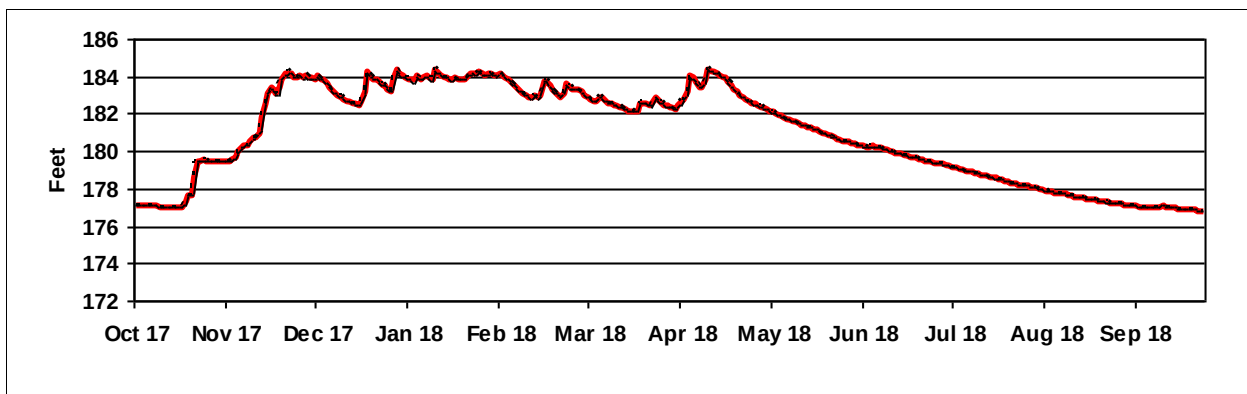
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	177.17	179.45	183.90	183.94	184.10	183.36	182.41	182.49	180.52	179.38	178.15	177.23
02	177.17	179.51	184.04	183.91	184.19	183.19	182.37	182.41	180.47	179.37	178.13	177.21
03	177.15	179.55	183.87	183.82	184.06	183.02	182.29	182.32	180.43	179.33	178.08	177.18
04	177.13	179.66	183.81	183.82	183.99	182.89	182.47	182.24	180.38	179.29	178.05	177.16
05	177.11	180.02	183.66	184.04	183.88	182.82	182.68	182.18	180.33	179.24	178.01	177.13
06	177.10	180.21	183.48	183.91	183.71	182.74	182.84	182.10	180.29	179.21	177.97	177.10
07	177.10	180.29	183.30	184.00	183.55	182.69	183.17	182.02	180.23	179.17	177.93	177.08
08	177.08	180.35	183.16	184.03	183.40	182.94	184.07	181.97	180.26	179.13	177.89	177.06
09	177.07	180.52	183.04	183.94	183.26	182.87	183.92	181.89	180.29	179.07	177.86	177.04
10	177.05	180.72	182.95	183.88	183.12	182.72	183.74	181.83	180.24	179.04	177.81	177.02
11	177.04	180.80	182.83	184.42	183.02	182.62	183.47	181.76	180.20	178.99	177.79	177.04
12	177.04	181.01	182.73	184.18	182.90	182.56	183.44	181.72	180.18	178.95	177.78	177.02
13	177.02	181.82	182.66	184.10	182.90	182.52	183.85	181.66	180.13	178.91	177.75	177.00
14	177.01	182.54	182.59	184.01	183.01	182.47	184.43	181.59	180.09	178.86	177.72	177.03
15	177.01	183.13	182.54	183.95	182.85	182.40	184.27	181.51	180.06	178.83	177.68	177.00
16	176.99	183.45	182.50	183.84	183.05	182.35	184.28	181.44	180.01	178.78	177.65	177.10
17	176.99	183.33	182.70	183.84	183.78	182.28	184.23	181.38	179.96	178.73	177.61	177.05
18	177.36	183.09	183.26	183.97	183.80	182.20	184.10	181.32	179.91	178.70	177.59	177.01
19	177.67	183.41	184.28	183.87	183.51	182.16	184.02	181.27	179.86	178.65	177.56	176.98
20	177.67	183.88	184.01	183.87	183.30	182.12	183.93	181.20	179.81	178.61	177.52	176.97
21	178.59	184.17	183.91	183.85	183.14	182.16	183.77	181.14	179.77	178.58	177.49	176.95
22	179.49	184.22	183.90	183.94	183.03	182.59	183.55	181.09	179.73	178.53	177.46	176.95
23	179.51	184.20	183.73	184.20	182.93	182.63	183.35	181.02	179.69	178.48	177.43	176.94
24	179.55	184.01	183.59	184.17	183.13	182.58	183.18	180.95	179.65	178.44	177.41	176.92
25	179.53	183.98	183.53	184.15	183.63	182.46	183.03	180.89	179.60	178.39	177.38	176.90
26	179.52	184.07	183.35	184.28	183.43	182.53	182.89	180.82	179.56	178.34	177.35	176.89
27	179.51	183.93	183.24	184.14	183.30	182.86	182.77	180.76	179.52	178.30	177.31	176.88
28	179.51	184.11	183.82	184.10	183.36	182.76	182.69	180.70	179.49	178.27	177.30	176.86
29	179.47	183.92	184.40	184.14		182.63	182.61	180.65	179.45	178.22	177.27	176.84
30	179.45	183.94	184.17	184.18		182.52	182.53	180.60	179.41	178.18	177.25	176.83
31	179.45		184.04	184.07		182.42		180.54		178.18	177.26	
Avg WL	177.95	182.24	183.45	184.02	183.40	182.61	183.35	181.47	179.98	178.78	177.66	177.01
Max WL	179.56	184.36	184	184.53	184.25	183.38	184.50	182.51	180.53	179.38	178.15	177.23
Max Day Mean	179.55	184.22	184.40	184.42	184.19	183.36	184.43	182.49	180.52	179.38	178.15	177.23

Average Well Water Level for Water Year 2018: 180.99

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



MW5--800 93rd Ave SE

Water Year: 2018 Well Water Levels are in feet

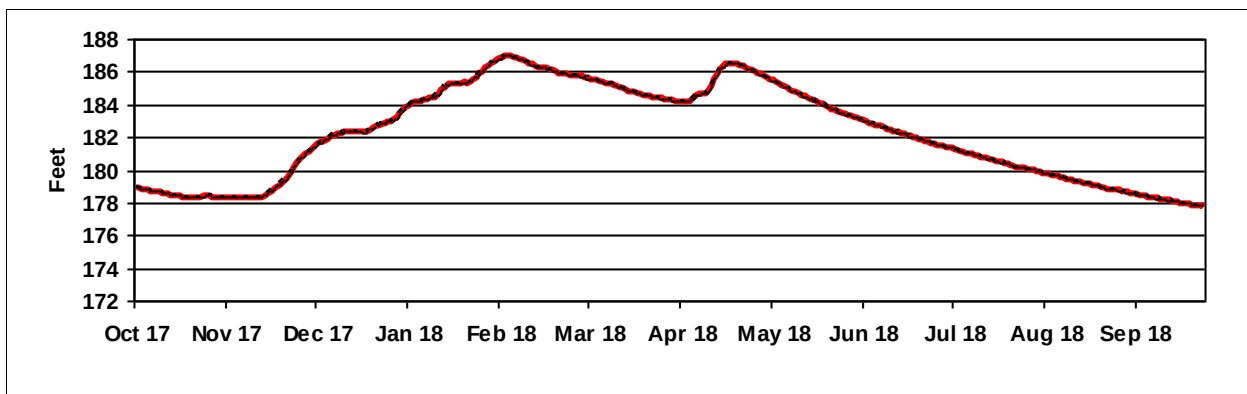
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	178.93	178.36	181.47	183.90	186.73	185.85	184.31	185.97	183.39	181.58	180.11	178.78
02	178.92	178.34	181.62	183.99	186.84	185.77	184.29	185.88	183.32	181.56	180.07	178.74
03	178.88	178.32	181.74	184.11	186.93	185.71	184.25	185.78	183.26	181.51	180.01	178.70
04	178.84	178.31	181.81	184.18	186.99	185.63	184.20	185.68	183.19	181.46	179.97	178.66
05	178.80	178.30	181.93	184.23	187.01	185.57	184.18	185.60	183.12	181.40	179.92	178.62
06	178.77	178.30	182.04	184.26	186.97	185.53	184.18	185.51	183.06	181.35	179.87	178.58
07	178.74	178.31	182.12	184.31	186.95	185.51	184.18	185.39	182.98	181.29	179.83	178.54
08	178.70	178.33	182.19	184.37	186.90	185.47	184.22	185.33	182.92	181.25	179.77	178.51
09	178.66	178.33	182.25	184.40	186.82	185.40	184.42	185.22	182.86	181.19	179.74	178.47
10	178.64	178.34	182.29	184.42	186.74	185.37	184.55	185.13	182.79	181.14	179.68	178.44
11	178.60	178.35	182.33	184.51	186.68	185.31	184.65	185.03	182.73	181.08	179.65	178.41
12	178.57	178.37	182.33	184.69	186.55	185.29	184.67	184.96	182.69	181.04	179.60	178.37
13	178.53	178.40	182.35	184.90	186.48	185.23	184.68	184.88	182.62	180.99	179.56	178.32
14	178.50	178.48	182.36	185.09	186.40	185.16	184.83	184.80	182.55	180.94	179.51	178.30
15	178.46	178.62	182.36	185.21	186.29	185.11	185.25	184.69	182.50	180.89	179.47	178.26
16	178.44	178.76	182.34	185.27	186.25	185.05	185.60	184.60	182.44	180.84	179.42	178.23
17	178.40	178.89	182.34	185.33	186.29	184.97	185.92	184.52	182.38	180.78	179.37	178.19
18	178.37	179.02	182.34	185.37	186.24	184.88	186.20	184.43	182.33	180.74	179.33	178.17
19	178.35	179.13	182.41	185.37	186.17	184.82	186.38	184.36	182.27	180.68	179.29	178.13
20	178.33	179.25	182.48	185.37	186.11	184.78	186.50	184.28	182.20	180.64	179.25	178.10
21	178.32	179.39	182.60	185.38	186.06	184.74	186.52	184.19	182.15	180.58	179.20	178.07
22	178.37	179.63	182.71	185.36	185.98	184.69	186.54	184.12	182.08	180.53	179.16	178.03
23	178.40	179.93	182.79	185.45	185.94	184.64	186.55	184.05	182.02	180.49	179.11	178.00
24	178.42	180.22	182.88	185.60	185.90	184.59	186.52	183.95	181.97	180.44	179.07	177.98
25	178.43	180.49	182.93	185.73	185.90	184.54	186.45	183.87	181.91	180.38	179.03	177.94
26	178.43	180.71	182.98	185.87	185.85	184.49	186.39	183.78	181.85	180.34	178.98	177.91
27	178.41	180.87	183.02	186.07	185.83	184.45	186.29	183.71	181.80	180.29	178.95	177.88
28	178.41	181.02	183.07	186.26	185.85	184.42	186.20	183.63	181.74	180.24	178.90	177.85
29	178.39	181.17	183.21	186.43		184.40	186.11	183.56	181.69	180.20	178.87	177.82
30	178.37	181.33	183.43	186.52		184.37	186.01	183.49	181.63	180.15	178.82	177.78
31	178.36		183.70	186.64		184.34		183.42		180.15	178.81	
Avg WL	178.54	179.18	182.47	185.12	186.42	185.03	185.37	184.64	182.48	180.84	179.43	178.26
Max WL	178.93	181.37	184	186.67	187.02	185.86	186.55	185.99	183.40	181.58	180.11	178.78
Max Day Mean	178.93	181.33	183.70	186.64	187.01	185.85	186.55	185.97	183.39	181.58	180.11	178.78

Average Well Water Level for Water Year 2018: 182.31

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



SCMW_1--Leon St. SW

Water Year: 2018 Well Water Levels are in feet

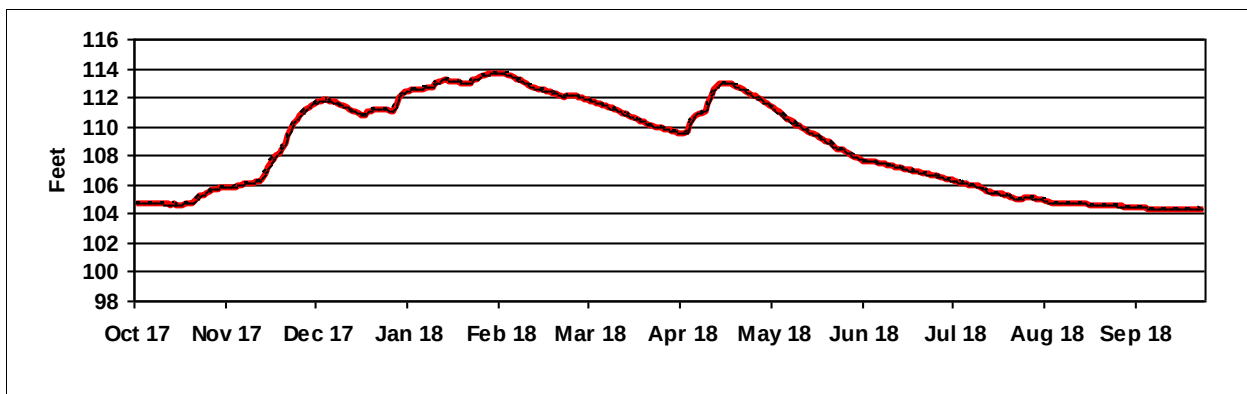
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	104.75	105.85	111.59	112.36	113.71	112.05	109.77	111.97	108.22	106.59	105.14	104.53
02	104.74	105.88	111.70	112.47	113.73	111.99	109.69	111.86	108.08	106.54	105.09	104.53
03	104.75	105.88	111.76	112.52	113.72	111.92	109.66	111.71	107.95	106.49	105.08	104.49
04	104.72	105.89	111.81	112.53	113.67	111.84	109.61	111.57	107.84	106.42	105.06	104.49
05	104.70	105.96	111.81	112.58	113.59	111.78	109.57	111.45	107.75	106.37	105.04	104.48
06	104.70	105.99	111.80	112.58	113.48	111.71	109.57	111.29	107.65	106.32	105.01	104.45
07	104.71	106.04	111.77	112.61	113.40	111.66	109.64	111.14	107.60	106.27	104.93	104.44
08	104.71	106.07	111.69	112.70	113.30	111.57	110.23	111.01	107.59	106.23	104.83	104.43
09	104.71	106.12	111.60	112.70	113.20	111.49	110.64	110.87	107.60	106.17	104.77	104.41
10	104.68	106.17	111.51	112.66	113.09	111.43	110.78	110.72	107.57	106.15	104.73	104.41
11	104.67	106.22	111.41	112.91	112.99	111.34	110.89	110.57	107.53	106.10	104.77	104.38
12	104.67	106.28	111.30	113.05	112.86	111.27	110.94	110.46	107.49	106.03	104.79	104.37
13	104.65	106.44	111.20	113.15	112.76	111.17	111.02	110.31	107.45	106.00	104.79	104.35
14	104.67	106.81	111.10	113.20	112.65	111.14	111.55	110.16	107.39	105.96	104.79	104.33
15	104.66	107.23	111.04	113.21	112.59	111.07	112.22	110.08	107.36	105.91	104.77	104.32
16	104.64	107.60	110.91	113.18	112.52	110.96	112.54	109.95	107.30	105.84	104.76	104.31
17	104.65	107.74	110.81	113.15	112.51	110.86	112.82	109.83	107.25	105.68	104.74	104.33
18	104.68	108.01	110.73	113.14	112.45	110.75	112.91	109.71	107.20	105.58	104.72	104.35
19	104.72	108.22	111.00	113.08	112.39	110.64	112.98	109.59	107.15	105.49	104.69	104.35
20	104.75	108.46	111.12	113.01	112.34	110.58	113.01	109.48	107.10	105.44	104.70	104.36
21	104.84	108.86	111.22	112.97	112.27	110.48	112.96	109.37	107.04	105.44	104.69	104.37
22	105.09	109.41	111.23	112.94	112.18	110.39	112.93	109.26	107.01	105.46	104.66	104.36
23	105.24	109.91	111.22	113.04	112.12	110.32	112.86	109.16	106.96	105.36	104.65	104.37
24	105.35	110.27	111.22	113.19	112.05	110.23	112.76	109.05	106.92	105.29	104.63	104.38
25	105.46	110.54	111.17	113.23	112.12	110.15	112.66	108.94	106.88	105.25	104.61	104.37
26	105.57	110.75	111.14	113.35	112.13	110.06	112.55	108.79	106.82	105.17	104.60	104.37
27	105.65	110.99	111.09	113.47	112.12	110.00	112.45	108.64	106.77	105.13	104.60	104.37
28	105.72	111.17	111.10	113.53	112.10	109.95	112.34	108.48	106.73	105.07	104.59	104.38
29	105.76	111.35	111.67	113.61		109.90	112.20	108.41	106.70	105.04	104.58	104.34
30	105.81	111.48	112.07	113.70		109.85	112.10	108.40	106.64	105.06	104.56	104.35
31	105.84		112.27	113.72		109.80		108.33		105.13	104.54	
Avg WL	104.98	107.92	111.39	113.02	112.79	110.91	111.53	110.02	107.32	105.77	104.77	104.39
Max WL	105.85	111.49	112	113.72	113.74	112.06	113.01	112.00	108.26	106.61	105.15	104.54
Max Day Mean	105.84	111.48	112.27	113.72	113.73	112.05	113.01	111.97	108.22	106.59	105.14	104.53

Average Well Water Level for Water Year 2018: 108.73

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



SCMW_2--Pendleton and 180th

Water Year: 2018 Well Water Levels are in feet

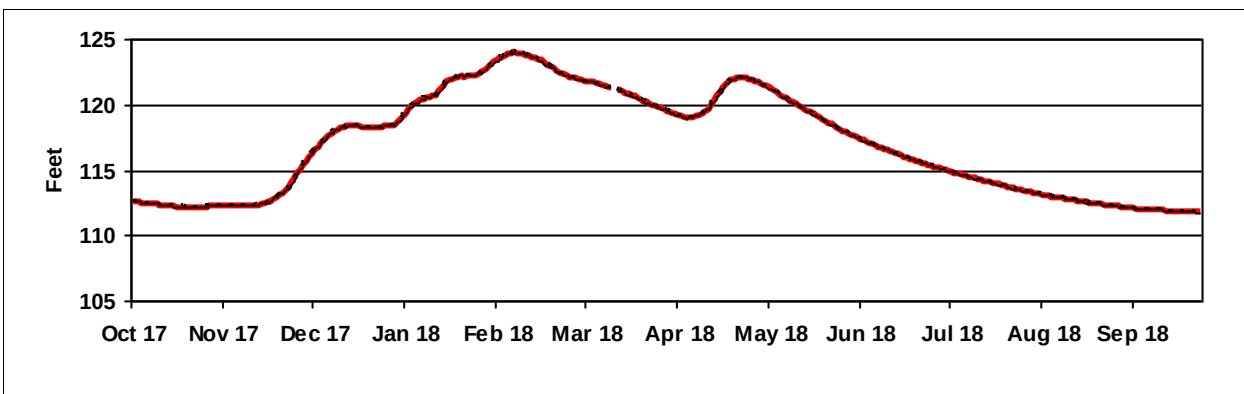
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	112.59	112.36	116.33	119.11	123.26	122.03	119.58	121.83	117.95	115.29	113.43	112.27
02	112.58	112.37	116.61	119.42	123.41	121.96	119.47	121.76	117.84	115.22	113.37	112.26
03	112.56	112.38	116.83	119.69	123.56	121.90	119.40	121.64	117.72	115.16	113.33	112.22
04	112.53	112.39	117.08	119.90	123.70	121.85	119.31	121.52	117.62	115.09	113.29	112.21
05	112.50	112.37	117.32	120.09	123.79	121.79	119.24	121.43	117.53	115.01	113.23	112.18
06	112.48	112.37	117.52	120.23	123.88	121.75	119.16	121.29	117.40	114.94	113.20	112.14
07	112.47	112.38	117.73	120.37	123.95	121.74	119.09	121.16	117.32	114.89	113.16	112.12
08	112.45	112.37	117.90	120.48	124.01	121.67	118.97	121.05	117.20	114.82	113.09	112.08
09	112.43	112.39	118.03	120.55	124.00	121.58	119.02	120.90	117.10	114.75	113.06	112.06
10	112.39	112.38	118.15	120.61	123.99	121.51	119.04	120.74	117.01	114.70	113.00	112.04
11	112.36	112.39	118.23	120.67	123.95	121.42	119.16	120.60	116.91	114.66	112.96	112.02
12	112.34	112.40	118.29	120.75	123.84	121.39	119.25	120.50	116.83	114.57	112.93	112.00
13	112.32	112.40	118.36	120.97	123.79	121.29	119.34	120.34	116.74	114.51	112.89	111.99
14	112.31	112.43	118.38	121.26	123.67		119.46	120.20	116.64	114.46	112.88	111.97
15	112.26	112.49	118.38	121.53	123.62	121.23	119.67	120.12	116.60	114.39	112.82	111.97
16	112.25	112.58	118.38	121.74	123.51	121.13	120.00	119.98	116.49	114.34	112.80	111.96
17	112.24	112.64	118.37	121.94	123.41	121.02	120.45	119.85	116.42	114.28	112.78	111.96
18	112.25	112.80	118.35	122.00	123.26	120.93	120.68	119.71	116.31	114.20	112.74	111.94
19	112.21	112.98	118.30	122.09	123.09	120.81	121.00	119.57	116.23	114.16	112.67	111.93
20	112.20	113.10	118.24	122.16	122.95	120.74	121.31	119.43	116.14	114.11	112.64	111.92
21	112.18	113.27	118.24	122.18	122.82	120.66	121.54	119.30	116.04	114.06	112.61	111.91
22	112.18	113.45	118.23	122.17	122.66	120.53	121.75	119.18	115.96	113.98	112.57	111.90
23	112.21	113.69	118.24	122.22	122.56	120.44	121.91	119.04	115.87	113.94	112.53	111.89
24	112.21	114.03	118.29	122.22	122.43	120.33	122.02	118.89	115.80	113.87	112.50	111.87
25	112.23	114.42	118.33	122.20	122.36	120.21	122.06	118.77	115.73	113.82	112.47	111.86
26	112.25	114.77	118.37	122.27	122.21	120.11	122.11	118.65	115.66	113.74	112.44	111.85
27	112.28	115.11	118.42	122.36	122.14	120.01	122.09	118.52	115.58	113.70	112.42	111.83
28	112.30	115.41	118.48	122.51	122.09	119.92	122.07	118.39	115.50	113.63	112.40	111.83
29	112.32	115.72	118.51	122.73		119.84	122.00	118.28	115.43	113.57	112.38	111.80
30	112.33	116.04	118.60	122.92		119.74	121.93	118.16	115.36	113.53	112.34	111.80
31	112.36		118.82	123.11		119.66		118.05		113.48	112.31	
Avg WL	112.34	113.20	118.04	121.37	123.28	120.97	120.40	119.96	116.56	114.35	112.81	111.99
Max WL	112.60	116.10	119	123.16	124.02	122.04	122.11	121.85	117.98	115.31	113.44	112.27
Max Day Mean	112.59	116.04	118.82	123.11	124.01	122.03	122.11	121.83	117.95	115.29	113.43	112.27

Average Well Water Level for Water Year 2018: 117.11

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



SCMW_3--201st and Old HW 99

Water Year: 2018 Well Water Levels are in feet

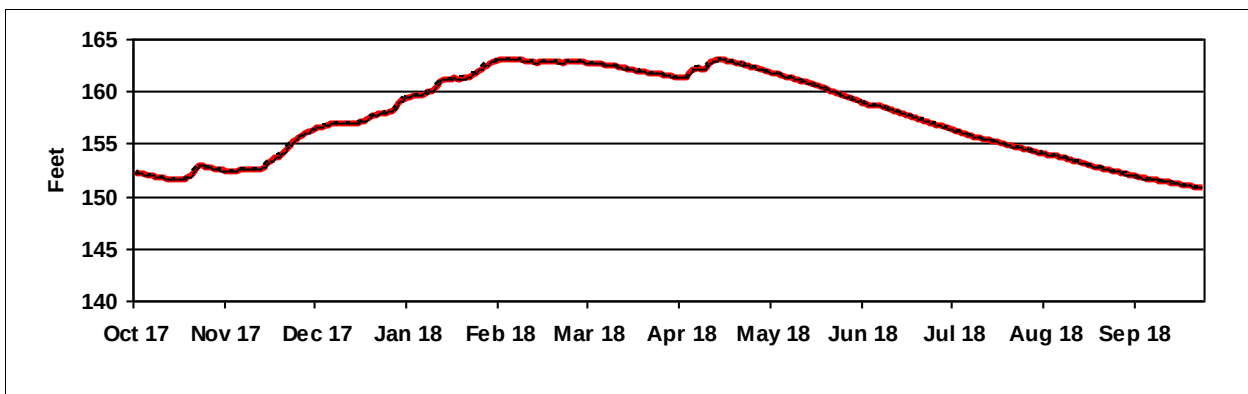
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	152.32	152.46	156.42	159.35	162.95	162.99	161.56	162.25	159.47	156.88	154.51	152.32
02	152.26	152.40	156.54	159.47	163.07	162.91	161.47	162.16	159.38	156.79	154.42	152.28
03	152.20	152.38	156.59	159.55	163.14	162.85	161.43	162.09	159.28	156.71	154.35	152.17
04	152.13	152.39	156.68	159.58	163.17	162.77	161.40	161.99	159.18	156.60	154.28	152.13
05	152.07	152.43	156.75	159.62	163.17	162.74	161.39	161.95	159.09	156.51	154.19	152.06
06	152.04	152.55	156.82	159.67	163.14	162.72	161.39	161.84	158.98	156.40	154.12	151.98
07	151.98	152.57	156.90	159.73	163.13	162.73	161.42	161.77	158.88	156.32	154.05	151.93
08	151.92	152.55	156.93	159.89	163.11	162.69	161.73	161.72	158.79	156.25	153.99	151.86
09	151.89	152.55	156.96	159.95	163.06	162.63	162.12	161.62	158.70	156.15	153.92	151.80
10	151.81	152.57	156.99	159.98	163.02	162.60	162.21	161.52	158.71	156.07	153.92	151.75
11	151.75	152.55	157.00	160.24	162.99	162.53	162.25	161.45	158.67	156.00	153.87	151.69
12	151.73	152.57	157.02	160.70	162.89	162.54	162.17	161.40	158.63	155.89	153.80	151.66
13	151.71	152.62	157.04	160.98	162.89	162.46	162.15	161.31	158.52	155.80	153.72	151.60
14	151.67	152.87	157.06	161.13	162.84	162.44	162.35	161.22	158.42	155.73	153.68	151.57
15	151.63	153.13	157.06	161.20	162.80	162.40	162.81	161.17	158.38	155.63	153.59	151.52
16	151.59	153.39	157.06	161.19	162.82	162.32	162.96	161.08	158.28	155.58	153.51	151.48
17	151.58	153.47	157.09	161.26	162.93	162.24	163.02	161.00	158.19	155.50	153.44	151.45
18	151.58	153.68	157.12	161.29	162.92	162.16	163.05	160.91	158.08	155.42	153.36	151.40
19	151.79	153.83	157.36	161.26	162.88	162.09	163.04	160.82	157.98	155.39	153.28	151.35
20	152.00	153.99	157.54	161.27	162.87	162.07	163.01	160.71	157.91	155.34	153.21	151.31
21	152.25	154.25	157.70	161.28	162.88	162.04	162.92	160.62	157.79	155.28	153.12	151.26
22	152.76	154.56	157.79	161.29	162.81	162.01	162.87	160.55	157.71	155.19	153.05	151.19
23	152.93	154.91	157.85	161.44	162.82	161.98	162.83	160.45	157.62	155.13	152.95	151.14
24	152.93	155.25	157.93	161.66	162.80	161.91	162.77	160.34	157.55	155.04	152.88	151.09
25	152.87	155.51	157.97	161.80	162.89	161.84	162.69	160.25	157.44	154.96	152.80	151.05
26	152.79	155.66	158.03	161.99	162.87	161.76	162.64	160.12	157.34	154.88	152.72	151.00
27	152.74	155.84	158.08	162.20	162.94	161.74	162.53	160.01	157.25	154.81	152.67	150.95
28	152.69	155.99	158.13	162.41	162.99	161.73	162.48	159.91	157.15	154.73	152.60	150.90
29	152.61	156.14	158.50	162.59		161.69	162.39	159.81	157.06	154.69	152.54	150.85
30	152.57	156.29	158.92	162.75		161.64	162.32	159.71	156.95	154.62	152.46	150.80
31	152.52		159.21	162.88		161.59		159.58		154.56	152.38	
Avg WL	152.17	153.71	157.39	160.95	162.96	162.28	162.31	161.01	158.25	155.64	153.46	151.52
Max WL	152.94	156.31	159	162.90	163.18	162.99	163.06	162.28	159.49	156.90	154.53	152.32
Max Day Mean	152.93	156.29	159.21	162.88	163.17	162.99	163.05	162.25	159.47	156.88	154.51	152.32

Average Well Water Level for Water Year 2018: 157.64

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



SCMW_4--Edinger Morris and Florence

Water Year: 2018 Well Water Levels are in feet

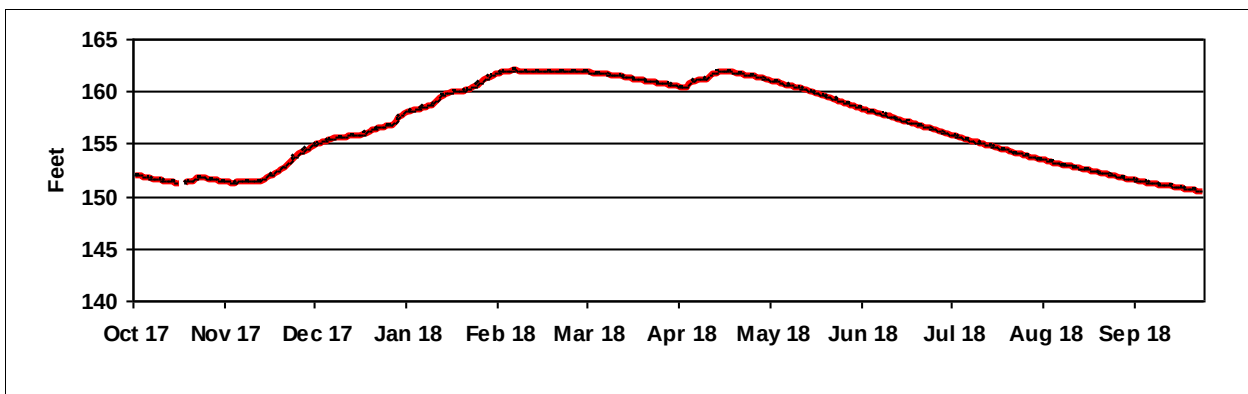
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	152.03	151.42	154.87	157.93	161.71	162.01	160.70	161.41	158.86	156.35	153.91	151.91
02	151.98	151.39	155.00	158.07	161.82	161.99	160.61	161.36	158.79	156.26	153.83	151.86
03	151.94	151.35	155.11	158.17	161.91	161.94	160.57	161.29	158.69	156.16	153.74	151.79
04	151.87	151.34	155.21	158.25	161.97	161.89	160.53	161.21	158.60	156.08	153.68	151.73
05	151.81	151.38	155.31	158.32	162.02	161.86	160.51	161.15	158.51	156.00	153.61	151.67
06	151.75	151.42	155.40	158.39	162.03	161.84	160.50	161.07	158.40	155.91	153.55	151.59
07	151.70	151.41	155.49	158.46	162.05	161.84	160.51	160.99	158.32	155.84	153.48	151.55
08	151.65	151.40	155.56	158.59	162.05	161.81	160.73	160.94	158.22	155.75	153.41	151.49
09	151.60	151.40	155.61	158.66	162.04	161.75	160.98	160.86	158.16	155.68	153.33	151.42
10	151.55	151.40	155.66	158.71	162.02	161.73	161.08	160.77	158.09	155.60	153.26	151.38
11	151.49	151.39	155.71	158.92	162.02	161.68	161.13	160.69	157.99	155.51	153.19	151.34
12	151.45	151.38	155.74	159.26	161.94	161.65	161.13	160.64	157.91	155.42	153.13	151.29
13	151.43	151.46	155.80	159.54	161.95	161.60	161.11	160.54	157.84	155.35	153.06	151.24
14	151.39	151.62	155.82	159.72	161.93	161.58	161.25	160.45	157.74	155.27	153.03	151.21
15	151.34	151.80	155.83	159.84	161.92	161.55	161.55	160.41	157.68	155.19	152.97	151.16
16	151.28	152.00	155.87	159.89	161.92	161.49	161.76	160.34	157.59	155.14	152.91	151.13
17		152.09	155.90	159.95	161.99	161.42	161.85	160.24	157.51	155.06	152.85	151.10
18	151.26	152.28	155.94	160.02	161.98	161.36	161.89	160.17	157.42	154.97	152.78	151.05
19	151.38	152.41	156.12	160.04	161.94	161.30	161.92	160.06	157.34	154.89	152.71	151.01
20	151.39	152.56	156.25	160.07	161.93	161.26	161.93	159.97	157.26	154.82	152.66	150.96
21	151.44	152.76	156.37	160.10	161.92	161.22	161.89	159.88	157.16	154.73	152.60	150.92
22	151.77	153.01	156.46	160.14	161.89	161.18	161.88	159.81	157.09	154.64	152.53	150.87
23	151.82	153.33	156.55	160.22	161.89	161.13	161.86	159.72	157.00	154.57	152.46	150.83
24	151.79	153.62	156.62	160.39	161.87	161.07	161.81	159.62	156.93	154.50	152.40	150.77
25	151.75	153.87	156.69	160.53	161.93	161.01	161.75	159.53	156.84	154.44	152.34	150.73
26	151.70	154.06	156.75	160.70	161.92	160.95	161.71	159.44	156.74	154.35	152.27	150.68
27	151.66	154.25	156.81	160.91	161.96	160.91	161.65	159.35	156.66	154.28	152.21	150.64
28	151.61	154.40	156.88	161.11	162.01	160.88	161.61	159.25	156.58	154.19	152.17	150.59
29	151.56	154.57	157.15	161.29		160.84	161.54	159.16	156.51	154.12	152.11	150.53
30	151.52	154.74	157.48	161.45		160.79	161.49	159.08	156.42	154.05	152.04	150.49
31	151.48		157.76	161.59		160.73		158.96		153.97	151.97	
Avg WL	151.61	152.38	156.06	159.65	161.95	161.43	161.31	160.27	157.63	155.13	152.91	151.16
Max WL	152.05	154.76	158	161.63	162.07	162.01	161.93	161.43	158.88	156.36	153.93	151.92
Max Day Mean	152.03	154.74	157.76	161.59	162.05	162.01	161.93	161.41	158.86	156.35	153.91	151.91

Average Well Water Level for Water Year 2018: 156.79

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



SCMW_5--183rd Ave

Water Year: 2018 Well Water Levels are in feet

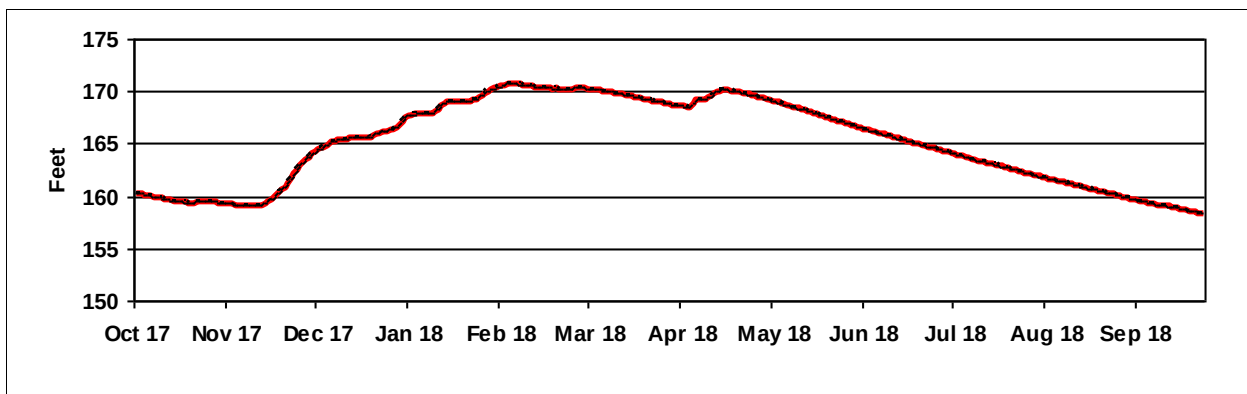
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	160.35	159.34	164.27	167.51	170.44	170.41	168.86	169.52	166.91	164.56	162.25	160.07
02	160.29	159.32	164.48	167.69	170.53	170.39	168.78	169.46	166.83	164.46	162.16	160.01
03	160.24	159.28	164.62	167.79	170.60	170.35	168.74	169.39	166.74	164.39	162.10	159.93
04	160.17	159.25	164.77	167.86	170.68	170.29	168.67	169.29	166.66	164.31	162.01	159.88
05	160.11	159.22	164.94	167.87	170.72	170.26	168.63	169.22	166.58	164.24	161.94	159.81
06	160.05	159.21	165.08	167.88	170.74	170.24	168.61	169.12	166.48	164.16	161.88	159.73
07	160.01	159.21	165.22	167.92	170.75	170.24	168.57	169.04	166.40	164.08	161.80	159.67
08	159.94	159.19	165.32	167.98	170.74	170.19	168.60	168.99	166.32	164.01	161.73	159.60
09	159.89	159.20	165.39	168.00	170.72	170.12	168.95	168.89	166.24	163.92	161.66	159.55
10	159.84	159.19	165.46	168.03	170.68	170.07	169.19	168.80	166.18	163.86	161.60	159.48
11	159.77	159.19	165.50	168.16	170.63	170.02	169.33	168.72	166.09	163.79	161.52	159.43
12	159.72	159.20	165.55	168.36	170.56	170.00	169.36	168.66	166.02	163.68	161.46	159.37
13	159.64	159.22	165.58	168.68	170.55	169.92	169.37	168.57	165.94	163.60	161.38	159.31
14	159.59	159.31	165.61	168.91	170.49	169.91	169.41	168.47	165.86	163.53	161.35	159.25
15	159.55	159.51	165.63	169.05	170.46	169.87	169.64	168.42	165.81	163.45	161.28	159.20
16	159.50	159.76	165.63	169.10	170.43	169.80	169.89	168.34	165.73	163.42	161.21	159.15
17	159.48	159.86	165.65	169.16	170.43	169.72	170.06	168.25	165.65	163.34	161.15	159.12
18	159.46	160.16	165.66	169.16	170.37	169.65	170.13	168.18	165.56	163.26	161.08	159.07
19	159.43	160.45	165.70	169.15	170.33	169.58	170.18	168.08	165.48	163.19	160.99	159.01
20	159.40	160.68	165.74	169.13	170.32	169.54	170.20	167.98	165.41	163.12	160.93	158.94
21	159.40	160.96	165.88	169.13	170.33	169.49	170.15	167.90	165.32	163.05	160.86	158.89
22	159.49	161.29	166.00	169.10	170.29	169.42	170.13	167.83	165.24	162.95	160.78	158.81
23	159.55	161.74	166.09	169.16	170.32	169.36	170.10	167.74	165.16	162.89	160.71	158.76
24	159.57	162.21	166.19	169.22	170.28	169.29	170.04	167.63	165.11	162.81	160.64	158.70
25	159.55	162.67	166.27	169.33	170.31	169.22	169.98	167.56	165.03	162.75	160.58	158.65
26	159.53	163.00	166.31	169.49	170.25	169.16	169.92	167.45	164.95	162.67	160.50	158.58
27	159.52	163.30	166.37	169.68	170.32	169.10	169.83	167.37	164.86	162.60	160.44	158.52
28	159.48	163.54	166.43	169.92	170.39	169.05	169.77	167.27	164.79	162.52	160.37	158.47
29	159.44	163.80	166.56	170.12		169.01	169.69	167.18	164.71	162.45	160.31	158.39
30	159.41	164.05	166.88	170.23		168.95	169.62	167.12	164.63	162.38	160.24	158.35
31	159.38		167.26	170.35		168.90		167.01		162.30	160.16	
Avg WL	159.70	160.54	165.68	168.81	170.49	169.73	169.48	168.30	165.76	163.41	161.20	159.19
Max WL	160.36	164.09	167	170.38	170.75	170.41	170.20	169.54	166.92	164.57	162.26	160.08
Max Day Mean	160.35	164.05	167.26	170.35	170.75	170.41	170.20	169.52	166.91	164.56	162.25	160.07

Average Well Water Level for Water Year 2018: 165.19

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



04/15/2019 3:44:20 PM

SCMW_6--Loganberry

Water Year: 2018 Well Water Levels are in feet

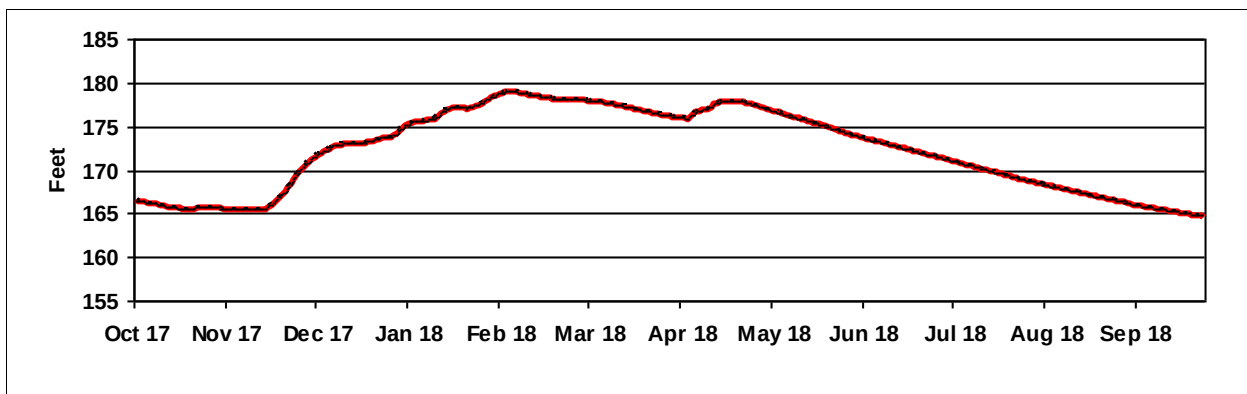
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	166.58	165.56	171.54	175.12	178.64	178.14	176.28	177.38	174.21	171.57	168.82	166.48
02	166.52	165.53	171.80	175.31	178.78	178.11	176.18	177.30	174.12	171.49	168.74	166.42
03	166.47	165.48	171.99	175.45	178.87	178.06	176.14	177.18	174.02	171.39	168.65	166.35
04	166.40	165.48	172.16	175.53	178.95	178.00	176.08	177.07	173.93	171.31	168.56	166.27
05	166.32	165.47	172.33	175.60	178.98	177.97	176.03	176.99	173.84	171.22	168.48	166.18
06	166.25	165.47	172.50	175.61	179.00	177.92	175.99	176.86	173.73	171.11	168.40	166.10
07	166.20	165.47	172.66	175.65	178.99	177.93	175.95	176.76	173.65	171.04	168.34	166.05
08	166.14	165.45	172.79	175.73	178.98	177.87	176.09	176.66	173.54	170.95	168.24	165.97
09	166.08	165.47	172.88	175.75	178.93	177.81	176.43	176.54	173.45	170.85	168.17	165.90
10	166.01	165.47	172.96	175.79	178.87	177.75	176.65	176.44	173.39	170.77	168.08	165.83
11	165.94	165.46	173.01	175.94	178.82	177.66	176.84	176.32	173.29	170.68	168.00	165.78
12	165.86	165.48	173.07	176.25	178.70	177.64	176.88	176.23	173.22	170.57	167.94	165.72
13	165.82	165.51	173.12	176.59	178.65	177.56	176.91	176.12	173.13	170.49	167.86	165.65
14	165.75	165.64	173.15	176.84	178.58	177.53	177.01	176.02	173.03	170.38	167.83	165.59
15	165.70	165.86	173.16	176.99	178.52	177.47	177.28	175.96	172.97	170.27	167.74	165.55
16	165.65	166.10	173.16	177.05	178.47	177.38	177.56	175.86	172.87	170.22	167.67	165.50
17	165.60	166.20	173.18	177.12	178.42	177.29	177.74	175.76	172.79	170.12	167.60	165.46
18	165.58	166.54	173.18	177.13	178.36	177.21	177.83	175.67	172.68	170.03	167.54	165.40
19	165.56	166.87	173.27	177.14	178.28	177.11	177.94	175.56	172.61	169.96	167.45	165.35
20	165.53	167.16	173.31	177.11	178.23	177.06	178.01	175.45	172.53	169.88	167.37	165.29
21	165.55	167.50	173.41	177.11	178.19	177.01	178.00	175.35	172.42	169.78	167.28	165.24
22	165.75	167.95	173.50	177.08	178.13	176.94	178.01	175.27	172.35	169.68	167.20	165.18
23	165.82	168.49	173.58	177.14	178.12	176.85	177.99	175.15	172.25	169.59	167.13	165.13
24	165.82	169.05	173.69	177.24	178.07	176.76	177.95	175.04	172.19	169.51	167.05	165.06
25	165.80	169.59	173.75	177.37	178.08	176.68	177.89	174.93	172.09	169.43	166.98	165.00
26	165.77	169.97	173.80	177.53	178.05	176.60	177.84	174.83	172.01	169.33	166.90	164.94
27	165.75	170.33	173.87	177.75	178.06	176.54	177.74	174.72	171.91	169.25	166.85	164.88
28	165.72	170.63	173.93	178.00	178.12	176.46	177.68	174.62	171.83	169.16	166.78	164.83
29	165.66	170.94	174.13	178.21		176.41	177.57	174.52	171.74	169.07	166.70	164.76
30	165.65	171.27	174.51	178.36		176.36	177.48	174.43	171.65	168.99	166.62	164.70
31	165.61		174.87	178.52		176.31		174.31		168.89	166.55	
Avg WL	165.90	167.05	173.17	176.71	178.53	177.30	177.13	175.85	172.91	170.23	167.66	165.55
Max WL	166.59	171.33	175	178.56	179.01	178.15	178.01	177.40	174.22	171.59	168.84	166.48
Max Day Mean	166.58	171.27	174.87	178.52	179.00	178.14	178.01	177.38	174.21	171.57	168.82	166.48

Average Well Water Level for Water Year 2018: 172.33

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



SCMW_7--Leitner and 180th

Water Year: 2018 Well Water Levels are in feet

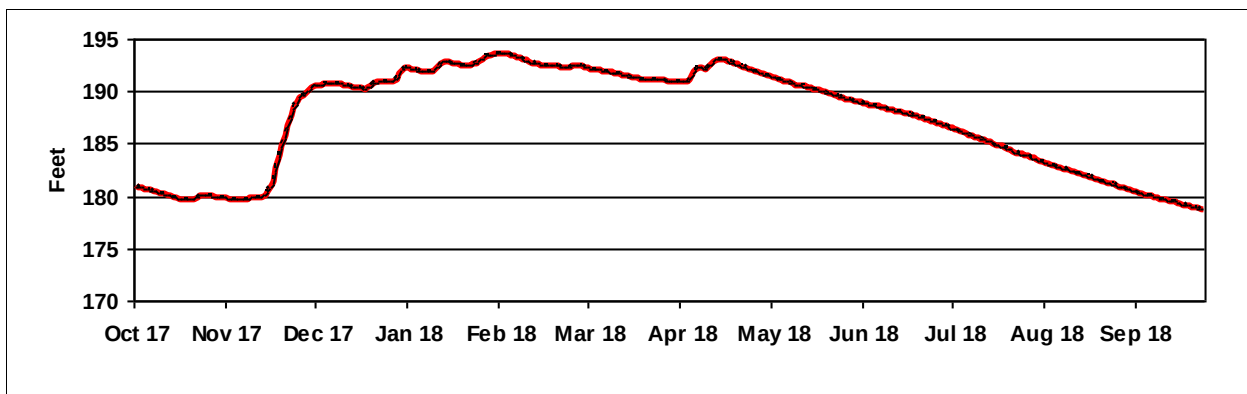
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	180.99	179.85	190.55	192.24	193.60	192.49	191.07	191.88	189.29	187.07	183.86	180.96
02	180.92	179.81	190.66	192.25	193.61	192.45	191.00	191.81	189.25	186.97	183.75	180.89
03	180.84	179.77	190.69	192.21	193.63	192.37	190.98	191.69	189.16	186.88	183.65	180.80
04	180.76	179.75	190.74	192.13	193.65	192.30	190.94	191.58	189.09	186.75	183.53	180.70
05	180.68	179.74	190.80	192.06	193.60	192.23	190.93	191.51	189.00	186.65	183.43	180.63
06	180.60	179.77	190.86	191.99	193.51	192.19	190.94	191.38	188.93	186.52	183.34	180.52
07	180.53	179.79	190.88	191.96	193.42	192.17	190.98	191.31	188.83	186.44	183.26	180.46
08	180.46	179.81	190.84	191.99	193.33	192.09	191.24	191.22	188.78	186.32	183.14	180.36
09	180.39	179.83	190.76	191.97	193.23	192.01	191.88	191.10	188.73	186.22	183.02	180.26
10	180.30	179.86	190.74	192.00	193.13	191.96	192.21	191.04	188.69	186.13	182.92	180.20
11	180.22	179.88	190.68	192.15	193.01	191.90	192.31	190.95	188.61	186.04	182.86	180.12
12	180.15	179.93	190.61	192.48	192.89	191.86	192.29	190.90	188.55	185.91	182.79	180.03
13	180.07	180.00	190.55	192.78	192.80	191.78	192.23	190.79	188.48	185.79	182.68	179.95
14	179.99	180.19	190.50	192.88	192.70	191.77	192.30	190.68	188.40	185.73	182.65	179.86
15	179.91	180.52	190.47	192.89	192.65	191.72	192.63	190.67	188.37	185.61	182.59	179.80
16	179.81	181.05	190.40	192.82	192.59	191.63	192.93	190.62	188.29	185.55	182.48	179.72
17	179.82	181.42	190.35	192.78	192.57	191.55	193.08	190.53	188.21	185.43	182.35	179.69
18	179.81	182.73	190.32	192.74	192.54	191.47	193.11	190.46	188.15	185.32	182.25	179.63
19	179.77	183.92	190.44	192.67	192.54	191.41	193.08	190.38	188.06	185.23	182.16	179.54
20	179.74	184.88	190.54	192.58	192.54	191.36	193.02	190.29	188.02	185.09	182.09	179.48
21	179.75	185.81	190.77	192.52	192.52	191.32	192.89	190.21	187.93	184.97	181.97	179.41
22	179.96	186.76	190.90	192.45	192.44	191.27	192.82	190.14	187.86	184.85	181.91	179.32
23	180.06	187.71	190.96	192.50	192.42	191.23	192.72	190.04	187.77	184.80	181.80	179.25
24	180.07	188.50	191.00	192.63	192.36	191.19	192.62	189.96	187.73	184.67	181.69	179.16
25	180.05	189.11	190.98	192.78	192.37	191.15	192.50	189.88	187.63	184.58	181.59	179.10
26	180.04	189.45	190.96	192.93	192.35	191.13	192.42	189.78	187.55	184.43	181.51	179.03
27	180.02	189.68	190.93	193.14	192.46	191.12	192.30	189.69	187.46	184.35	181.47	178.95
28	179.98	189.93	190.95	193.33	192.52	191.13	192.20	189.58	187.36	184.21	181.34	178.88
29	179.94	190.17	191.22	193.44		191.12	192.09	189.55	187.27	184.12	181.26	178.77
30	179.91	190.40	191.79	193.50		191.10	191.99	189.49	187.16	184.04	181.18	178.72
31	179.85		192.17	193.58		191.06		189.36		183.92	181.08	
Avg WL	180.17	183.33	190.81	192.59	192.89	191.66	192.12	190.60	188.29	185.50	182.44	179.81
Max WL	181.02	190.43	192	193.59	193.66	192.49	193.11	191.90	189.29	187.10	183.88	180.96
Max Day Mean	180.99	190.40	192.17	193.58	193.65	192.49	193.11	191.88	189.29	187.07	183.86	180.96

Average Well Water Level for Water Year 2018: 187.52

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



SCMW_8--Old HW 99 and Violet Prairie

Water Year: 2018 Well Water Levels are in feet

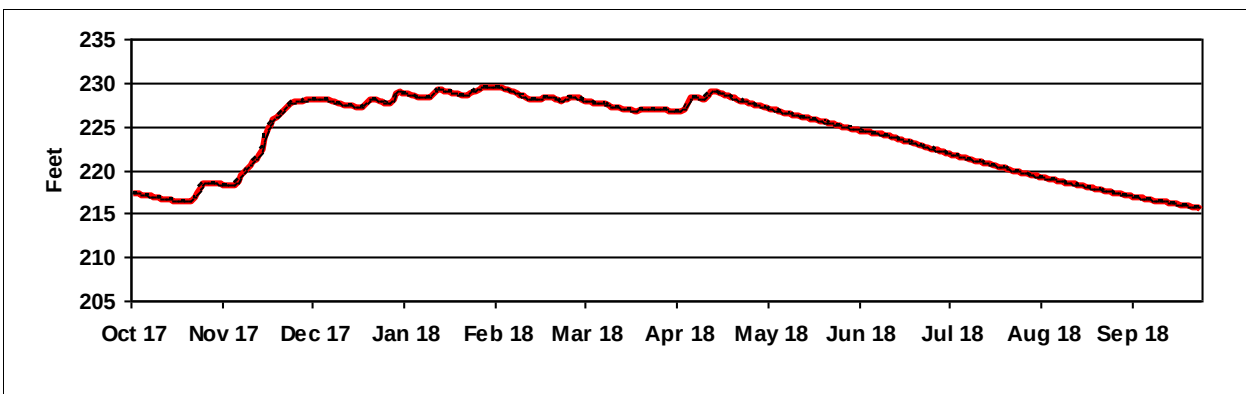
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	217.40	218.34	228.13	228.87	229.47	228.35	226.90	227.52	224.95	222.42	219.68	217.41
02	217.35	218.30	228.14	228.81	229.46	228.26	226.85	227.43	224.89	222.31	219.59	217.34
03	217.29	218.25	228.14	228.71	229.47	228.12	226.82	227.33	224.80	222.22	219.50	217.27
04	217.21	218.26	228.17	228.61	229.44	227.99	226.78	227.22	224.75	222.13	219.44	217.21
05	217.15	218.34	228.15	228.52	229.35	227.91	226.78	227.15	224.68	222.01	219.34	217.15
06	217.10	218.74	228.10	228.43	229.23	227.83	226.82	227.05	224.58	221.92	219.27	217.07
07	217.03	219.36	228.02	228.38	229.11	227.77	226.92	226.96	224.52	221.83	219.21	217.00
08	216.98	219.82	227.91	228.39	228.98	227.72	227.48	226.89	224.44	221.76	219.11	216.93
09	216.93	220.18	227.80	228.44	228.82	227.67	228.31	226.79	224.40	221.68	219.03	216.87
10	216.86	220.57	227.70	228.42	228.65	227.63	228.43	226.71	224.34	221.60	218.95	216.80
11	216.79	220.98	227.61	228.62	228.50	227.57	228.37	226.64	224.27	221.51	218.89	216.74
12	216.72	221.34	227.52	229.07	228.34	227.52	228.27	226.58	224.21	221.38	218.81	216.68
13	216.67	221.71	227.47	229.24	228.24	227.31	228.15	226.48	224.13	221.30	218.73	216.61
14	216.61	222.45	227.40	229.22	228.16	227.30	228.23	226.38	224.05	221.22	218.70	216.56
15	216.56	223.73	227.37	229.15	228.11	227.26	228.70	226.33	224.00	221.13	218.61	216.52
16	216.48	224.85	227.30	229.04	228.06	227.15	228.96	226.25	223.90	221.07	218.56	216.45
17	216.48	225.19	227.26	228.97	228.13	227.08	229.00	226.16	223.83	220.96	218.48	216.42
18	216.45	225.77	227.24	228.93	228.33	227.00	229.00	226.10	223.73	220.86	218.41	216.37
19	216.44	226.04	227.46	228.82	228.45	226.93	228.92	226.00	223.63	220.78	218.32	216.30
20	216.44	226.22	227.82	228.71	228.41	226.88	228.82	225.91	223.54	220.70	218.26	216.26
21	216.52	226.65	228.12	228.62	228.30	226.82	228.66	225.83	223.43	220.61	218.19	216.20
22	216.93	227.07	228.13	228.57	228.14	226.86	228.52	225.77	223.33	220.51	218.11	216.12
23	217.36	227.43	228.08	228.65	228.05	226.90	228.39	225.67	223.21	220.45	218.04	216.07
24	218.07	227.69	227.99	228.82	227.98	226.95	228.25	225.59	223.12	220.35	217.96	216.01
25	218.43	227.79	227.88	228.98	228.04	226.98	228.10	225.51	223.01	220.28	217.89	215.96
26	218.54	227.80	227.78	229.12	228.19	226.98	228.01	225.42	222.90	220.18	217.82	215.89
27	218.58	227.84	227.71	229.32	228.37	227.01	227.88	225.34	222.79	220.09	217.75	215.83
28	218.55	227.92	227.70	229.42	228.40	227.02	227.82	225.27	222.70	220.00	217.69	215.78
29	218.51	228.03	228.22	229.43		227.02	227.71	225.20	222.60	219.93	217.62	215.69
30	218.45	228.12	228.86	229.47		226.98	227.62	225.13	222.50	219.85	217.54	215.64
31	218.40		228.96	229.51		226.93		225.03		219.75	217.47	
Avg WL	217.27	223.49	227.88	228.88	228.58	227.35	227.98	226.25	223.84	221.06	218.55	216.50
Max WL	218.58	228.13	229	229.51	229.47	228.37	229.00	227.54	224.96	222.44	219.69	217.42
Max Day Mean	218.58	228.12	228.96	229.51	229.47	228.35	229.00	227.52	224.95	222.42	219.68	217.41

Average Well Water Level for Water Year 2018: 223.97

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Well Water Level-- Mean, Maximum, Minimum:



04/15/2019 3:45:25 PM

Appendix F – Lake Level Data

10b--Lake St. Clair

Water Year: 2018 Lake Levels are in feet

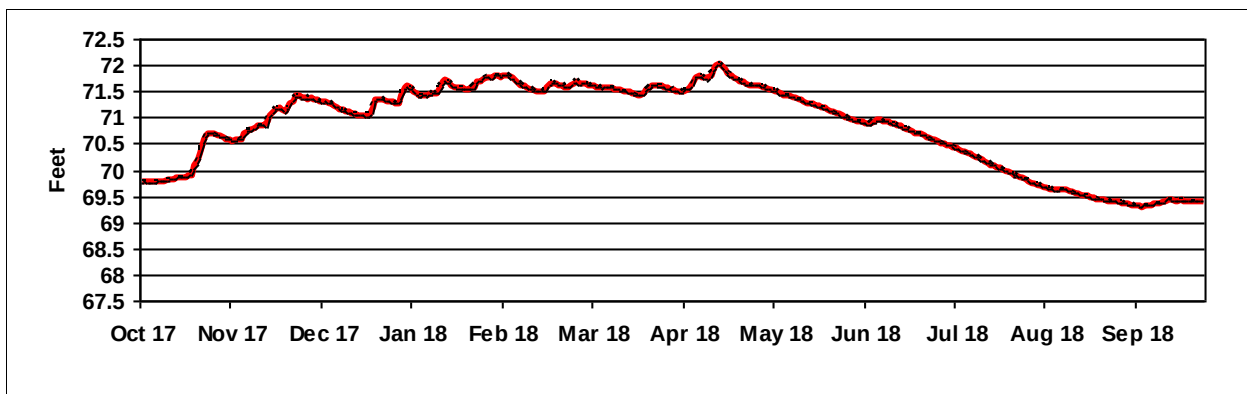
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	69.78	70.57	71.31	71.58	71.79	71.66	71.53	71.62	70.98	70.56	69.80	69.39
02	69.78	70.58	71.31	71.52	71.82	71.66	71.52	71.60	70.96	70.53	69.77	69.38
03	69.78	70.60	71.32	71.47	71.83	71.64	71.50	71.59	70.95	70.51	69.75	69.37
04	69.78	70.61	71.29	71.43	71.80	71.62	71.50	71.56	70.93	70.49	69.73	69.36
05	69.78	70.69	71.27	71.43	71.76	71.61	71.51	71.53	70.92	70.47	69.71	69.35
06	69.78	70.75	71.24	71.43	71.72	71.60	71.53	71.51	70.90	70.44	69.69	69.34
07	69.79	70.77	71.21	71.43	71.67	71.58	71.58	71.49	70.88	70.42	69.67	69.33
08	69.80	70.78	71.18	71.46	71.64	71.59	71.71	71.47	70.88	70.40	69.65	69.32
09	69.80	70.83	71.15	71.48	71.61	71.60	71.79	71.45	70.94	70.38	69.63	69.31
10	69.81	70.85	71.13	71.47	71.58	71.60	71.80	71.44	70.96	70.35	69.62	69.32
11	69.81	70.85	71.11	71.56	71.56	71.58	71.78	71.42	70.96	70.33	69.62	69.33
12	69.83	70.86	71.09	71.68	71.53	71.56	71.77	71.40	70.95	70.31	69.65	69.35
13	69.85	70.92	71.07	71.72	71.51	71.54	71.76	71.38	70.94	70.29	69.64	69.36
14	69.86	71.05	71.06	71.68	71.51	71.53	71.80	71.36	70.92	70.26	69.62	69.37
15	69.87	71.13	71.05	71.64	71.51	71.52	71.94	71.34	70.91	70.23	69.61	69.38
16	69.87	71.18	71.04	71.59	71.52	71.50	72.01	71.31	70.89	70.21	69.59	69.41
17	69.89	71.19	71.04	71.57	71.57	71.49	72.03	71.29	70.86	70.18	69.57	69.42
18	69.92	71.17	71.05	71.58	71.65	71.47	71.99	71.27	70.84	70.15	69.56	69.43
19	70.08	71.14	71.21	71.57	71.67	71.46	71.92	71.26	70.82	70.11	69.54	69.43
20	70.20	71.19	71.34	71.56	71.66	71.44	71.86	71.24	70.79	70.09	69.52	69.42
21	70.33	71.26	71.37	71.56	71.64	71.43	71.81	71.23	70.77	70.07	69.51	69.42
22	70.58	71.33	71.37	71.57	71.62	71.48	71.77	71.21	70.74	70.04	69.49	69.43
23	70.68	71.42	71.36	71.60	71.60	71.54	71.74	71.19	70.72	70.02	69.48	69.42
24	70.72	71.42	71.33	71.68	71.60	71.60	71.71	71.16	70.70	70.00	69.46	69.42
25	70.71	71.39	71.33	71.71	71.63	71.63	71.68	71.14	70.69	69.97	69.44	69.42
26	70.69	71.38	71.30	71.75	71.67	71.62	71.65	71.11	70.66	69.95	69.44	69.41
27	70.67	71.37	71.28	71.79	71.68	71.62	71.63	71.09	70.64	69.92	69.43	69.40
28	70.65	71.38	71.29	71.79	71.66	71.61	71.63	71.07	70.62	69.90	69.42	69.40
29	70.63	71.36	71.45	71.78		71.59	71.64	71.04	70.60	69.88	69.41	69.40
30	70.61	71.34	71.59	71.81		71.57	71.63	71.02	70.58	69.85	69.40	69.39
31	70.59		71.61	71.81		71.54		71.00		69.82	69.40	
Avg WL	70.13	71.05	71.25	71.60	71.64	71.56	71.72	71.32	70.83	70.20	69.57	69.38
Max WL	70.72	71.44	72	71.82	71.84	71.67	72.04	71.62	71.00	70.57	69.81	69.44
Max Day Mean	70.72	71.42	71.61	71.81	71.83	71.66	72.03	71.62	70.98	70.56	69.80	69.43

Average Lake Level for Water Year 2018: 70.85

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Lake Level-- Mean, Maximum, Minimum:



18b--Long Lake

Water Year: 2018 Lake Levels are in feet

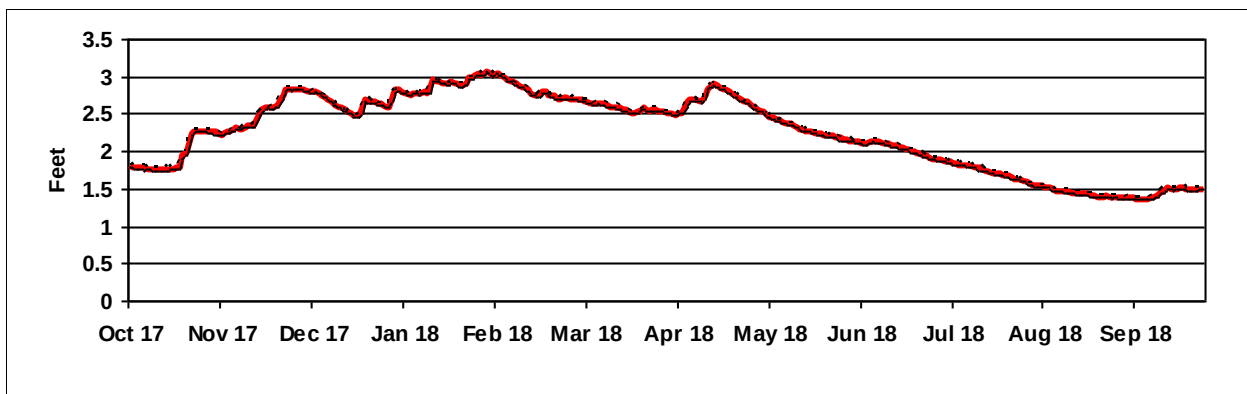
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	1.81	2.23	2.80	2.81	3.03	2.71	2.52	2.59	2.16	1.91	1.59	1.39
02	1.80	2.24	2.80	2.79	3.05	2.70	2.52	2.57	2.15	1.90	1.57	1.39
03	1.80	2.26	2.81	2.77	3.04	2.69	2.50	2.55	2.14	1.89	1.55	1.38
04	1.79	2.26	2.79	2.76	3.02	2.67	2.49	2.53	2.14	1.88	1.55	1.39
05	1.78	2.31	2.76	2.78	3.00	2.67	2.50	2.49	2.13	1.87	1.55	1.39
06	1.78	2.32	2.73	2.78	2.97	2.65	2.51	2.47	2.12	1.86	1.54	1.39
07	1.77	2.30	2.70	2.77	2.95	2.64	2.57	2.45	2.10	1.84	1.53	1.37
08	1.77	2.31	2.67	2.79	2.93	2.64	2.66	2.43	2.10	1.84	1.53	1.37
09	1.77	2.33	2.65	2.80	2.91	2.65	2.69	2.42	2.14	1.83	1.51	1.37
10	1.77	2.34	2.63	2.79	2.88	2.65	2.69	2.40	2.14	1.83	1.49	1.37
11	1.76	2.34	2.60	2.88	2.86	2.64	2.69	2.39	2.14	1.82	1.48	1.37
12	1.76	2.35	2.58	2.96	2.85	2.62	2.68	2.37	2.13	1.82	1.48	1.39
13	1.77	2.41	2.56	2.95	2.82	2.60	2.67	2.37	2.12	1.82	1.48	1.39
14	1.77	2.52	2.53	2.94	2.78	2.60	2.74	2.36	2.11	1.80	1.47	1.42
15	1.77	2.56	2.51	2.92	2.75	2.60	2.84	2.33	2.10	1.79	1.47	1.43
16	1.77	2.58	2.49	2.92	2.74	2.58	2.88	2.31	2.09	1.78	1.45	1.48
17	1.78	2.59	2.48	2.90	2.77	2.57	2.90	2.30	2.09	1.76	1.44	1.50
18	1.80	2.58	2.48	2.93	2.80	2.56	2.88	2.28	2.08	1.75	1.44	1.51
19	1.94	2.59	2.63	2.92	2.80	2.54	2.86	2.28	2.07	1.73	1.44	1.50
20	1.98	2.63	2.69	2.90	2.76	2.52	2.84	2.27	2.06	1.72	1.43	1.50
21	2.06	2.68	2.67	2.89	2.74	2.51	2.82	2.25	2.03	1.71	1.44	1.50
22	2.24	2.75	2.66	2.89	2.74	2.54	2.80	2.25	2.02	1.70	1.43	1.51
23	2.26	2.83	2.67	2.92	2.71	2.55	2.78	2.25	2.01	1.70	1.42	1.51
24	2.27	2.84	2.64	2.98	2.71	2.58	2.76	2.23	2.00	1.69	1.41	1.50
25	2.27	2.82	2.64	2.98	2.73	2.57	2.73	2.22	1.99	1.68	1.40	1.50
26	2.27	2.84	2.62	3.02	2.73	2.55	2.71	2.21	1.98	1.67	1.39	1.50
27	2.27	2.84	2.60	3.04	2.71	2.57	2.67	2.21	1.96	1.65	1.40	1.50
28	2.26	2.84	2.60	3.03	2.71	2.57	2.66	2.20	1.94	1.64	1.41	1.50
29	2.26	2.83	2.74	3.04		2.55	2.65	2.19	1.93	1.64	1.40	1.50
30	2.26	2.81	2.82	3.07		2.54	2.62	2.18	1.91	1.62	1.39	1.50
31	2.24		2.82	3.05		2.53		2.16		1.60	1.39	
Avg WL	1.95	2.54	2.66	2.90	2.84	2.60	2.69	2.34	2.07	1.77	1.47	1.44
Max WL	2.30	2.86	2.8	3.08	3.08	2.74	2.91	2.60	2.18	1.93	1.60	1.54
Max Day Mean	2.27	2.84	2.82	3.07	3.05	2.71	2.90	2.59	2.16	1.91	1.59	1.51

Average Lake Level for Water Year 2018: 2.27

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Lake Level-- Mean, Maximum, Minimum:



18c--Hicks Lake

Water Year: 2018 Lake Levels are in feet

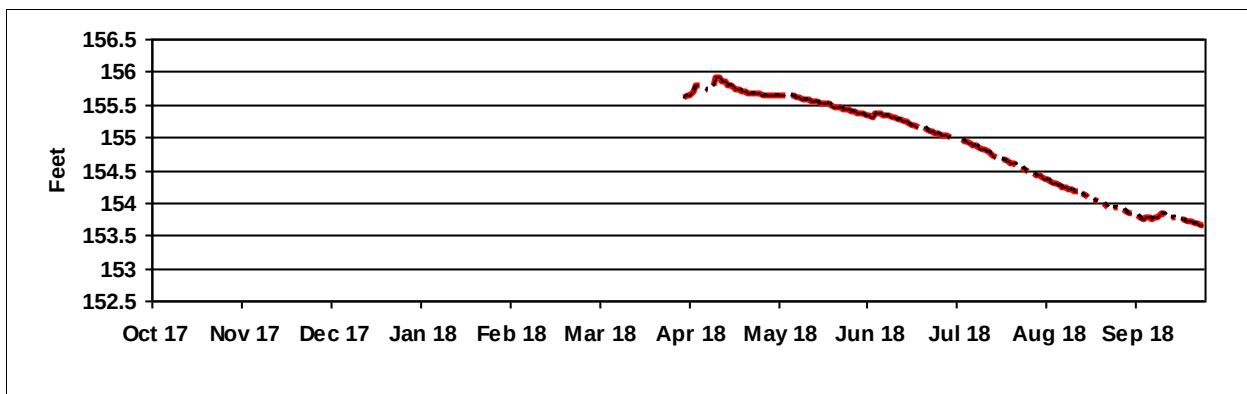
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01								155.66	155.39	155.04		
02								155.66	155.38	155.03	154.45	153.89
03							155.62	155.66	155.37	155.02	154.43	153.87
04							155.63	155.65	155.36	155.01	154.41	153.85
05							155.65	155.65	155.35		154.39	153.84
06							155.70	155.65	155.34		154.37	
07							155.81	155.65	155.32		154.35	153.81
08							155.79	155.65	155.37	154.96	154.33	153.78
09									155.37	154.95	154.31	153.75
10							155.75	155.64	155.36	154.93	154.30	153.77
11							155.75	155.63	155.35	154.91	154.27	153.77
12								155.62	155.34	154.89	154.25	153.76
13							155.81	155.61	155.33	154.87	154.24	153.79
14							155.91	155.59	155.32	154.85	154.22	153.77
15							155.91	155.57	155.31	154.83	154.21	153.85
16							155.87	155.57	155.29	154.81	154.19	153.83
17							155.85	155.56	155.27	154.78	154.17	153.82
18							155.81	155.55	155.25	154.75		
19							155.79	155.54	155.24	154.73	154.14	153.79
20							155.77	155.53	155.22	154.71	154.12	153.77
21							155.75	155.53	155.20		154.10	
22							155.73	155.53	155.19	154.68		153.76
23							155.72	155.51	155.17	154.66	154.05	153.75
24							155.71	155.49		154.64	154.03	153.73
25							155.69	155.47	155.15	154.62		153.73
26							155.67	155.46	155.13	154.60	154.01	153.71
27							155.67	155.45	155.11	154.58	153.98	153.70
28							155.67	155.44	155.10		153.95	153.69
29							155.67	155.43	155.07	154.55		153.67
30							155.66	155.42	155.05	154.52	153.94	153.67
31								155.41		154.50	153.92	
Avg WL							155.74	155.56	155.27	154.79	154.20	153.77
Max WL							155.91	155.66	155.39	155.04	154.45	153.89
Max Day Mean							155.91	155.66	155.39	155.04	154.45	153.89

Average Lake Level for Water Year 2018: 154.89

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 754-4681

Annual Lake Level-- Mean, Maximum, Minimum:



44a--Black Lake Ditch @ Belmore Road SW

Water Year: 2018

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
01	2.50	2.90	3.91	3.96	4.22	3.14	2.52	2.67	2.16	3.12	2.22	1.99
02	2.50	2.87	3.89	3.84	4.25	3.12	2.50	2.62	2.26	2.90	2.27	1.98
03	2.46	2.90	3.88	3.72	4.21	3.06	2.47	2.59	2.30	2.66	2.35	1.97
04	2.44	2.92	3.79	3.61	4.12	3.02	2.50	2.55	2.34	2.57	2.25	1.97
05	2.45	3.05	3.67	3.60	4.01	2.98	2.55	2.51	2.37	2.51	2.05	1.95
06	2.45	3.08	3.56	3.56	3.89	2.93	2.63	2.48	2.39	2.51	2.03	1.94
07	2.45	3.05	3.46	3.50	3.77	2.89	2.74	2.47	2.45	2.45	2.04	1.93
08	2.44	2.98	3.35	3.50	3.67	2.92	3.09	2.44	2.51	2.40	2.04	1.96
09	2.42	2.93	3.26	3.45	3.56	2.94	3.21	2.43	2.60	2.40	2.03	1.96
10	2.40	2.95	3.17	3.39	3.46	2.89	3.21	2.40	2.64	2.36	2.00	2.01
11	2.38	2.91	3.08	3.68	3.36	2.85	3.12	2.38	2.67	2.38	2.00	2.05
12	2.38	2.93	3.01	4.02	3.28	2.80	3.05	2.35	2.72	2.37	2.03	2.07
13	2.38	3.11	2.95	4.03	3.20	2.78	3.10	2.34	2.72	2.34	2.12	2.19
14	2.35	3.46	2.89	3.97	3.21	2.75	3.47	2.32	2.66	2.38	2.25	2.30
15	2.32	3.62	2.83	3.87	3.16	2.71	3.86	2.32	2.69	2.41	2.32	2.27
16	2.30	3.72	2.77	3.76	3.15	2.67	3.93	2.27	2.71	2.46	2.33	2.25
17	2.32	3.72	2.79	3.67	3.27	2.65	3.89	2.21	2.74	2.55	2.34	2.25
18	2.46	3.64	2.97	3.66	3.35	2.61	3.78	2.20	2.78	2.56	2.35	2.21
19	2.74	3.59	3.46	3.63	3.32	2.59	3.66	2.18	2.81	2.56	2.35	2.21
20	2.82	3.73	3.74	3.61	3.27	2.57	3.53	2.17	2.84	2.57	2.36	2.29
21	3.02	3.87	3.71	3.57	3.21	2.40	3.42	2.16	2.89	2.57	2.38	2.31
22	3.54	4.18	3.64	3.57	3.15	2.46	3.30	2.16	2.90	2.59	2.38	2.34
23	3.57	4.41	3.57	3.65	3.10	2.51	3.19	2.14	2.92	2.61	2.39	2.36
24	3.50	4.41	3.47	3.98	3.11	2.52	3.10	2.13	2.94	2.55	2.38	2.37
25	3.42	4.31	3.41	4.07	3.18	2.51	3.01	2.07	2.99	2.53	2.39	2.39
26	3.33	4.25	3.34	4.19	3.19	2.52	2.93	2.07	2.99	2.50	2.40	2.40
27	3.25	4.19	3.26	4.33	3.16	2.58	2.88	2.07	3.03	2.52	2.40	2.41
28	3.17	4.13	3.25	4.32	3.14	2.59	2.82	2.09	3.05	2.38	2.41	2.39
29	3.10	4.07	3.70	4.31		2.57	2.77	2.13	3.07	2.27	2.42	2.41
30	3.04	3.99	4.07	4.38		2.55	2.72	2.13	3.10	2.29	2.24	2.43
31	2.97		4.05	4.31		2.52		2.14		2.21	2.02	
Avg Stage	2.74	3.53	3.42	3.83	3.46	2.73	3.10	2.30	2.71	2.50	2.24	2.19
Max Instantaneous	3.6	4.5	4.1	4.4	4.3	3.2	3.9	2.7	3.1	3.2	2.5	2.5
Max Mean Daily	3.6	4.4	4.1	4.4	4.3	3.1	3.9	2.7	3.1	3.1	2.4	2.4

Average Stage for Water Year 2018: 2.89

Stage is computed from matching datum to logger records.

Thurston County Stormwater Utility (360) 786-5549 or (360) 867-2072

Annual Stage (ft)-- Mean — Max ----- Min —

