



## Summer 2018 News

# Summer Water Outlook

Clackamas River Water Providers member's drinking water comes from the Clackamas River, which is replenished with snowfall and rainfall in the Mt. Hood National Forest. Melting snowpack in higher elevations of the watershed helps maintain stream flow and keep the river water cool all summer long. Summer flows are also bolstered by a series of creeks and streams in the basin that originate from aquifers, many of which rely on rainfall that percolates through the soil to replenish the groundwater.

This year rainfall has been about average, but our snowpack was below normal. This summer's forecast is predicting above normal temperatures as well as low precipitation. Without a robust snowpack it is likely that we'll see below average streamflow and warmer than average water temperatures in the Clackamas River.

The CRWP and our members are committed to ensuring that we have plenty of water to serve our communities while preserving the healthy, natural environment of the Clackamas River. Water conservation is especially important in the summer time and can start with simple steps like watering in the morning and fixing leaks.

To learn more about how you can save water year round, to receive free conservation devices, or information about the Clackamas River Water Providers Conservation Rebate Program and Landscape Water Audits, contact the Public Outreach and Education Coordinator: **(503)-723-3511** or visit our website at [www.clackamasproviders.org](http://www.clackamasproviders.org).

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## Clackamas River Water (District) Customers now Eligible For CRWP Water Conservation Programs

The CRWP implements a Public Outreach and Education Program as well as Conservation Programs to encourage efficient water use. These programs have a number of individual components that provide awareness, information, motivation and action for efficient indoor and outdoor water use practices.

Starting July 1st 2018 Clackamas River Water (District) customers are eligible to benefit from all these programs which include; participation in the youth education program,

conservation rebates of up to \$485, free conservation tools (indoor audit kits, toilet leak detection tables, and more), and free residential landscape water audits.

Water conservation is an important tool in meeting the water supply needs of our communities; helps reduce the cost of developing new water supplies and leave water in the river for fish and recreation.

For more information visit our website or contact Christine at **(503) 723 3511** or email [christine@clackamasproviders.org](mailto:christine@clackamasproviders.org).

# American Water Works Assoc. (AWWA) Award!



The CRWP received its Exemplary Source Water Protection Award at the AWWA Annual Conference & Exposition in Las Vegas this past June. From those of us at the CRWP it was a real honor to receive this award and to be recognized for our efforts.

In the picture from left to right Brian Shaw, Oregon City Commissioner/ SFWB Board member, Kari Duncan, City of Lake Oswego/CRWP Board member, Russ Axelrod, West Linn Mayor/SFWB Board member, John Collins, SFWB/CRWP Board member, Kim Swan, Water Resource Manager for the CRWP, and Todd Heidgerken, CRW/CRWP Board member.

## Summer Conservation Tips

During the summer, most water bills can double and maybe even triple due to outdoor water use. In fact, about 32% of your *annual* water bill goes to summer water use. Here are a few basic tips to keep us on track and make sure we're not wasting water.

### OUTDOOR TIPS

1. Equip all hoses with shut-off nozzles.
2. Take your car to a car wash that recycles and reuses the wash water.
3. Fix all dripping hose bibs.
4. Cover the pool when you're not using it to prevent unnecessary evaporation.
5. Adjust sprinklers so that they don't water the sidewalk or street.
6. Sweep your driveways and patios instead of spraying them with water.

### LAWN CARE TIPS

1. A healthy lawn needs less water, pesticides, and fertilizers. Typical Willamette Valley lawns need only *one inch of water a week*, unless it's really hot.
2. Aerate lawns in the early summer to allow water and air to reach the roots.



3. Mow high to shade roots, keep soil cool and retain soil moisture.
4. Mulch grass clippings to naturally green up your lawn.
5. Water in the early morning or at night.
6. Water deep and less frequently.



# Monitoring and Testing for Blue Green Algae Cyanotoxins in the Clackamas



Cyanobacteria, sometimes called blue-green algae, are microscopic organisms found naturally in all types of water; fresh, brackish (combined salt and fresh water), and marine water. These organisms use sunlight to make their own food. When present in large numbers they may form visible green, blue-green or reddish-brown blooms that float on the surface of the water.

Not all blue-green algae blooms produce toxins, but under certain conditions, such as in warm water containing an abundance of nutrients, they can rapidly form harmful algal blooms (HABs) capable of producing toxins known as cyanotoxins that can harm humans and animals.

How are CRWP members protecting me, my family and our pets from the risk of cyanotoxins in our drinking water?

The Clackamas River Water Providers have been working with PGE since 2006 to monitor for blue green algal blooms in the Clackamas River. Through these efforts PGE conducts weekly monitoring for blooms from May to October each year. If a blue green algae bloom is identified by PGE, samples are taken and tested for toxins.

If any level of toxins are identified in North Fork Reservoir by PGE, downstream Clackamas River Water Providers take raw and finished water samples at their water treatment plants

to test for toxins. In addition to monitoring and testing, we are working to reduce the risks from cyanotoxin contamination in drinking water by adjusting treatment to address contamination before levels are of concern.

Our drinking water treatment systems on the Clackamas River can remove the risks to humans and pets from drinking water with cyanotoxins in all conditions except those that may occur during an extremely large and long duration cyanobacteria bloom. It is only the blooms that are very large and last a long time that create a risk from drinking the water, because under all other conditions our treatment processes, which are designed to meet all Federal and State Drinking Water health protection mandates, provide multiple layers of protection.

To date no toxins have ever been detected in finished drinking water from the Clackamas. If toxins ever were found in finished water the public will receive public notification with additional information.



We will continue to work closely with PGE to monitor for blooms throughout the summer months.

## Summer Quiz:

*Answers - Can be found on page 7*

**1. Which of the following is part of a Water Conservation Plan?**

- A. Conduct annual water audits
- B. Full metering of the system
- C. Leak detection programs
- D. All of the above

**2. This year's Watershed Tour will be held:**

- A. In the lower Clackamas River Watershed.
- B. In the upper Clackamas River Watershed.
- C. In the Willamette River Watershed.
- D. In the Johnson Creek Watershed.

**3. This year's rainfall is about average. The snow pack this year is:**

- A. Below average
- B. Above average
- C. Not able to be calculated
- D. Being determined by scientists in Algeria

**4. On average how much water a week does a lawn need?**

- A. 3" of water
- B. Only what nature provides
- C. 1" of water
- D. No supplemental water

# How much is 1 inch of water per week?



Americans typically use from 40 to 60 percent more water on their landscapes than required to maintain healthy thriving plants. Ever wonder what happens to that water when we over apply it? Some of it runs off into the streets and into the stormwater system, taking with it much of the fertilizer, herbicides and other costly amendments we apply to our yard every season.

Eventually that amendment laden water ends up in the streams and rivers, damaging the water quality and the eco-systems that depend upon it.

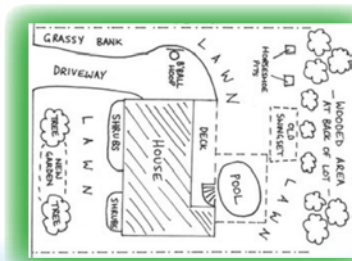
Some of that water will also enter (infiltrate) into the soil, but at higher levels than it can store. Think of the soil as a sponge in a cleaning bucket; when you take that sponge from the bucket lots of water pours out until the sponge has what it can hold. Soil works the same way, any water we put down that does not reach the roots of our plants, or that goes below the root level is water we pay for but do not get a benefit from. So we would encourage you to take a couple hours on a weekend and put these tips to use on your own yards. The benefits to the environment and to your own pocket books will make a difference.

When we talk about managing the water we use on our lawns, we often hear the phrase “1 inch per week”. You might ask, “How do I know how much one inch is?” In this tutorial we will show you an easy way to figure that out. It requires a little math, but it won’t hurt and the money you save in water fees will make the hour or so of work well worth it.

First things first! Before you do this exercise, you need to be sure that your irrigation system is operating properly. Make sure you repair any leaks or broken/damaged sprinklers and that they are adjusted properly. If the water is not going where it is intended, then it is wasted. When that checkup is complete, follow these steps to learn just how long to you’ll need to operate each zone of your sprinkler system in order to put down one inch of water.

Before we get started, there are a couple of quick caveats to mention:

**1)** Every yard is different. This exercise will get your usage in the ballpark.



To get better efficiency of use, additional adjustments may be required, such as replacing heads, making modifications to your existing system or changes to your current watering schedule. An audit may help give you a better understanding of what and where those adjustments may be needed. The CRWP offers free landscape water audits. Visit our website at [www.clackamasproviders.org](http://www.clackamasproviders.org) for more information or call **503-723-3511** to schedule an audit.

**2)** There is no such thing as a truly “automatic” system. Set it and forget it may work in the kitchen, but it will not work in the landscape. Do your part to keep an eye on your system as the season progresses to ensure that the sprinkler system is operating efficiently and applying the correct amount of water at the correct time of the season. Adjustments to your controller will need to be made up or down a few times each season.

**3)** You will need some tools: Medium sized screw driver; 50’ or 100’ tape measure; a watch with a second hand or a stop watch; and a calculator.



## Ready?

**(Step 1): Turn everything on.** Make certain your irrigation system main valve is on and you have switched on the controller. Find your meter box. It is usually located on the corner of the property by the street and will look something like this. Use the screw driver to open the lid and clear out any dirt or debris. Watch for spiders or insects. Clean off the face of the meter.

**(Step 2): Make a sketch of your yard.** A simple sketch showing lawn areas, shrub areas and any patios, driveways, sidewalks is sufficient. Does not need to be to scale, just make it large enough to write on and make a few notes etc. If you already have a layout from work previously done, bonus! Make a copy and go to step 3.

*(Continued on next page)*

# How much is 1 inch? (Continued)

**(Step 3): Go to the controller and turn on Station (valve or zone) # 1.** If you are not sure how, there are usually instructions inside the door of the controller or you can use the owner's manual. (You can download a copy on the manufacturer's website.) Look for references to manual or single station operation. Follow the instructions and start the 1st station. Wait a minute or so to allow all of the air to leave the pipes and see that the water is flowing smoothly out of the sprinklers. Now walk over to the meter and do Step 4.

**(Step 4): Look at the images below to read your meter.** Time the meter for 1 minute. Start the time when you see the big needle cross zero, then:

**A)** Keep track of how far it travels in one minute, counting how many times it passes zero. If it travels less than once around it will be a decimal, (point something). More than once it would be 1 (point something). Twice around 2 and so on. Repeat steps 3 and 4 for all of the zones that water your yard. Write each of those numbers down on your sketch, and what they cover: shrubs grass both etc.

**B)** The needle travels from 0 to 8 in one minute. You would write down .8.

**C)** The needle travels past the 0 and gets to the 5 in one minute. You would write down 1.5.



**(Step 5): Use the tape measure to calculate square footage.** Measure the width and length of your property. Record those numbers on your sketch. Now measure the length and width of the house, patio, sheds, walkways, etc., basically measure anything within your yard that does not get water. Sometimes odd shapes can be challenging, but it won't affect the outcome significantly if you are a few feet off here and there. Do the best you can. Record these numbers on the sketch as well. When you've got them all go to Step 6.

**(Step 6): The math.** There are only 3 formulas you will need. #1 is used to calculate the area of your yard.

#2 Converts cubic feet into gallons and #3 Converts gallons into inches per hour over a given area.

1. AREA: Width x Length = Area
2. CF to gallons: (Your meter reads) X 7.5 = Gallons per minute (GPM)
3. Inches per hour on the measured area (SqFt):  $96.3 \times \text{GPM} = \text{inches of water per hour (IPH)}$ .

**Formula #1. Use on the sketch where you wrote down the dimensions of your yard.** Use the calculator to multiply the length by the width. That number is the total area of the property in square feet.

**Example:** The length of a yard is 115 feet and the width is 80 feet. Multiply 80 by 115. The answer is 9,200 SqFt. This is the total area of that property.

Use this same formula for all of the "unwatered" areas that you measured. Multiply length and width and note the number on the sketch. Now add all of these numbers together and then subtract that number from the total area of the property. What is left is the area of your yard that actually needs water. This is the number we'll use later on when we do formula #3.

**Examples:**

Drive way:  $50 \times 30 = 1500 \text{ SqFt}$

Patio:  $20 \times 30 = 600 \text{ SqFt}$

House:  $45 \times 65 = 2925 \text{ SqFt}$

Shed;  $12 \times 20 = 240 \text{ SqFt}$

Walkway:  $4 \times 112 = 448 \text{ SqFt}$

Swing set area:  $20 \times 25 = 500 \text{ SqFt}$

Add them up: 6213 SqFt.

Subtract 6213 from 9,200 and you get 2,987 SqFt. of landscape that needs water. Make a note of that number.

**Formula #2. NEXT... Water meters record Cubic Feet (CF).**

We will need to convert CF to gallons. To do this we have to add up all of the meter reads we recorded and multiply by 7.5 (1 CF = 7.48 gallons, rounded up to 7.5)

*(Continued on next page)*



# How much is 1 inch? (Continued)

**Example:** The reads might look like this. Zone 1: 2.5, Zone 2: 3.4, Zone 3: 2.8, Zone 4: 3.4, Zone 5: 3.1, Zone 6: 2.9. Add all of these numbers together and then multiply by 7.5. This is the output of all of the sprinklers in gallons per minute. In this example they total 18.1 GPM X 7.5 = 135.75 Rnd up 136.

**Formula #3.** Now it's time to plug in the numbers. Use your calculator. Round your answers up or down to the nearest whole number. 96.3 never changes, it is a constant used to convert gallons per minute (GPM) into inches per hour

**For this example it would be:**  $96.3 \times 136 \text{ GPM} = 13096.8$  (round up) 13097. Divide by the total area that needs water  $2987 = 4.38$  (inches per hour) (round down = 4) Divide 60 (minutes in an hour) by 4 and that is how long they would need to water (in minutes) to get one inch. In this example it would be 15 minutes. Each station has to run 15 minutes per week to get 1" of water on the areas that need water.

**(Step 7): Scheduling:** The next part is pretty straight forward. How many days per week to water? Basically a judgement call on your part, but here are a few "rules of thumb": Turf grass should never get water more than 3 or 4 days per week and then only in July and August typically. Established woody shrubs will use about 25% less water than grass and typically need it only once maybe twice per week in the hottest part of the summer. Ground covers, low growing shrubs and annuals would be slightly less than grass (10-15% less) and likely 3-4 times per week in the hot part of the summer. Knowing these rules of thumb, divide the number of days you wish to water into the total minutes to figure how many minutes of water is needed each day.

**Using the example above:** Zone 1 (grass) needs 15 minutes to achieve 1" of water so: 15 divided by 3 = 5 minutes of water per day. Zone 2 (shrubs) reduce the minutes by 25% or to about 11 minutes of water and divide by 2 (days per week to water) so 5.5 minutes per day again round up or down. Zone 3 (ground cover/annuals) reduce by 15% or about 13 minutes. Divide by 3 (days per week to water) and you get 4 minutes per day. Do this for each zone. This would then be your baseline schedule; the lowest amount of minutes (daily) to run each zone. Any adjustments to this in minutes would be added to in order to adjust for the season changes. If less water was needed, you would remove days; not time.

## **(Step 8): Building a schedule:**

We now know how many minutes per week we need to water to put down 1 inch. So let's put it all together and build a schedule for the season using the numbers you generated.



### **TURF/GRASS**

*April till end of May:* As needed only. At most once or twice per week and no more than 1" per week.

*End of May till end of June:* Automatic/ 3 days per week total and no more than 1.25 inches per week (mostly towards the end of the month.)

*July/August/1st half of September:* Automatic/; 3 to 4 days per week 1.5 to 2 inches per week

*2nd half of Sept - Oct. 15th:* Same as April and May (above)

*Oct 15th:* Season ends. Irrigation system is off at the main valve

### **SHRUBS/FLOWERS/TREES**

*Trees:* Established trees (5yrs +) need very little if any help throughout the season. Certain types may need a good drink in the hottest part of the year, but that would be the exception and not the norm. If you do feel they need water, use a hose with a small sprinkler at a very low rate and move it around the canopy area of the trees for several hours. Trying to give trees adequate water with a sprinkler system is, in most cases, not realistic. Remember that trees and many shrubs start building towards dormancy when the days become shorter and the nights longer. This typically begins around mid-September. Adding water will not change the outcome.

*Large woody shrubs:* (Established 3-5 yrs. +) such as rhododendrons, laurel, photinia, yew etc. need supplemental water typically during the stretch from July to mid-September and then only 1 to 2 times per week at about 1" to 1.25" per week. The rest of the season would be as needed only.

*Ground covers, small shrubs, perennials:* (Established 1- 2 yrs.) Water as needed until June. Then go to 2 - 3 cycles per week at 1" to 1.5" weekly until Mid-September. Then as needed until end of season. Oct 15th - Season ends: System is off at the valve. Spot watering only, if at all.

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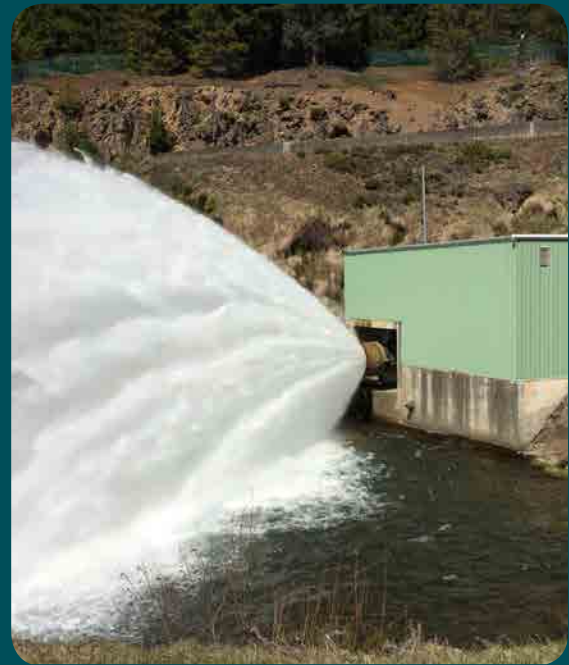
# Annual Watershed Tour

Each year at the beginning of October the Clackamas River Water Providers host a tour of the Clackamas Watershed for elected officials from CRWP member agencies, interested citizens, and the citizens in CPO's and Neighborhood Associations in the CRWP service area.

The purpose of this tour is to connect our citizens and policy makers with a direct experience in the watershed (our source of drinking water), and to introduce them to some of the CRWP partners and stakeholders. Last year's tour (2017) focused on the upper Clackamas watershed and included talks by both the USFS and PGE and highlighted some of the work they are doing in the watershed.

The tour included stops with the Forest Service at their North Fork planning unit to talk about the National Environmental Policy Act process and planning efforts for this area, and a look at the newer Off Highway Vehicle (OHV) trails. We also stopped at Timothy Lake to see some of the headwaters of the Clackamas and talk with PGE about some of their projects going on at the lake.

This year's tour will be on Saturday, October 6th and will focus on the lower Clackamas River. If you would like to be added to the Watershed Tour invitation list please email [kims@clackamasproviders.org](mailto:kims@clackamasproviders.org)



## Summer Quiz:

### Answers

**Question 1** - Answer is D  
**Question 2** - Answer is A

**Question 3** - Answer is A  
**Question 4** - Answer is C



# How Our Water Systems Work

## WATER CONSERVATION PROGRAMS

Municipal Water Management and Conservation Plans (WMCP) provide a process for municipal water supplies to develop plans to meet future water needs. All CRWP members are required to develop these Plans as part of their water right permit conditions. These Plans demonstrate our communities' needs for increased diversions of water under their water permits as our communities and water demands grow.

The Plans explain how we will manage and conserve water supplies and represent a pro-active evaluation of conservation measures that we can undertake.

All water providers must implement the following conservation measures:

- Conduct annual water audit
- Full metering of the system
- A meter testing and maintenance program
- A rate structure based, at least in part, on the quantity of water metered



- A leak detection program
- A public education program on efficient water use and low water use landscaping

In addition, many water providers are required to implement technical and financial assistance programs such as rebate programs, where the cost of purchasing water-efficient fixtures or equipment are partially offset.

Water conservation is an important tool in meeting the water supply needs of our communities and can help us reduce the cost of developing new water supplies. It also allows us to leave more water in the Clackamas River for fish and recreation.

The CRWP implements a Public Outreach and Education Program and a Conservation Program on behalf of its members to encourage efficient water use and help meet the public education and technical/financial assistance requirements of the WMCP.

To learn more about your water provider's WMCP or how the CRWP is helping meet these requirements visit our website. [www.clackamasproviders.org](http://www.clackamasproviders.org).



## How much is 1 inch? (Continued)

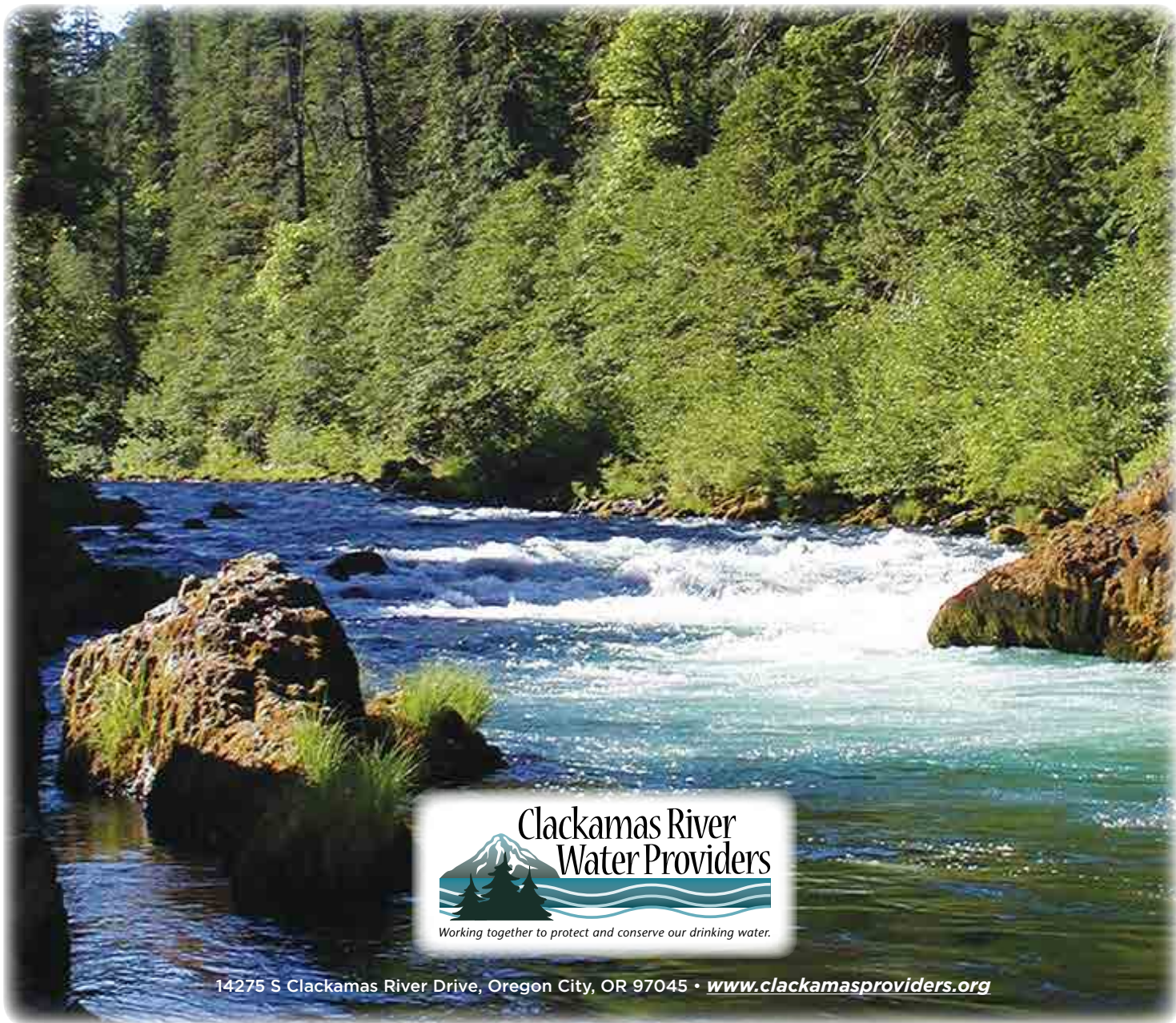
Throughout the year keep an eye on how the yard is doing. If you are getting run off, the soil may not be able to infiltrate the amount of water you have programmed at any one time. You may need to program in multiple start times. This is especially true on slopes. Take a walk around and check how well the yard is being watered. Too wet, back off a few minutes, too dry add a few. This method will get you in the ball park, adjusting it to where it performs at its peak is up to you. If you have not already done so, install a rain sensor. They work on any controller except battery powered. People that

have installed them on their systems see anywhere from 9-12 percent reductions in summertime water usage


We hope you try this method to help manage your water this year. The CRWP and our members are committed to ensuring we have plenty of water to serve our communities while preserving the healthy, natural environment.

*This article was provided by Kevin McCaleb, City of Lake Oswego, Water Conservation Coordinator.*





**Clackamas River  
Water Providers**



*Working together to protect and conserve our drinking water.*

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**Our Members:**



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[www.cityofestacada.org](http://www.cityofestacada.org)



[www.ci.gladstone.or.us](http://www.ci.gladstone.or.us)



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[www.sunrisewater.com](http://www.sunrisewater.com)



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