



## Summer Weather Water Outlook

The last two years we have had minimal snow pack and what we did have was gone by the month of April. This year, we have had above normal snow levels in the mountains and excessive rains here in the lowlands areas. Normal or typical rainfall totals for a water year (October 1 to September 30) averages between 36” and 40”. This year, we have already exceeded 50” and we still have three months to go. As we move into the dry summer months water is plentiful in the soils, which means you don’t have to begin watering or turning on your irrigation systems just yet. It’s OK to get your irrigation system ready to go, just no need to turn it on. When we start to have back to back days of 80 degrees or greater then it will be time to begin watering. Whether you water with an automatic irrigation system or a hose and sprinkler be sure to water correctly, Visit [conserveh20.org](http://conserveh20.org) for the “weekly watering number” so you can see how much water you should be using while watering you lawn and gardens. Even with the abundant amount of water we have this year it is still very important to conserve and be as efficient with our water as possible. The Clackamas River provides drinking water to over 300,000 people while providing a health habitat for many endangered species of fish.

Visit the Clackamas River Water Providers at [www.clackamasproviders.org](http://www.clackamasproviders.org) to schedule a free **Landscape Water Audit** and for information on money saving outdoor rebates. Save and conserve today to ensure water for future needs.

Portions of this article derived from “*Let’s Talk Water,*” Kevin McCaleb, Water Conservation Coordinator, City of Lake Oswego.

### Summer 2017 News

#### *What’s Inside:*

Summer Outlook	P1
Water Audit	P2
Watering Outdoors	P2
Water Systems	P3
Summer Quiz	P3
Watering Your Lawn	P4
‘Faces’ Interview	P5
Monitoring	P6
Efficient Irrigation	P6
About Us	P7
‘Faces’ <i>continued</i>	P8



The Clackamas River

# Get a FREE Landscape Water Audit to Help Save Water and Money



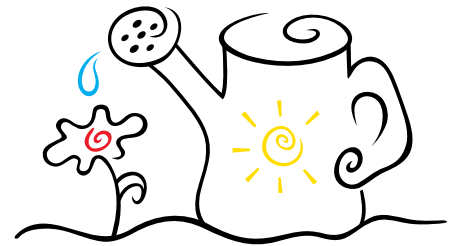
**NEW** this summer season the Clackamas River Water Providers are offering free landscape water audits to the following member's service areas; City of Estacada, City of Gladstone, Oak Lodge Water Services, South Fork Water Board (Oregon City and West Linn), and Sunrise Water Authority (City of Happy Valley and Damascus).

Saving water and saving money is what a landscape water audit is all about. Our landscape Auditor will assess your lawn and garden areas, irrigation system and more. When the audit is complete you will receive a detailed report with recommendations.

The free landscape water audits are provided during the spring and summer

months only (during the watering season). The audits are available on a first come first serve basis.

For more information or to schedule your free landscape water audit contact Christine at **christine@clackamasproviders.org** or call **503 723 3511**.



## Use Water Wisely Outdoors

If you water your yard, you probably see a significant increase in your summer water bills. Take these simple steps to make the most of every gallon you buy without changing your lifestyle:

- Use timers to give your yard and garden just the right amount to drink. Check out our smart controller rebate if you have an old or outdated controller on your underground irrigation system, and/or our hose bib timer rebate for those of you who water manually.
- The typical underground lawn sprinkler system uses about 12 gallons a minute. Most yards are watered for about 75 minutes (900 gallons) each time the program is set to run. Make every

minute count. Click [here](#) to enter your zip code for the Regional Water Providers "Weekly Watering Number" to ensure you are replacing the right amount of water.

- Mulch your shrubs and flowers beds to retain moisture in the soil and reduce weeds.
- Use soaker hoses or drip irrigation on your shrubs, flowers and in your vegetable garden.
- Plant native or water-efficient plants that are adapted to the Willamette Valley.

Visit our website to download a copy of "*Water Efficient Plants of the Willamette Valley*" or call us at **503-723-3511** to receive a copy in the mail.



# How Water Systems Work

## FIRE HYDRANTS

Fire Hydrants are a critical part of fighting fires in our communities. Fire hydrants are connected to our water distribution systems network of underground pipes. Therefore, the water that comes out of a fire hydrant is the same drinking water used in our homes, businesses, and schools.

Fire hydrants in colder climates, such as our area, use “dry barrel hydrants” which means no water stays in the upper section of the hydrant when the hydrant valve is turned off. “Wet barrel” fire hydrants are popular in climates where freezing is not an issue.

Although materials have improved and some of the elements of fire hydrant design have been refined, the basic form, of both the dry and wet barrel fire hydrants have remained relatively unchanged since the mid 1800s.



## FLUSHING PROGRAMS

One of the many uses for hydrants is water main (pipe) flushing. Flushing programs maintain water quality and minimize discoloration by comprehensively flushing water mains with a technique known as unidirectional flushing.

The procedure involves the systematic opening and closing of fire hydrants and valves, one section of main at a time, to force the water through the pipes at high velocity, removing accumulated mineral sediment until the water is clear.

When flushing crews are working close to your residence or business you may experience discolored water which can be drawn into homes and business if the water is being used during or immediately following the flushing. If discoloration occurs, open the cold water faucet nearest the water meter - usually an outside faucet or utility sink - let the water run at full flow until the water runs clear, about 5 to 15 minutes.



For further assistance or more information contact your water provider.

Visit our website at [www.clackamasproviders.org](http://www.clackamasproviders.org) to learn more about “How Our Water Systems Work”.

## Summer Quiz:

Answers - Can be found on page 4.

**1. This year we have had a lot of rain. When does the CRWP recommend you begin to water?**

- A. When Daylight Savings begins.
- B. When we have back-to-back 80 degree or higher days.
- C. As soon as it stops raining.
- D. When the kids start to ask to run through the sprinkler.

**2. What is one of the main reasons for unidirectional flushing of fire hydrants?**

- A. To make sure the hydrants are working.
- B. To put out fires.
- C. To maintain water quality.
- D. To give local children cool water to play in during the summer.

**3. Which of the following is a good way to use water wisely outdoors?**

- A. Let your sprinklers run until the water is flowing down the street.
- B. Plant beds with empty space so the water can get to the soil.
- C. Use a timer to provide plants just the right amount of water.
- D. Choose the prettiest plants for your yard so it looks beautiful.

**4. Which of the following activities is a CRWP accomplishment?**

- A. Operate and maintain several water quality stations along the Clackamas River.
- B. Maintain a geographical data base of the Clackamas River basin.
- C. Conduct over 100 class room presentations each year.
- D. All of the above



# Watering Your Lawn

The greatest waste of water is watering too much, too often. Generally turf requires more water than other plant material, so irrigate turf areas separately from other plant areas. Adjust your watering schedule to compensate for changing weather conditions. An established lawn needs about 1 inch of water each week, and more during hot, dry spells. Typically trees, shrub beds and perennials don't need as much. To figure out how to measure 1 inch of water, try this:

1. Set out five empty tuna or free CRWP watering gages at various spots, halfway between the sprinkler and the parts of the lawn that get the least amount of water from the sprinkler.
2. Turn on the sprinkler for exactly 15 minutes.
3. Measure the depth of the water in each can, then add up the numbers and divide by 5. This gives the average water depth of all the cans.
4. Find the average water depth on the 'Water Calculation' chart. The box to the right of that number is the total weekly watering time needed from your sprinkler.
5. Never apply water at a faster rate than it can soak into the soil. If water puddles or runs off your lawn, divide your total weekly watering time in half. Add a "resting period" between watering so that the water has time to soak into the ground and reach the grass roots. For example, if your watering schedule is 40 minutes per week, your new schedule might be to water for 20 minutes at 6 a.m., stop, then again for 20 minutes at 8 a.m. Keep repeating this process until you have applied water for the total number of minutes you have scheduled. If the water doesn't penetrate the soil well, the lawn may need to be aerated.

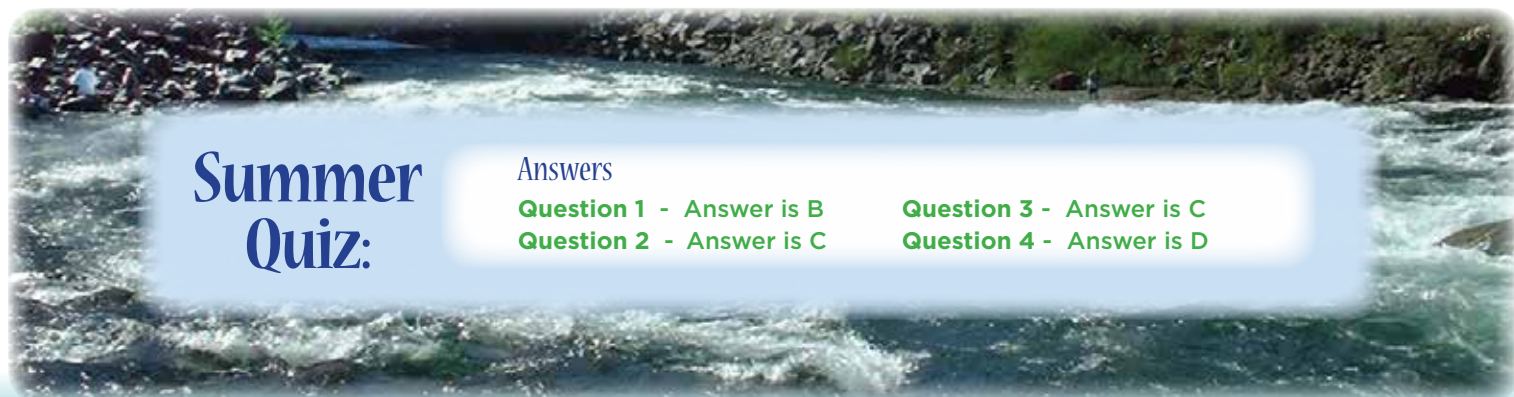
Most water applied by sprinklers never reaches plant roots. Usually it is applied faster than the soil can absorb it, and it runs off or is lost to evaporation. The amount you water

## Water Calculations

Average Water Depth in inches after watering 15 minutes	Number of Minutes to Water 1" of water once a Week
1/8 INCH	120
1/4 INCH	60
1/2 INCH	30
3/4 INCH	20
1 INCH	15

should be based on soil conditions and plant needs. Watering thoroughly, but infrequently, will help roots go deeper, resulting in more water-efficient, drought-tolerant plants. You can test whether your plants need water by checking the soil on the surface and in the root zones of your plants. Push a screwdriver into the soil, dig a small hole or use a soil probe to determine if the soil is moist enough near plant roots.

Make sure you water early in the morning, if you can, when the air is calm, cooler, and evaporation is kept to a minimum. Watering in the evening is next best, but water left standing on plants overnight can promote mold and disease.



## Summer Quiz:

### Answers

- Question 1 - Answer is B
- Question 2 - Answer is C

- Question 3 - Answer is C
- Question 4 - Answer is D



# Faces of Drinking Water

An Interview with  
**Jennifer Joe, City of Tigard, Water Division**

Ensuring the delivery of safe clean drinking water takes many different professionals with a variety of background and skills. Recently we sat down with Jennifer Joe with the City of Tigard's Water Division and talked with her about her position with the City of Tigard.

**CRWP: How long have you been with the City of Tigard?**

**Jennifer:** This August it will be 10 years.

**CRWP: What is your position and how did you acquire it?**

**Jennifer:** My job title is Environmental Program Coordinator. Originally, I ran Tigard's conservation program. Funny enough, when I applied for the position I thought it was a water quality job. During the interview I found out it was actually a water conservation position. I didn't have much experience with water conservation, but thought that would be a fun job, so when the city offered me the position I took it.

After a few years I took on the water quality responsibilities too. That part of my job deals with water quality sampling and customer service inquiries. Specifically, I take the monthly microbiological samples as well as ensuring the other water quality requirements are fulfilled. Lastly, I monitor our two aquifer storage recovery wells and our native groundwater well.

**CRWP: What was your background prior to working in drinking water?**

**Jennifer:** I have a BA in Environmental Studies from California State East Bay. While in college, I worked in a restaurant as a food server and bartender. The first job I had after college was at a wastewater treatment plant in San Rafael, California working in the lab. When I moved to Oregon, I found a position in retail and stayed there until I got the job at Tigard. Working in a restaurant and in retail definitely sharpened my communication skills, which is a big part of my job today.

**CRWP: Do you have anything that you would say is your favorite or least favorite part of your job?**

**Jennifer:** I love doing the water sampling on nice, sunny days. I can't really think of

my least favorite part of the job. The closest would probably be sampling when it's nasty outside.

**CRWP: Do you plan on retiring from the City of Tigard?**

**Jennifer:** For me retirement is about 25 years away so it's hard to say. Who knows, someday I may move out of water and trade up for a different Public Works position. Either way I have no intention of leaving Tigard.

**CRWP: What accomplishment/s are you most proud of in your career?**

**Jennifer:** If we are talking about my whole career, I would have to say I'm very proud of the Youth Education Program I developed when I was in wastewater. I developed an onsite "get to know us and what we do" program. For 2 days, students and teachers would come to our wastewater treatment facility and we would have different interactive stations so they could learn about the process of cleaning wastewater and how it affects the local wildlife.

Here at the City of Tigard, I think one of my favorite accomplishments was our annual Water Conservation Calendar. We worked with the elementary schools in our service area to create the wonderful artwork featured in the calendar. The students painted/drew pictures about water conservation and the best ones were used in the calendar. It's a fun project and the artwork from all the students, not just the winners, was real cute.

**CRWP: What advice would you give to someone starting out in this field?**

**Jennifer:** Personally, I really wish I had networked more when I first started in the water industry. One of the best ways to do this is to attend the Pacific Northwest Section of the American Water Works Association (PNWS -AWWA) subsection meetings. In addition, I wish I had gotten involved with at least one of the section committees earlier.

Another group that I work with is the Regional Water Providers Consortium (RWPC). They are a group of over 20 water providers that specialize in conservation, emergency preparedness, and regional coordination. I was mainly involved in the conservation portion. For those starting out in the industry, my advice would be to talk to your peers and find out what they are doing, what works, and what has



failed. It's a great way to get started and meet new people.

**CRWP: How has the industry changed since you started?**

**Jennifer:** A lot of my peers have moved on to management positions, and in their place are new people with fresh ideas and different perspectives. As for Tigard, the biggest change has been switching to a different water source. With the change over there have been challenges, but that's what makes the job interesting and fun.

**CRWP: What do you feel is most important about your job?**

**Jennifer:** Ensuring public health through our drinking water.

**CRWP: What would you like the public to know about their drinking water?**

**Jennifer:** I wish people knew more about where their drinking water comes from, how we treat it, and what it takes to get it to them.

**CRWP: What can the public do to help make your job easier?**

**Jennifer:** It would be nice if people had more patience with us when there is a problem. In my experience, some residents don't call until they are at the end of their rope and overly frustrated with the product we are serving. In this instance, it makes it hard to be nice when they are yelling at you for something we could have fixed weeks ago. Please call us right away when there is a problem and we will come right out to help you the best we can.

*(Continued on page 8.)*

# Macroinvertebrate Monitoring

Biological monitoring of rivers and streams is widely recognized as an effective tool for measuring and monitoring overall ecological integrity of these systems. Macroinvertebrate communities lend particularly well to bio-monitoring because they are diverse, they range widely in sensitivity to water pollution and other perturbations, and they are easy to collect. These communities simultaneously integrate the effects of multiple stressors and therefore provide an index of the aggregate effects of all pollutants and other stressors in a system. For these reasons, macroinvertebrate assessment and monitoring is widely used by water resource management agencies for assessing the condition of rivers and streams.

In recognizing the value of bio-monitoring for informing water quality conditions and trends in 2013 the CRWP worked with ABR, Inc. Environmental Research & Services to develop a Long-Term Macroinvertebrate Monitoring Plan for the lower Clackamas River and its major tributaries. The CRWP has been using this Plan as a tool to identify opportunities to better collaborate with our basin partners in these kinds of monitoring efforts by aligning monitoring stations and identifying common field and lab methodologies.

As part of these efforts the CRWP has been sampling macroinvertebrates from five sites in the lower Clackamas River mainstem between river miles 0.5 and 20 in order to produce a robust dataset necessary to identify changes in biological conditions when they occur. These sites were



*CRW Water Quality Manager and CRWP intern conduct macro sampling.*

selected to bracket the four drinking water intake locations and the Deep Creek subwatershed.

In 2016 the CRWP worked with Cole Ecological, Inc. to gather, review, and synthesize all known macroinvertebrate monitoring data and results from the lower Clackamas River basin since the late 1990s to the present (winter 2016/2017).

To read this report or to look at the Long-Term Macroinvertebrate Monitoring Plan or other Macro reports associated with CRWP monitoring visit our Resources and Documents Page at [www.clackamasproviders.org/resource/](http://www.clackamasproviders.org/resource/).

## Efficient Irrigation Systems

When choosing an irrigation system, consider selecting one that sends large drops of water close to the ground. These sprinklers are more water-efficient than sprinklers that spray a fine mist and lose a lot of water through evaporation.



Drip irrigation is a great alternative. Little or no water is lost to evaporation as the water is applied at ground level, near plant roots.

A well-planned watering system can help you avoid over-watering, which not only wastes water but can be a cause of plant death and disease. Knowing how much water your plants need, and periodically monitoring and maintaining your irrigation system are the keys to saving both water and money.

All irrigation systems should have backflow protection installed at the connection to the source. Backflow protection prevents the mixing of irrigation water that may have come into contact with fertilizers and other

outdoor chemicals with drinking water. Contact your local water provider for specific information regarding backflow rules and regulations.

Filters are necessary for some equipment, especially drip, to keep particles from clogging up the equipment. Pressure regulators may also be necessary as some equipment functions better at lower pressure than pressure coming from the source.

A good controller is also necessary. A controller is what automatically turns your irrigation system on and off after you have set the schedule. New EPA Water Sense Smart Controllers are the ultimate in water efficient irrigation controllers.

Visit the CRWP website to learn about our \$200 rebate for a new Smart Controller and other outdoor rebates.

# Learn More about About Us

The Clackamas River Water Providers (CRWP) is a coalition of nine water providers that get their drinking water from the Clackamas River, which combined, provide drinking water to over 300,000 people in Clackamas and Washington Counties. The organization is made up of representatives from the City of Estacada, City of Lake Oswego, City of Tigard, Clackamas River Water (District), the North Clackamas County Water Commission (Oak Lodge Water Services, City of Gladstone), South Fork Water Board (City of Oregon City, City of West Linn), and Sunrise Water Authority (City of Happy Valley and the Damascus area).

## Our Mission

Our mission is to preserve and protect the quality and availability of water from the Clackamas River. The watershed covers nearly 940 sq miles, most of which is national forest or private land that supports a variety of uses including timber, agriculture and recreation. The water within the river is shared by people and the environment. The work we do looks to leverage the interest of the various stakeholders to maximize the effective use of the water and to coordinate the protection of water quality throughout the basin.

## What We Do

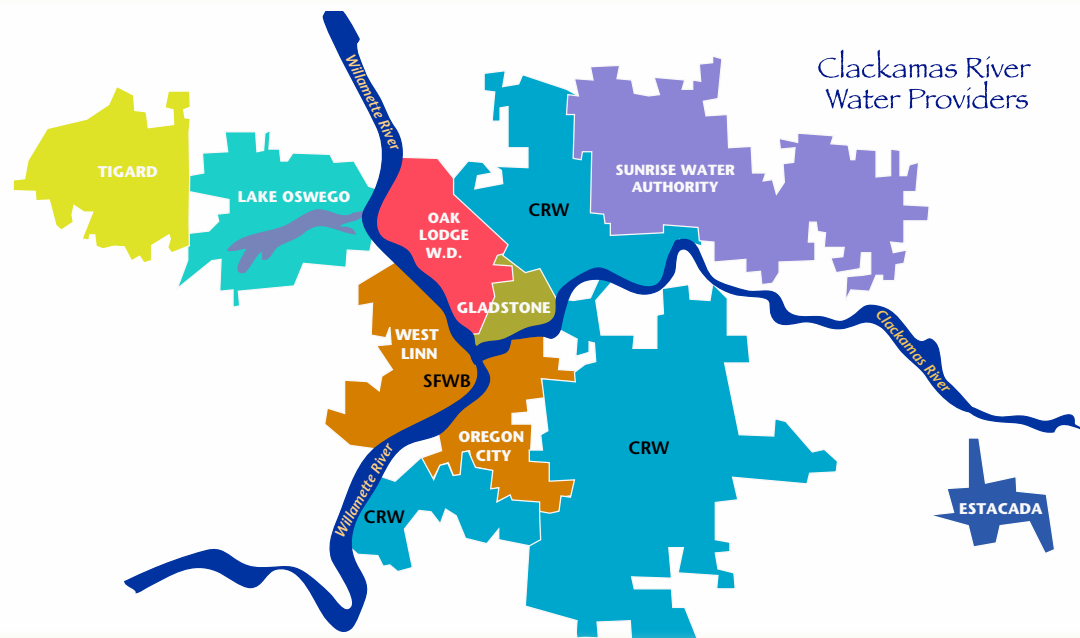
We conduct scientific studies to understand the effects of land uses on water quality and help establish best practices to minimize long-term impacts on our drinking water source. We also work with basin stakeholders to develop policies, procedures, and program for advancing the common protection of the watershed and within our communities to

educate customers on the effective use of water and preservation of this natural resource.

## Important Accomplishments

- Operate and maintain several water quality monitoring stations along the river in cooperation with federal partners used for protecting our drinking water quality.
- Maintain a geographical database for use in advanced scientific studies of the basin and tracking baseline variables related to land use impacts.
- Sponsor community clean-up events targeted at pollution reduction, including the collection of over 74,000 pounds of old or unused pesticides since 2011 and the removal of over 56,800 pounds of trash from the river since 2002.
- Conduct more than a 100 classroom presentations each year on source water protection and watershed issues, drinking water treatment and distribution, indoor and outdoor water use as well as water conservation.
- Participate in around 20 community events each year, offering public education on water conservation and drinking water quality protection.
- Provides conservation rebates to more than 100 customers each year for purchase of high water efficient fixtures and appliances.

To learn more about what the CRWP is currently working on go to [www.clackamasproviders.org](http://www.clackamasproviders.org) or contact us at **(503) 723-3510**.



# Faces of Drinking Water

(Continued from page 5.)

**CRWP:** What is the most significant project you have been involved in your career?

**Jennifer:** Most definitely the Lake Oswego-Tigard Partnership.

**CRWP:** What's the one thing you can't live without at work?

**Jennifer:** My blanket, I get chilly while I'm working at my desk. But seriously, I could not do my job without the support of my water crew. They do a lot of hydrant flushing and other high profile jobs. When residents approach them and ask what they are doing their communication is always spot on. My crew is the best!

**CRWP:** What would you say H2O is to you?

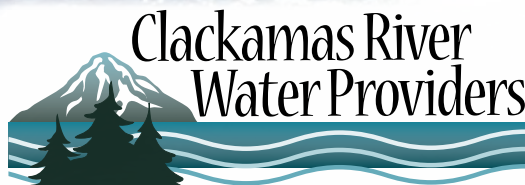
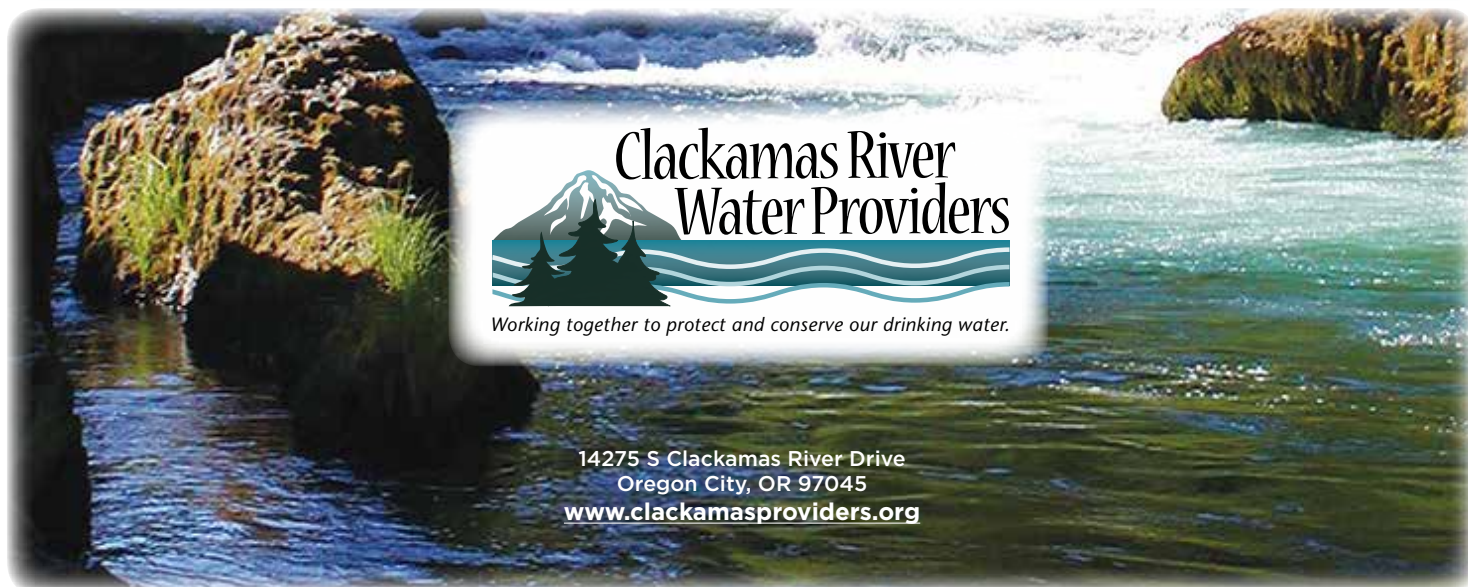
**Jennifer:** Life! I don't know if there is another answer.

**CRWP:** What do you do for fun when you're not working?

**Jenner:** I enjoy attending concerts, volunteering for the Cat Adoption Team, doing Pilates 4-5 times a week, and I love to travel. In 2010, I went to Bolivia and Peru (including Machu Picchu). In 2012, I explored Indonesia (the island of Java and Bali). In 2015, I traveled to Iceland and did the whole Ring Road and in 2016, I visited Sweden, Norway and Italy.

The CRWP would like to thank Jennifer Joe for taking the time to do this interview with us. Personally, I have known Jennifer Joe, or JJ to me, since she started with the City of Tigard. She and I both work in water conservation and work together through the RWPC Conservation Committee and the Children's Clean Water Festival organization committee. Knowing her and working with her has been my pleasure.

by Christine Hollenbeck, CRWP



Working together to protect and conserve our drinking water.

14275 S Clackamas River Drive  
Oregon City, OR 97045  
[www.clackamasproviders.org](http://www.clackamasproviders.org)

## Our Members:



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



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



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



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



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



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



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



[www.tigard-or.gov](http://www.tigard-or.gov)

Christine Hollenbeck Public Education and Conservation Program Coordinator (503) 723-3511 [christine@clackamasproviders.org](mailto:christine@clackamasproviders.org)  
Kim Swan Water Resource Manager (503) 723-3510 [kims@clackamasproviders.org](mailto:kims@clackamasproviders.org)