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WATER CENTER**
COLORADO STATE UNIVERSITY

Efficiency in Irrigated Agriculture Does It Save Water?

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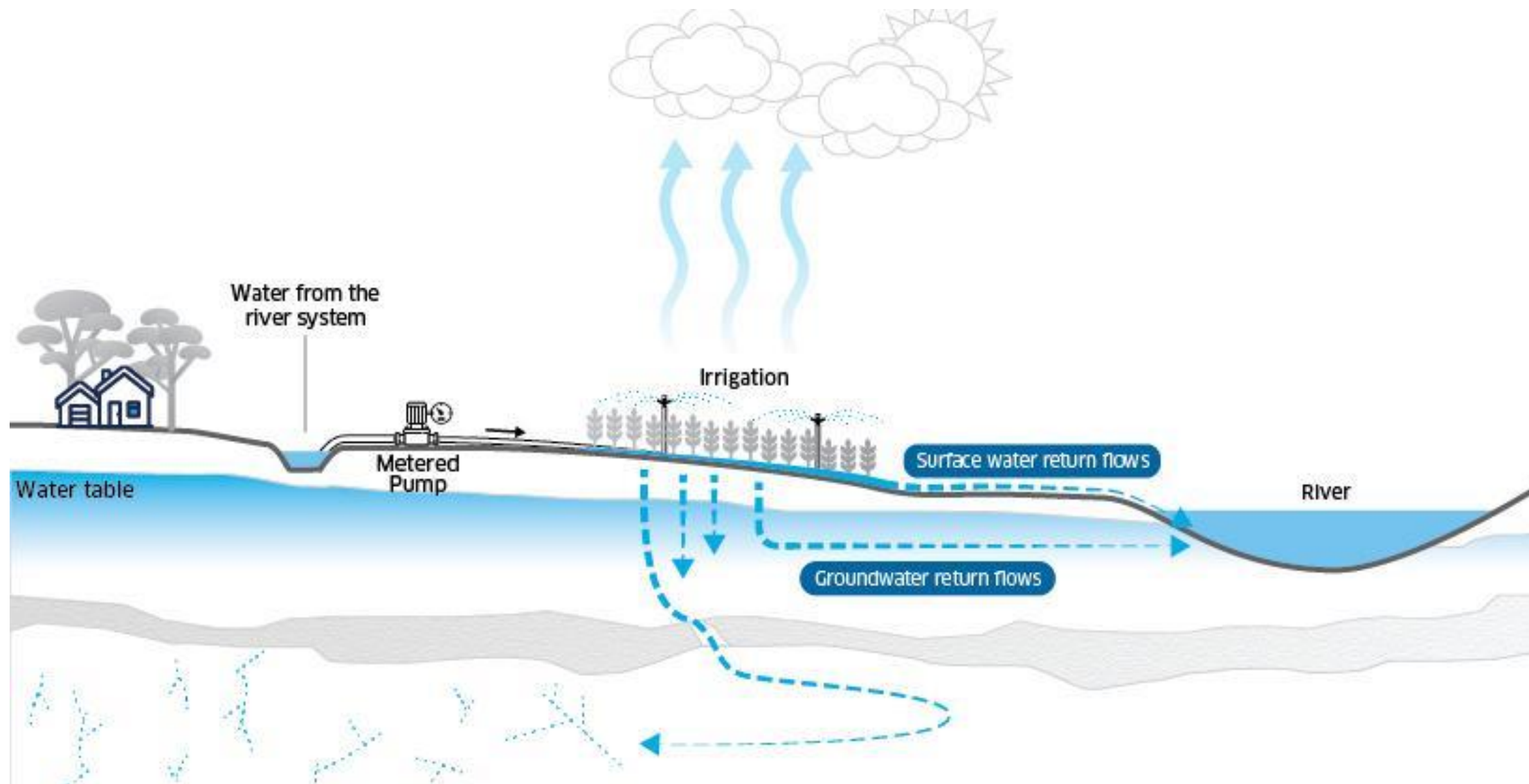


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Agriculture in the South Platte Basin

- **Agriculture uses approximately 86% of the water in the South Platte Basin.**
 - 5 of the top 10 counties are within the South Platte Basin (\$3.5 billion)
 - 854,000 irrigated acres
 - 80% of Colorado's population
- **South Platte is net water short**
 - **Can increase efficiency help solve the problem?**



Source: Murry-Darling Basin



Furrow Irrigation



Center Pivot

Water Use in a Water Short Environment

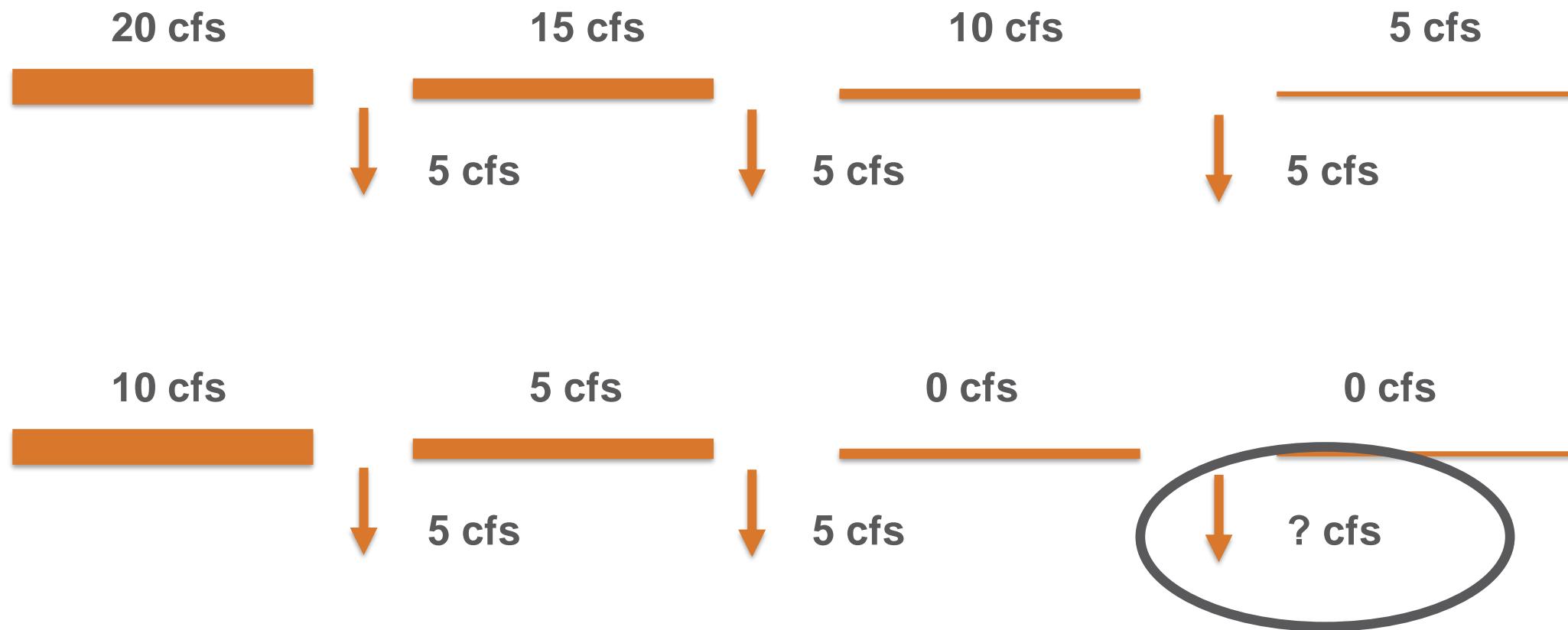
Water Conservation

Irrigation Efficiency

Actual Consumptive Water Use

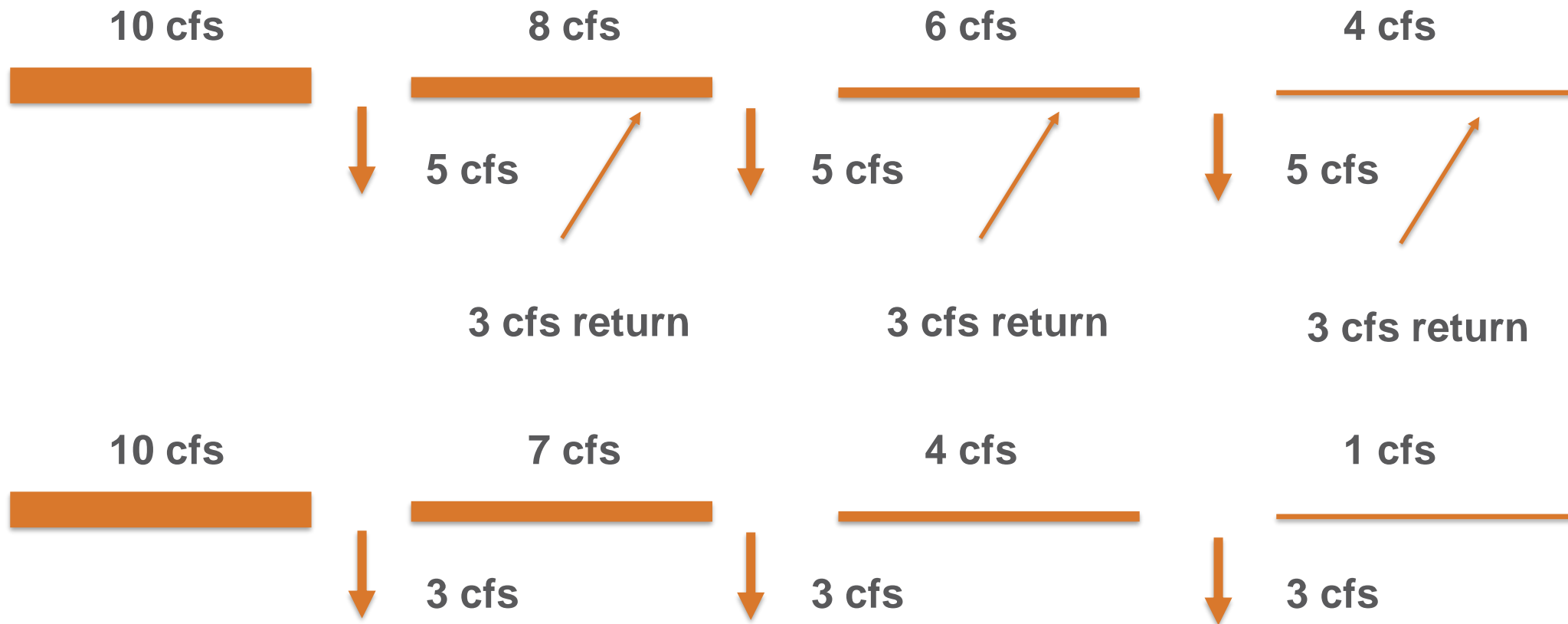
How does efficiency impact stream flows?

How the river works



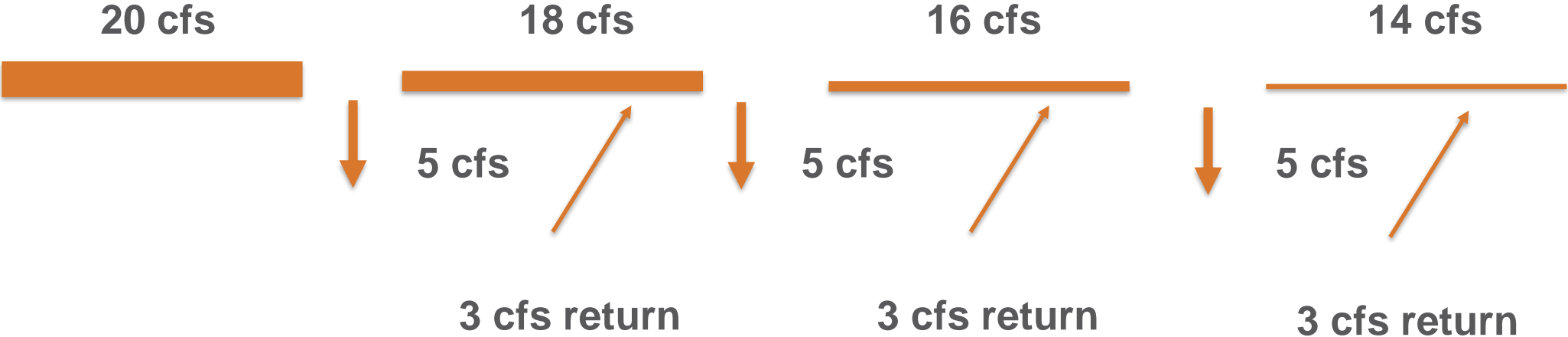
Senior water rights – shut off junior rights to get his water

How the river works

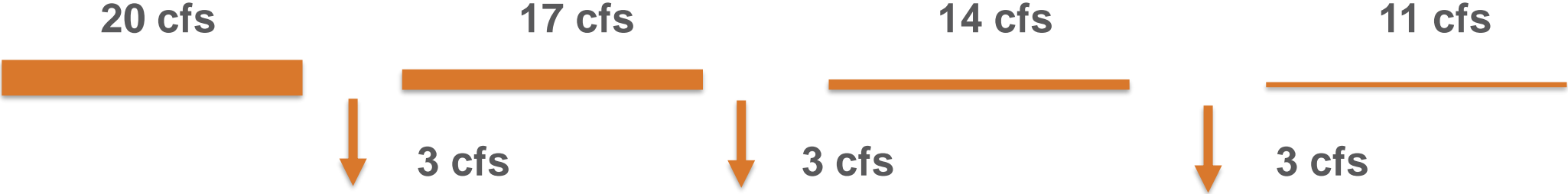


How the river works

Low Efficiency



High Efficiency



Return Flows

- **Return flows are what built irrigation within the basin**
 - Stabilized flows during the summer when flows were low
 - Retiming of water to low flow times

- **Water Supply**
 - 1.4 million acre-ft of native water supplies
 - 0.4 million acre-ft of trans basin diversion

- **Annual diversions on South Platte**
 - **4 million acre-ft**

Efficiency – On Farm vs Basin

- **On Farm Efficiency has many benefits**
 - **Greater yields**
 - **Reduced leaching of nutrients**
 - **Labor savings vs furrow irrigation**
- **Downfall**
 - **Reduced return flows into system**
 - **Need for greater storage**
 - **Expensive**
 - **Greater issues with salinity**
- **As changes to greater efficiency happen, changes to the system will need to be made**
 - **Storage**



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The Consumptive Use Conundrum: Economics vs Water Savings

Questions?



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