

WATER QUANTITY

**(Taken from the Tualatin Soil and Water
Conservation District's Long Range Business Plan for 2011-2015)**

Description of Resource Concern

Water quantity is an important issue. Having either too much or too little negatively impact farming, residential infrastructure, and stream health. Everyone uses water, so everyone is affected by its supply, accessibility, and cost.

Pure and clean water is terrific, but we have problems when there is not enough to go around. A lack of water affects the farmer who must irrigate crops, the homeowner who wants to water her lawn, the apartment dweller who wants to wash his car, and the child who begs to play in the sprinkler. All of these activities could face regulations and mandatory conservation measures if the water supply continues to be stretched.

Water rights¹ are already over-allocated. With new demands from cities and industry, the problem is expected to continue. If water supply problems are not addressed, costs to treat water for human use will increase. There will also be more rules for farming practices. Ultimately, the Tualatin River Watershed could suffer a loss of business, industry, and agriculture.

“When the well's dry, we
know the worth of water.”

--Benjamin Franklin

In the summer, most stream flows in the Tualatin River Watershed are too low. Fish need regular, uninterrupted stream flow. With less water to dilute bacteria and chemicals, the concentration of pollutants in streams is higher. Farmers need to irrigate crops, industries (i.e. high tech) need water for manufacturing, and homeowners want to water their lawns and have sufficient groundwater supply for their wells.

Oregon's water laws are based on the principle of prior appropriation. This means the first person to obtain a water right on a stream is the last to be shut off in times of low stream flows. In water short times, the water right holder with the oldest date of priority can demand the water specified in their water right regardless of the needs of junior users. This is a problem for farmers who depend on irrigation for summer crops.

On the other hand, having too much water can also be a serious problem. Winter flooding causes stream bank erosion and damage to buildings and structures as well as wildlife habitat. As with lack of water, flooding may also have a huge negative impact on crop production. Flood water carries weed seeds, debris, and deposits soil on top of crops.

Fall and winter flood events in 1995 and 1996 increased concern with flood management in the watershed. Increased development within the urbanized portion of the watershed has led to higher peak flows which have led to degradation of streams.

In the Tualatin River Watershed, water demand comes from in-stream flow restoration, irrigated agriculture, and municipal and industrial supply. Figure 12 shows the percent water use for each category in the Tualatin River Watershed.

¹ A water right is the right of a water user to use water from a water source (e.g. a river, stream, pond, or groundwater). Water is publicly owned in Oregon. Water users must obtain a permit or water right from the Oregon Water Resources Department to use water from any source.

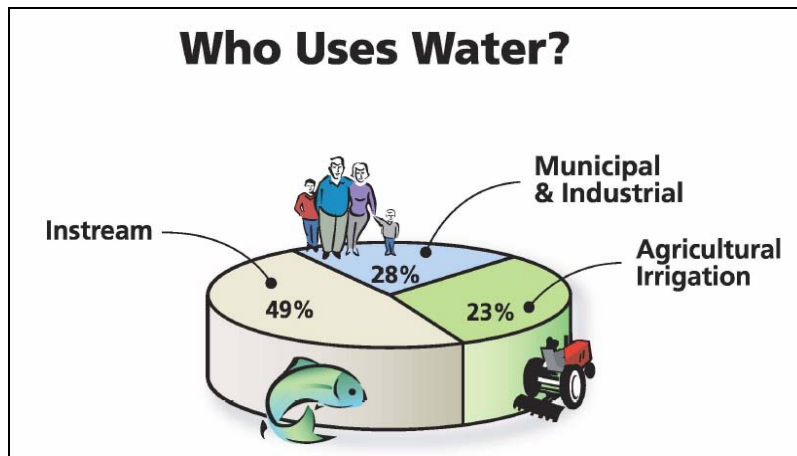


Figure 1. Water use in the Tualatin River Watershed (Clean Water Services, 2001).

Our modified marine climate has made low summer flows and winter flooding a problem since the area was first settled. However, large increases in population beginning in the second half of the 20th century intensified the water supply problem. More people are vying for water use, thereby increasing competing uses and conflicts among water users. Recent studies have explored alternatives to bring additional water into the Basin. The Clean Water Services' Water Feasibility Study² determined that water needs will double in the next 50 years due to municipal and industrial use, streamflow for fish, and water quality requirements.

"Water is the most critical resource issue of our lifetime and our children's lifetime. The health of our waters is the principal measure of how we live on the land."

--Luna Leopold

Highlights of Accomplishments

Many conservation plans written by the District include conservation practices targeting water quantity issues. For example, many blueberry farms throughout the basin have converted from sprinkler irrigation to drip irrigation systems. These conversions have significantly decreased water use. Many farms have implemented the irrigation water management practice, installing soil moisture sensors to decide when to irrigate. This practice improves management and cuts down on unnecessary watering.

Through the ECREP and VEGBACC programs, landowners are given the option to lease senior water rights to the state for in-stream use. Since the programs began in 2005, 16 landowners have taken this option, leasing a total of 110 irrigated acres to the state for in-stream use.

² Clean Water Services' Water Feasibility Study – A study to determine future water needs and explore alternatives to meet them, such as expanding the Scoggins Valley Dam.

Desired Conditions

- Stream flows are adequate to maintain desired temperature.
- Stream flows are adequate to maintain wildlife.
- Water supply meets all beneficial use demands.
- All water rights holders are able to utilize sufficient water.
- Progress is made to provide more storage than in 2010.
- Stream flows are managed so excess flows do not damage properties and do not distribute contaminants.
- County residents cooperate in distributing water to meet all users' needs, because it's in the best interest of all residents.
- Residents use water saving strategies on their properties.

Goals

By the end of 2015, demonstrate:

- an increase in the number of irrigation systems whose water supply is not cut off during critical irrigation periods in the summer.
- a constant stream flow rate equal to 2010.
- a per capita decrease in water use.
- an increase in residents using water-saving strategies on their properties.
- an increase in the number of irrigation systems with improved efficiency (e.g. conversion from sprinkler to drip).
- an increase in the number of irrigators implementing water-saving practices (besides irrigation system improvements).

Strategies and Actions

Table 1. Timeline of Desired Conditions and Actions for Water Quantity.

Benchmarks	Timeline	Actions
Increase number of irrigation systems with improved efficiency by 100% (using less water, but maintaining production). Practices will include converting to drip irrigation, irrigation water management, installing soil moisture sensors, and using weather data. <ul style="list-style-type: none"> ▪ 25% by 2012 ▪ 50% by 2013 ▪ 75% by 2014 ▪ 100% by 2015 	Dec 2015	<ul style="list-style-type: none"> ▪ Establish baseline for measurements ▪ Prepare outreach strategy and actions / products ▪ Obtain signups and agreements for conservation plans and federal cost-share programs ▪ Write and implement conservation plans containing water supply practices

Summer stream flows provide for all beneficial uses. Winter stream flows are managed so excess flows do not damage properties and do not distribute contaminants.	Dec 2015	<ul style="list-style-type: none"> ▪ Focus on education and consultation to rural landowners ▪ Advocate for what is not done to prevent winter flows from damaging properties
Residents are knowledgeable and motivated to apply water-saving strategies.	Dec 2015	<ul style="list-style-type: none"> ▪ Work with other agencies involved in water supply to educate and motivate populations about water saving strategies

Key partners necessary to achieve the desired conditions include:

- Private landowners
- Natural Resources Conservation District
- Clean Water Services
- Tualatin Valley Irrigation District
- Willamette Partnership
- The Freshwater Trust
- Tualatin Valley Water District
- Joint Water Commission

Measurements

- Dates of irrigation cutoff
- Fewer days of water restrictions
- Seasonal flow rates and flood episodes
- Per capita water use by metered users
- Plans with water quantity practices
- Number of non-farm residents contacted through media, meetings, and consultation