

# Rainwater Harvesting

In spite of a healthy annual rainfall in the region, the demand for water in Clackamas County is outweighing the supply. Of particular concern to resource managers and landowners are shrinking aquifers and wells that go dry. One solution to the water shortage is rainwater catchment -- also known as rainwater harvesting.

## Groundwater Restricted Areas

The Oregon Water Resources Department has indentified five groundwater restricted areas in Clackamas County: Damascus; Sandy/Boring; Gladtidings (south of Molalla); Sherwood/Wilsonville; and Mt. Angel.

In these quantity limited areas, landowners applying for new or additional water rights - whether for wells or collecting ponds - may find it difficult to get permits. However, water catchment systems may be installed without additional water rights. <sup>1</sup>

## Saving Water at Home and on the Farm

Rainwater harvesting allows landowners to augment their water supplies by harvesting rainwater from their roofs, driveways, or other artificial impervious surfaces and storing it in barrels or tanks for later use.

In addition to money saving on annual water costs, rainwater harvesting systems may reduce mud problems and improve water quality for nurseries, livestock operations, and even home gardens.



<sup>1</sup> ORS 537.141(h)

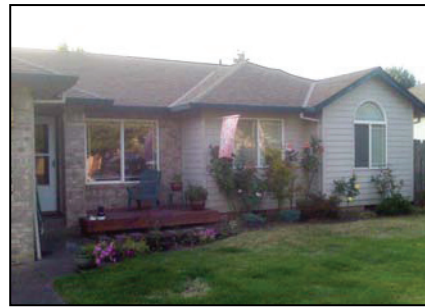
## Five Good Reasons to Start Rainwater Catchment

1. Augment water supplies for irrigation
2. No need for water rights
3. Reduce city water use and cost
4. Conserve groundwater
5. Improve water quality through mud management

## Calculating Volume of Water Stored

The quantity of water that may be captured depends on the local rainfall, catchment area, and the size of the tank installed. Harvesting systems are available in a wide variety of sizes to serve houses and farms. Locally installed systems have ranged from 50 gallon rain barrels to 309,000 gallon tanks. Tanks may be installed above or below ground level. Lined ponds may also be constructed after careful planning and permitting.

A typical 2,000 square foot house, if located in Oregon City where the annual average rainfall is 45 inches, will have roof rainwater run-off of approximately 56,000 gallons annually.



If the same house is located in Welches, where the average annual rainfall is 85 inches, the run-off collected would be approximately 105,000 gallons.

Table 1: Approximate Annual Rainfall Roof Yields

Roof Square Footage	45 inches/yr Oregon City	60 inches/yr Sandy	85 inches/yr Welches
1,500	42,000 gal harvested	56,000 gal harvested	79,000 gal harvested
2,000	56,000 gal harvested	74,000 gal harvested	105,000 gal harvested
2,500	70,000 gal harvested	93,000 gal harvested	132,000 gal harvested
3,000	84,000 gal harvested	112,000 gal harvested	159,000 gal harvested



CLACKAMAS COUNTY SOIL AND WATER  
CONSERVATION DISTRICT  
www.conservatiodistrict.org

Good dirt. Clean water.

221 Molalla Ave. Suite 102  
Oregon city, Oregon 97045  
503-210-6000

## Costs Vary Depending on Goal

Clackamas County Soil and Water Conservation District has worked with a number of landowners to establish water harvesting projects. Costs vary depending on objective and end use. If you are interested in harvesting rainwater, District staff have the expertise to offer technical assistance to interested landowners. Anything from reference material to conservation planning, design, and permit assistance and, in some cases, financial assistance is available to Clackamas County residents.

## Wildlife Benefits

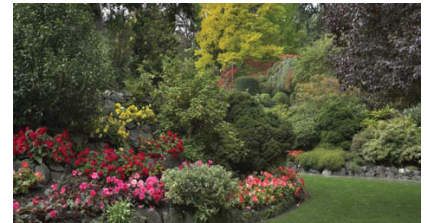
Rainwater harvesting is used to provide sources of water for wildlife in remote areas. Known as "water guzzlers", these systems are described as self-filling, constructed watering facilities that collect snow and rain, store, and make water available for wildlife. When installed properly, the water stored in guzzlers is available for free-roaming animals throughout the year. This is especially important to them during the hot months of July, August, and September.



US Bureau of Land Management -2009

## Three Quick Water Facts

1. An acre-foot of water is equal to 325,851 gallons or approximately 27,000 gallons per 1" of water applied to the surface. One acre is equal to 43,560 square feet.
2. One cubic foot of water contains 7.5 gallons.
3. A 1,000 square foot garden requiring 1" of water applied per week, uses approximately 623 gallons per week.



## Additional Information on Rainwater Harvesting

Clackamas Soil and Water Conservation District  
[www.conservationdistrict.org](http://www.conservationdistrict.org)

American Rainwater Catchment Systems Association  
[www.arcsa.org/](http://www.arcsa.org/)

Oregon Department of Consumer and Business Services - Codes  
[www.bcd.oregon.gov/pdf/3660.pdf](http://www.bcd.oregon.gov/pdf/3660.pdf)

Texas A & M AgriLife Extension  
<http://rainwaterharvesting.tamu.edu/>

Oregon State Alternate Methods Codes  
[www.bcd.oregon.gov/programs/plumbing/alt\\_methods.html](http://www.bcd.oregon.gov/programs/plumbing/alt_methods.html)

Oregon Rainwater Harvesting Manual (Basic)  
[www.cbs.state.or.us/bcd/pdf/3660.pdf](http://www.cbs.state.or.us/bcd/pdf/3660.pdf)

Oregon Water Conservation Manual  
[www.cbs.state.or.us/bcd/pdf/0990.pdf](http://www.cbs.state.or.us/bcd/pdf/0990.pdf)

"Texas Guide To Rainwater Harvesting"  
[www.twdb.state.tx.us/publications/reports/RainwaterHarvestingManual\\_3rdedition.pdf](http://www.twdb.state.tx.us/publications/reports/RainwaterHarvestingManual_3rdedition.pdf)

Sustainable Sources  
[www.greenbuilder.com/sourcebook/Rainwater.html](http://www.greenbuilder.com/sourcebook/Rainwater.html)

*"We never know the worth of water till the well is dry."  
- Thomas Fuller*



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