

SUMMER 2015 Water System Update

Version 2: JULY 10, 2015



This is EWUA's 2nd of what will likely have to be regular water system updates this summer.

UPDATE HIGHLIGHTS:

- 1. Water demand has continued at a substantially higher than normal rate. In June 2014 we were asked to produce 6 MG. In June 2015 was 7 MG. A 17% increase.**
- 2. Water Level in the Purdue Reservoir is at the lowest level at this date in the last 20 years.**
- 3. The long range forecast is for continued dry conditions through not just the end of summer, but the end of the year.**

EWUA RESPONSES:

- A. EWUA has ramped up production to peak levels in order to meet recent demand.**
- B. The high water use pattern of June is not sustainable. EWUA must return to a more "normal" water use pattern. Normal is being defined as the same level of use as the summer of 2014. Prior to last month, 2014's use was higher than any year in the past decade.**
- C. EWUA is enacting production limits for the Purdue Treatment plant to insure that capacity is available through the end of the year.**
- D. EWUA is asking members to significantly cut back on outdoor water use. Irrigation is the primary source of the elevated demand as members attempt to maintain gardens and planting during drought conditions.**
- E. EWUA is contacting members that had the highest increases in water use during June, and working with them to reduce water use.**
- F. EWUA's leaders are optimistic that by providing members with the information necessary to make prudent water use decisions we will bring demand back to a sustainable level. However, alternative plans to ensure safe reliable service through the duration of the drought are being prepared.**
- G. Fire hydrants are for use of EWUA and Orcas Fire Department ONLY. Any other use of a fire hydrant is considered tampering with private property, and theft of water. Please report any suspicious activity that involving a fire hydrant.**

The remainder of this *Summer 2015 Water System Update* contains details of the current status of our water system. There is a lot of information. Hopefully it will help you understand the WHY behind our request to alter your water user pattern. What EWUA has seen again and again recently is members saying "it's been really dry, my plants need more water", which is completely understandable. What's happening is many of these members' water use has at least doubled because of their additional irrigation use. What follows is a more detailed review of how the water system is being impacted by the ongoing drought and the increased demand for water.

Direct questions to pkamin@rockisland.com

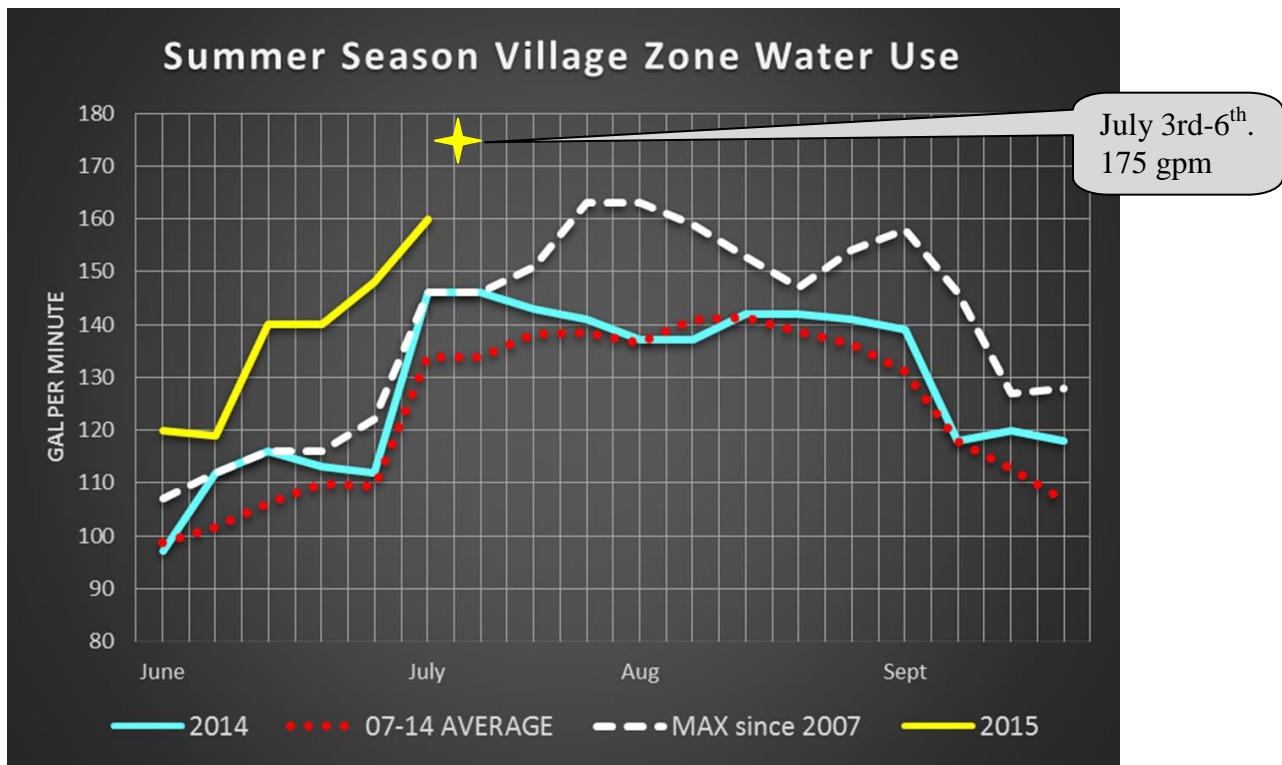
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Tracking Summer Water Demand

During the month of June we experienced exceptionally high water demand. Throughout June water use was up not just over 2014 levels or average levels, but higher than any time since 2007!

The chart below shows 2015 water use, compared to 2014; the average water use for years 2007-2014; and finally the highest water use recorded for each week in June since 2007. Every week in June (2015) EWUA “set a new record” for water use (for that week of the year), and not by a little bit! During the busy 4th of July weekend we continued to experience the highest demand ever. We saw daily demand levels of 175 gpm during the 4 day weekend. *This level of water use is not sustainable.* We will continue to use this chart as a progress report.



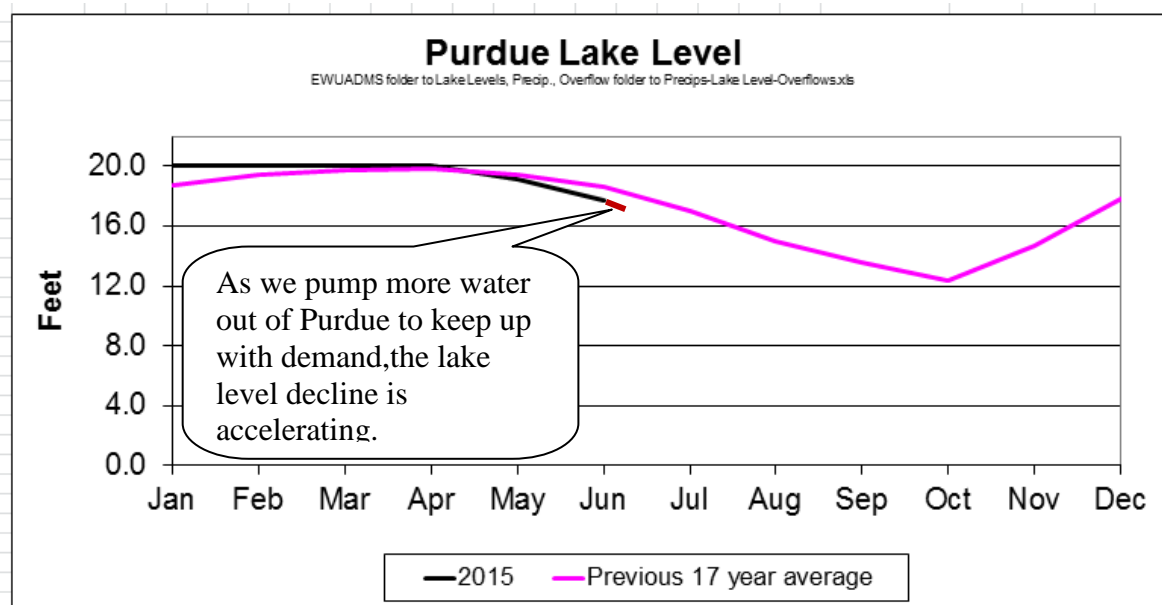
Storage Tank Level

Storage tank levels have rebounded over the past week. After a rather continuous decline throughout June, the water system has been producing more water than members are using, and thus the tank levels are rising. This is good news, as full tanks means maximum water pressure, and is vital buffer for demand fluctuations. Full tanks are also needed to safely supply the community’s fire flow needs. The chart on the next page shows the Longwood Lane tank level from July 1 through July 9. The tank level drops during the day and fills each night when demand declines. As of July 9th, the tanks are back to their normal full status. Full tanks are important, but please don’t misconstrue this as meaning the water system is no longer being stressed. We are meeting the immediate needs of our members, but by doing so we straining our aquifer and reservoir.



Purdue Lake Water Levels

Purdue Lake on Buck Mountain has been declining at an alarming rate. The Lake level dropped 1.8' last month compared to 1.0' in June 2014. This was especially surprising because we pumped LESS water out of the lake this year vs. last year. (2.3 million gallons (MG) in 2014 vs 2.6 MG in 2015) HOW COULD THIS BE? *No rainfall and more evaporation* is the answer. June 2015 was not only hotter, and drier, it was also sunnier. June 2015 had only 25% of the cloud cover normally experienced in June. Less clouds and more sun leads to more evaporation.



El Nino Predictions – What’s around the corner?

El Nino is a warming of the Pacific Ocean at and around the equator, and it has been found to be a major driver of North American weather patterns. Cliff Mass, UW weather expert, and others have recently refined their earlier predictions for El Nino’s impact on the Pacific Northwest. The Fall of 2015 and Winter of 2016 is being predicted to be WARMER and DRIER than normal. Last winter was WARMER but NOT DRIER than normal. What that could mean for EWUA is that recharge of our groundwater, specifically, Purdue Reservoir which normally begins in October might not come until after the start of 2016.

Historically, Purdue Reservoir has filled to its full 20' level every year since its development in the early 1980's. However in the past 17 years, there have been 5 years that the Reservoir level has not begun to rise significantly until after January. For 2015, EWUA is anticipating such a situation. In response to the potential of delayed recharge, EWUA is developing a "water budget" that distributes the remaining water resources in Purdue over the remaining months of 2015.

THE KEY QUESTION – Is our current level of water use sustainable?

There is obviously good news that storage tank levels are on the rebound, thanks to some members changes in water use patterns, and in EWUA's efforts to ramp up production.

HOWEVER, the lower than normal level at Purdue is a concern. Furthermore, the El Nino predictions suggest that we'll have to stretch our available water resource further into the Fall than normal.

Simply said, our current water use patterns are not sustainable. If the current high use trend continued through July and into August, we could find ourselves dangerously low on water in the Fall.

We need to think ahead. **We need a water budget.** Modest changes in current use patterns now will ease more drastic hardship later in the summer and into the Fall. Basically, the high water use of June needs to be an anomaly, and EWUA is asking members to return to a more "normal" use pattern.

The chart to the right shows the sustainable water production from Purdue Reservoir for the remainder of 2015 with a comparison to 2014. We can sustain near, but not quite, the same production of 2014. 2014 was our highest water use year since 2004.

	2014 Production at Purdue Treatment Plant	2015 Purdue Treatment Plant WATER BUDGET	
	WHAT WE DID USE	WHAT WE CAN USE	
June	2.6 MG	2.3 MG	SUSTAINABLE PRODUCTION GOALS
July	3.2 MG	3.1 MG	
August	3.4 MG	3.1 MG	
Sept.	2.6 MG	2.5 MG	
Oct.	2.3 MG	2.0 MG	
Nov.	2.2 MG	2.0 MG	
Dec.	2.2 MG	2.0 MG	
	MG = Million Gallons		

Even with these slightly reduced production levels from Purdue, we are projecting significantly lower lake levels. The chart on the right compares 2014 lake levels to those we are experiencing and anticipating in 2015. IF the drought continues into the Fall, Purdue Lake levels could reach all-time lows.

End of Month Purdue Water Levels				
	2014 Lake Level at end of Month	2015 Lake Level "Sustainable Targets"		
May	20.0 ft	19.1 ft	SUSTAINABLE LAKE LEVELS	
June	19.0 ft	17.3 ft		
July	17.30 ft	15.6 ft		
August	15.50 ft	13.2 ft		
Sept.	14.80 ft	11.3 ft		
Oct.	14.40 ft	10.0 ft		
Nov.	16.20 ft	8.3 ft		
Dec.	20.00 ft	6.0 ft		
				These fall lake levels would be historically low

HOW WILL THIS WATER BUDGET BE IMPLEMENTED?

The first and most important step is to provide members information and ask for voluntary cutbacks in their water use. The most significant water savings will come in the irrigation arena. Simply said, we can't afford green grass anymore. Irrigation of grass should be suspended. Outdoor irrigation should be limited to keeping plant alive, not flourishing. We do not have the water resource to keep garden's flourishing during a drought. Irrigation should not be done during mid-day sun when a large percentage of the waters is lost to evaporation before it can benefit the plants.

EWUA would recommend that members start tracking their home or business' water use. Read your own water meter and keep a record of the reading. We'd like residence to live within their base allotment (commonly 5000 gal/mo). Thank you to those who already are!

WHAT EWUA IS DOING

- Monitoring the current situation (lake, tank, and groundwater levels along with well performance)
- Working to insure reliable service throughout the duration of the drought.
- Communicating with Members
- Maximizing *Sustainable* production
- Working with State Water Resource Managers and Regulators.
- Helping members by providing them water use history, and meter location as needed.
- Initiating conversations with our highest water-users to reduce the consumption.

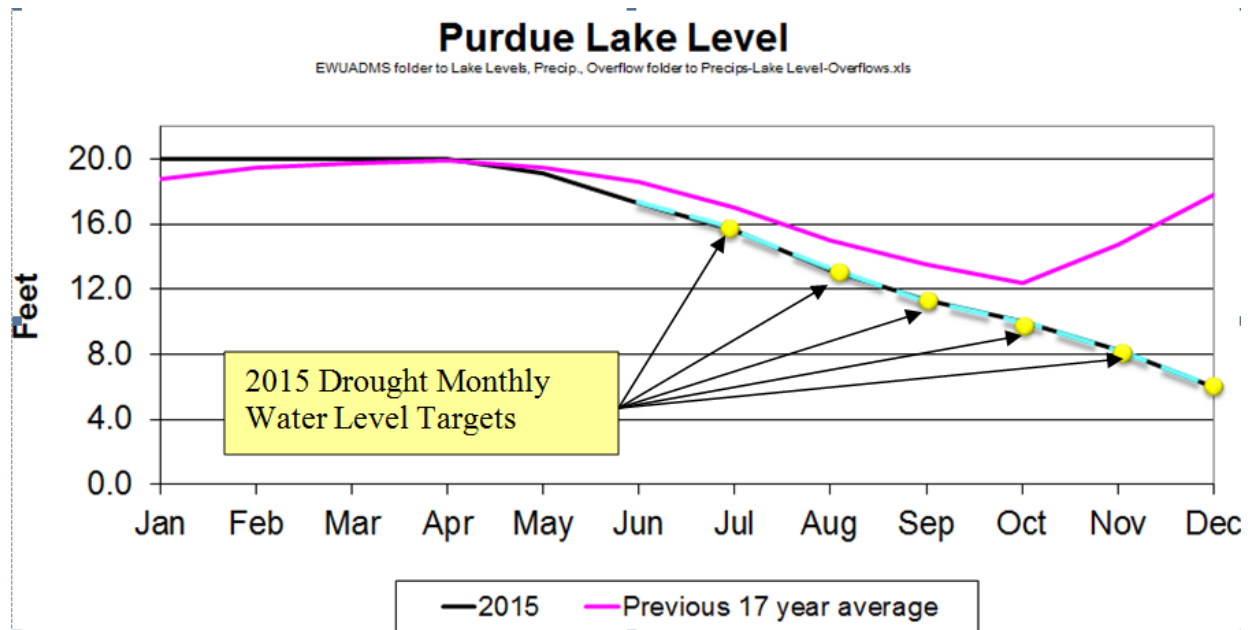
WHAT YOU CAN DO

- Know how much water you are using
- Use water responsibly.
- Communicate with members of your household
- Limit outdoor water use.
- Don't ignore any water leaks!

EWUA SUMMER WATER BUDGET FOR PURDUE

The below graph represents EWUA's plan to stretch available water in Purdue Reservoir through to the end of 2015 even if the current drought persists. For each month through the end of the year we have a specific lake drawdown target. If we meet these targets, we can reasonably expect to have an adequate water supply through the end of the year.

Please note that this plan will require drawing down Purdue to its lowest levels ever. While it would be nice to hope for the best, and expect rain to return in October and begin refilling the reservoir (as is shown by the pink line), current projections suggest that would not be wise.



THANKS FOR YOUR CONCERN AND SUPPORT.