



DESCHUTES RIVER
CONSERVANCY



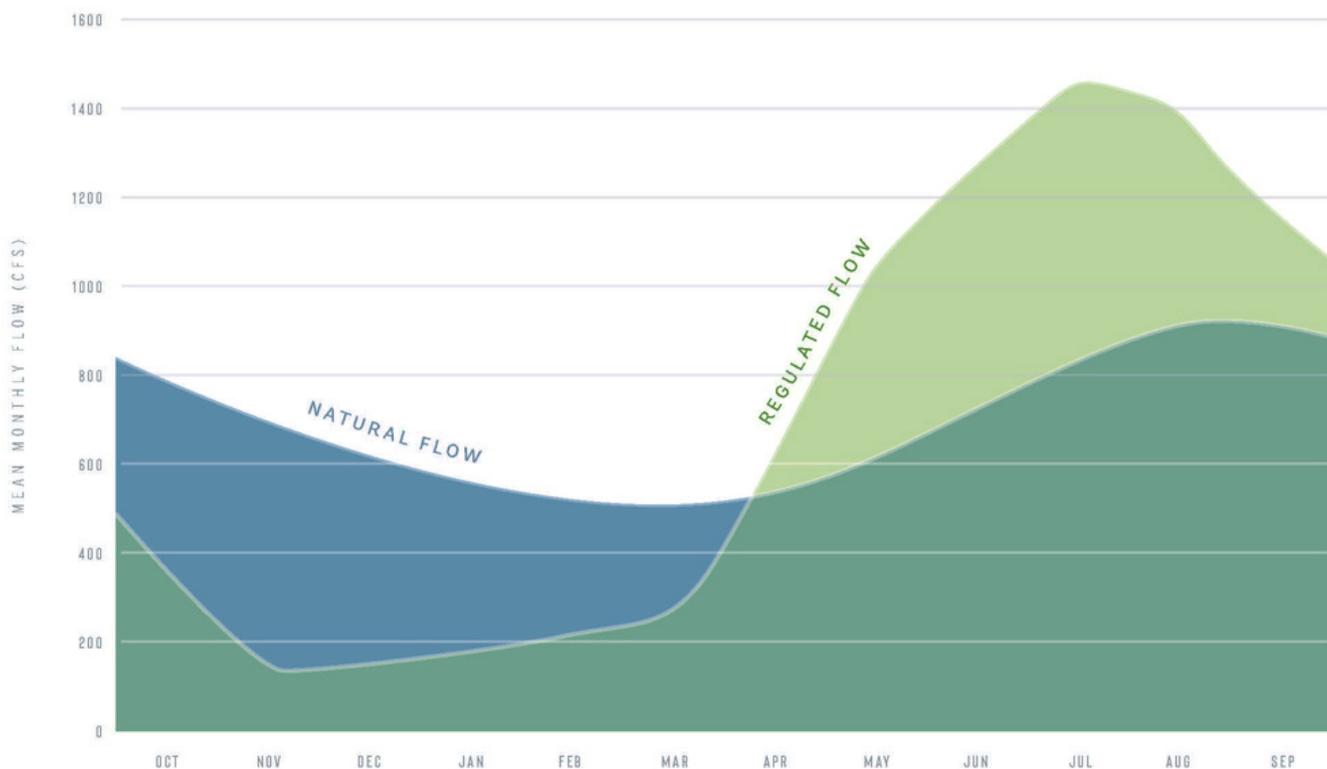
The Deschutes Basin

Notes from "What's Going on with the River?"

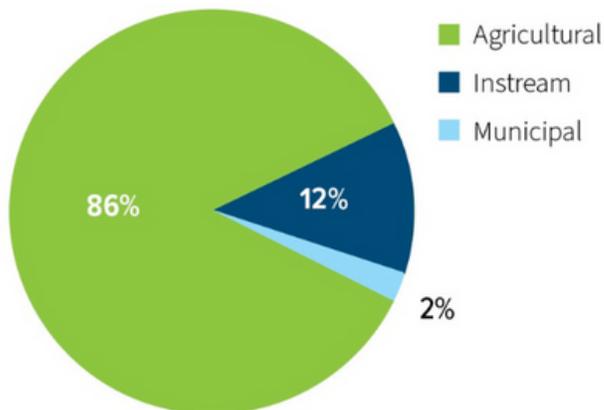
- Historically, the Deschutes River was one of the most consistently flowing rivers, year-round, because it is fed primarily by groundwater/springs.
- Compared to the rest of the state, the Deschutes basin has very little surface water. This is due to the young volcanic geology that absorbs most of the precipitation, which is then discharged into the river via springs.
- There are more water rights (demand) than there is water (supply) naturally occurring in the river. Reservoirs were built to store winter flows in order to increase summer supplies. This has altered the natural flow of the river and created huge fluctuations in the flow, impacting the Upper Deschutes in the winter and the Middle Deschutes in the summer.

Hydrograph of Natural and Regulated Streamflows:

Deschutes River below Wickiup Reservoir (1983-present)



Current distribution of water rights:



STAY INFORMED



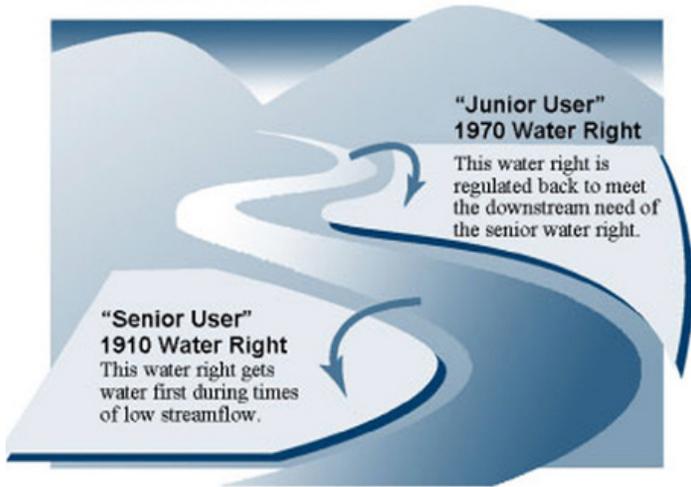
Join our river community



www.raisethedeschutes.org

Notes from "Whose Water is it Anyway?"

Prior Appropriation: an example
"First in time, first in right"



Water Rights: What You Need to Know

- Water in Oregon belongs to the public
- One has the **right** to **use** the water for beneficial purposes
- Leaving water in the river was not legally considered beneficial **until 1987**
- First in time, first in right
- Rights are tied to specific parcels of land
- If you don't use your water, you could lose it

An example of prior appropriation at work

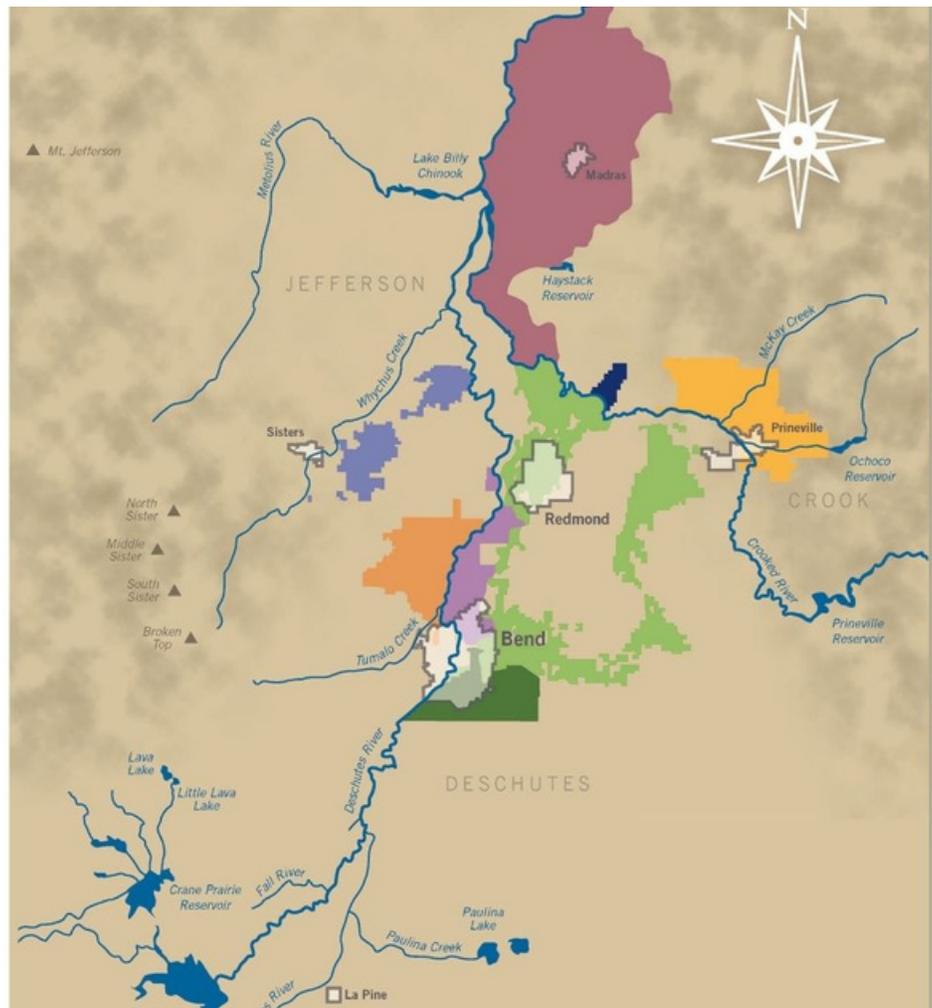
Prior appropriation ensures that the first water user to obtain a water right has first access to water in times of shortage. **Senior water right holders** with earlier priority dates get all their water rights before any **junior water rights holders** can get their water.

DESCHUTES BASIN IRRIGATION DISTRICTS

Priority Dates for Water Rights

- North Unit Irrigation District
1913
- Central Oregon Irrigation District
1900, 1907
- Swalley Irrigation District
1899
- Arnold Irrigation District
1905
- Ochocho Irrigation District
1905
- Lone Pine Irrigation District
1900
- Tumalo Irrigation District
1905
- Three Sisters Irrigation District
1895
- The Deschutes River
1983

*Priority dates vary by stream



Notes from "Why Water Banks Make Sense"

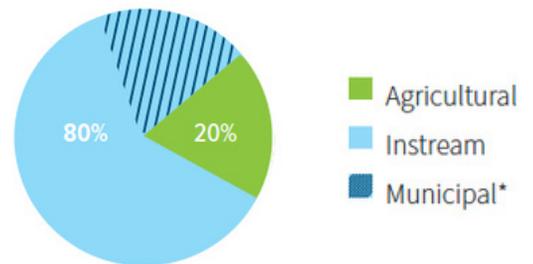
- The Deschutes Basin has significant unmet water needs stemming from how water is managed in our region.
- Water banks are a tool to voluntarily redistribute water from willing water rights holders to help meet unmet needs in the basin, such as for junior water rights holders and rivers.
- **Tools to generate water for the water bank are instream leases, temporary transfers, permanent transfers, piping canals, water conservation projects, and the 2022 Water Bank Pilot.**

Water Banking Moving water around to meet needs



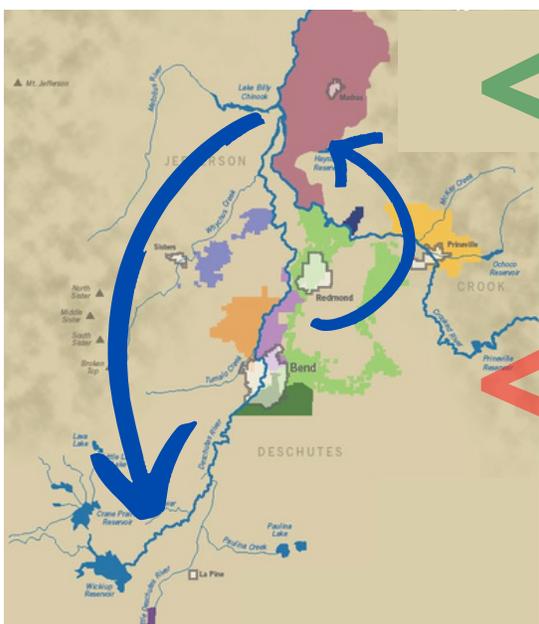
Unmet Needs in the Deschutes Basin

Of all the water needs in the basin, rivers, junior irrigators and cities have the most significant shortfalls.



*Municipal demand is overlaid on instream demand because water for mitigating groundwater pumping is dedicated instream.

Why a Water Bank Can Work in Central Oregon: Today and into the Future



Jefferson County
Average Per Farm Income

\$31,281

Junior District
Water Allocation

2.5 acre feet of water per acre in a **good** water year. In times of drought, that is significantly cut back. In 2022 it was **0.45 AF/acre**.

Deschutes County
Average Per Farm Income

-\$12,866

Senior District
Water Allotment

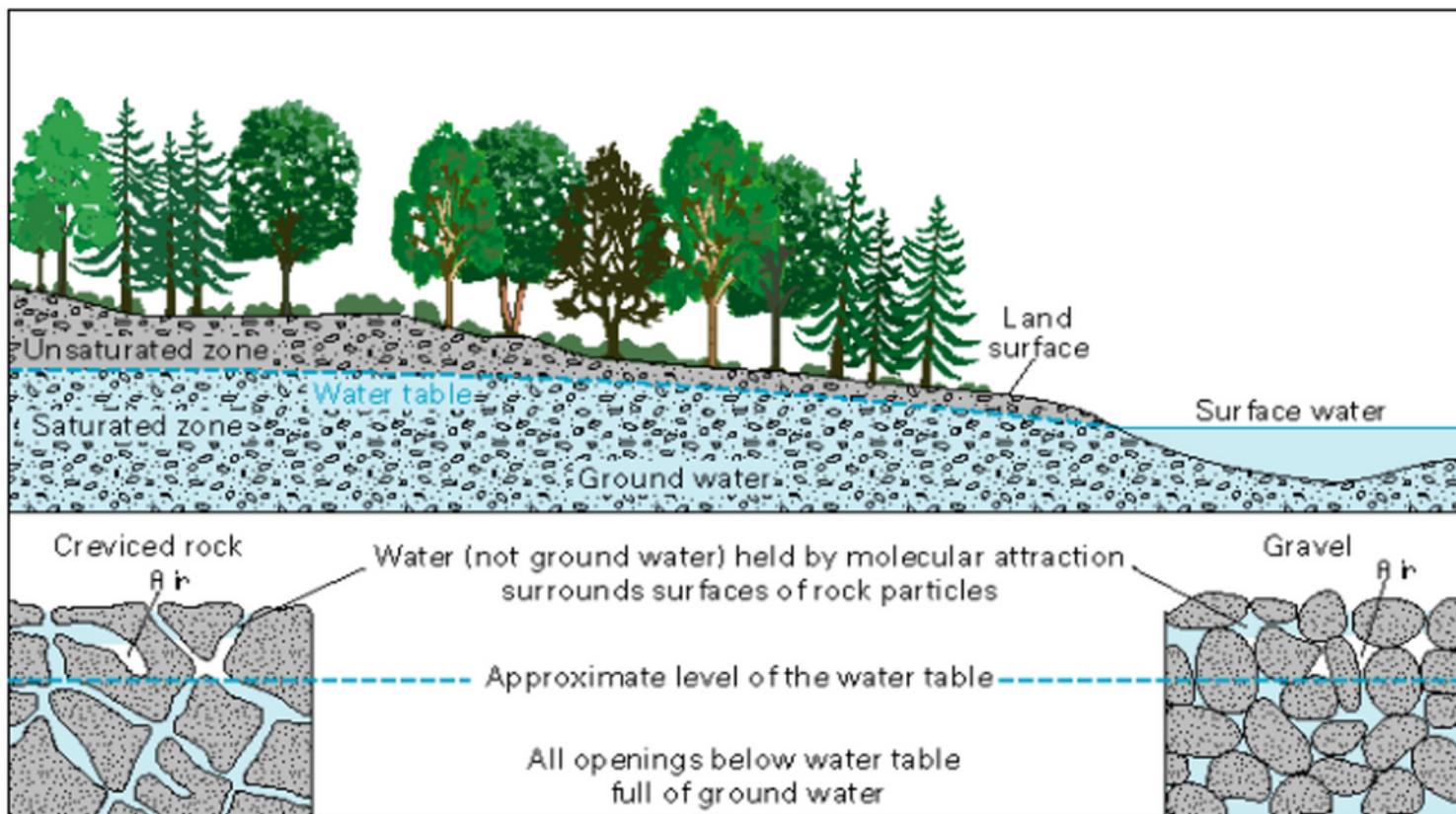
Water rights for **5.45** acre feet of water per acre, but has a target delivery rate of **4.3 AF/acre**

- Irrigators closer to Bend have access to more reliable water, yet many don't rely on farming as a primary income.
- Through foregoing use, increased efficiency, and water conservation projects, irrigators with adequate water could have the option to move water to more productive farmland.
- As junior districts increase their water reliability, they can use less stored water and, as a result, increase flows in the Deschutes River.

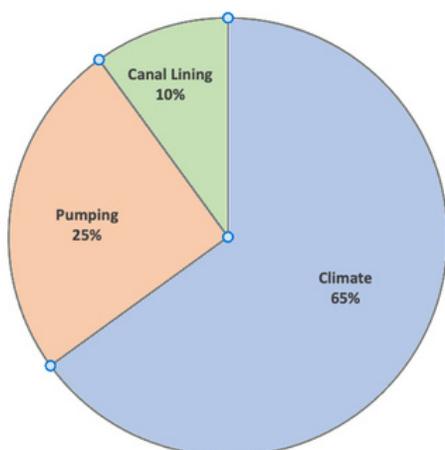


Notes from "Groundwater in the Upper Deschutes Basin"

- **Recharge** = water entering the system *Example: snowmelt, rain, streams, canal leakage*
- **Discharge** = water exiting the system *Examples: streams, springs, wells, evapotranspiration*
- Groundwater and surface water are connected—they are essentially one source of water.
- Several areas in the basin are showing declines, with climate change being the primary driver.
- Generally, groundwater recharge occurs in the Cascades and discharge occurs in the northeastern part of the basin near Lake Billy Chinook.



Estimated Causes of Groundwater Decline*



*Gannett, M.W., and Lite, K.E., Jr., 2013, Analysis of 1997–2008 groundwater level changes in the upper Deschutes Basin, Central Oregon: U.S. Geological Survey Scientific Investigations Report 2013-5092, 34 p., <http://pubs.usgs.gov/sir/2013/5092>.

Recharge in the Upper Basin

