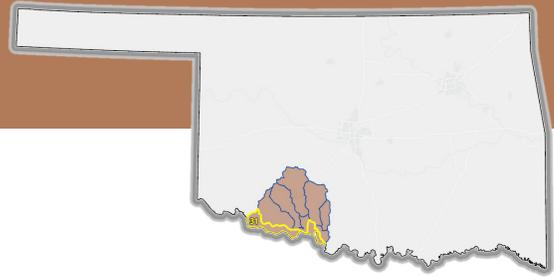


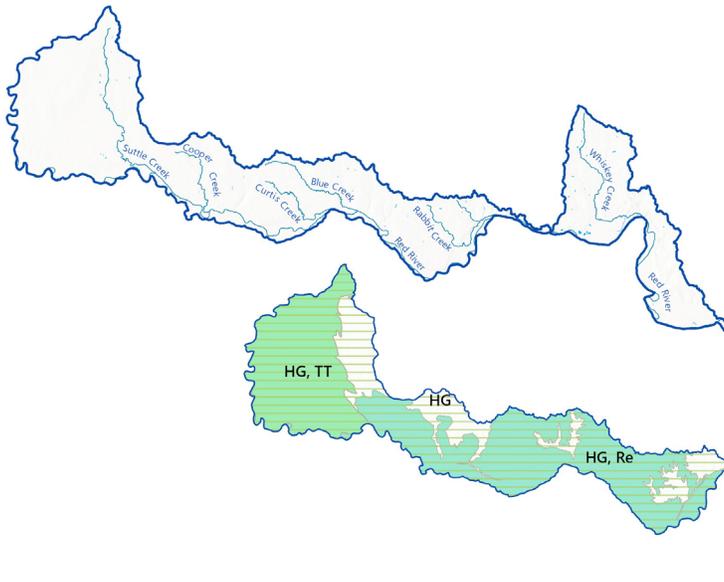
BASIN 31

Red River Mainstem (To North Fork of Red) / Beaver Cache Region



Surface Water Legend

- Planning Basin
- OWRB Major Streams
- OWRB Lakes



Groundwater Legend

- Planning Basin
- Minor Bedrock Aquifer
- Hennessey-Garber (HG)
- Major Alluvial Aquifer
- Red River (Re)
- Tillman Terrace (TT)

Interactive maps can be viewed through the OCWP dashboards, accessible at oklahoma.gov/owrb/water-planning

SUMMARY

- Basin 31 - Red River Mainstem (To North Fork of Red) demands are supplied by a combination of surface water, groundwater, and out-of-basin supplies.
- Water demand (withdrawal) is projected to decrease by 430 acre-feet per year (3%) between 2020 and 2075.
- No surface water gaps are projected.
- No alluvial groundwater depletions are projected.
- Physical bedrock groundwater depletions are projected in Basin 31 as early as 2030 and will continue through 2075.
- Basin 31 is projected to have surface water available for appropriation through 2075.
- Basin 31 is projected to have groundwater available for appropriation through 2075.
- To mitigate projected water supply shortages in this basin, the following strategies will typically be most effective:
 - Reduce water demand through conservation, water loss reduction, and other activities (PS, SSI, OG, TE). **WSS**
 - Reduce water demands through agricultural water saving options (CI, LS). **WSS**
 - Continue/increase reliance on in-basin surface water (all sectors). **WSS** **WDI**
 - Water reuse (PS, SSI). **WM** **WSS**
 - Water transfers (all sectors). **WM** **WSS**



OWRB Water
Planning Page
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Refer to the “**Guide to Region and Basin Fact Sheets**” for a description of the types of information detailed in this fact sheet.

Water Demand Sectors: PS = Public Supply, SSI = Self-supplied Industrial, OG = Oil & Gas, TE = Thermoelectric Power, CI = Crop Irrigation, LS = Livestock, SSD = Self-supplied Domestic

OCWP Statewide Recommendations are designed to address current and anticipated water supply challenges and are noted throughout this fact sheet with the following icons: **WIW** Water Infrastructure & Workforce, **WM** Water Management, **WSS** Water Supplies & Storage, and **WDI** Water Data & Information

Population

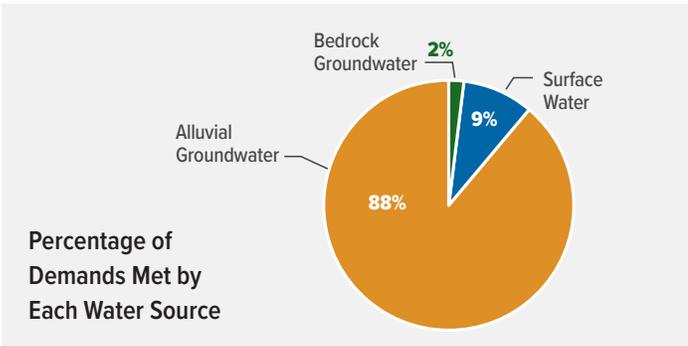
How is the population expected to change in the future?

| 2020 | 2030 | 2035 | 2045 | 2060 | 2075 |
|-------|-------|-------|-------|-------|-------|
| 4,032 | 3,875 | 3,643 | 3,236 | 2,710 | 2,155 |

Water Demand Projections

How much water is needed to meet Oklahomans' needs?

Basin 31 accounts for approximately 30% of the overall water demands of the Beaver Cache Region.



Total Demand by Sector (AFY)

| | 2020 | 2030 | 2035 | 2045 | 2060 | 2075 |
|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Self-supplied Domestic | 20 | 19 | 18 | 16 | 13 | 11 |
| Self-supplied Industrial | - | - | - | - | - | - |
| Crop Irrigation | 11,066 | 11,304 | 11,304 | 11,304 | 11,304 | 11,304 |
| Livestock | 675 | 656 | 652 | 634 | 608 | 586 |
| Oil & Gas | 35 | 35 | 35 | 35 | 35 | 35 |
| Public Supply | 1,375 | 1,330 | 1,263 | 1,133 | 973 | 806 |
| Thermoelectric Power | - | - | - | - | - | - |
| Total | 13,171 | 13,344 | 13,273 | 13,122 | 12,933 | 12,741 |

AFY = acre-feet per year; Small differences may result due to rounding.

Physical Water Shortages

Will there be enough "wet water" physically available to meet anticipated needs?

WIW WM WSS

| | Magnitude (AFY) | | | | | Frequency ¹ |
|--------------------------------|-----------------|------|------|------|------|------------------------|
| | 2030 | 2035 | 2045 | 2060 | 2075 | 2075 |
| Surface Water Gap | - | - | - | - | - | 0% |
| Alluvial Groundwater Depletion | - | - | - | - | - | 0% |
| Bedrock Groundwater Depletion | 314 | 313 | 313 | 312 | 311 | N/A |

1. Probability of a water shortage occurring in at least one month of the year.

Legal Water Availability

Will there be water available for permitting after meeting 2075 demands?

WM WSS

| Estimated Surface Water available for appropriation in 2075 (AFY) | Inside 2016 Water Settlement Area? ¹ | Is there a downstream mainstem restriction? ² | Estimated Groundwater available for appropriation in 2075 (AFY) |
|---|---|--|---|
| 406,600 | No | No | 864,290 |

1. Yes – basin wholly or partially subject to the provisions of the 2016 Water Settlement Agreement.

2. Yes – mainstem restriction may impact water available for appropriation within the basin.

Water Management Strategies

What approaches are most viable for meeting future needs and mitigating shortages?

WSS WDI WIW WM

| Water Management Category | Demand Sector | Basin 31 Evaluation |
|---|-----------------|--|
| Demand Management | PS, SSI, OG, TE | Partially Effective - Shortages Remain |
| Agriculture Options | CI, LS | Partially Effective - Shortages Remain |
| Increase Reliance on In-Basin Surface Water | All sectors | Effective at Meeting Future Demands |
| Increase Reliance on In-Basin Groundwater | All sectors | May Increase Shortages - Use with Other Strategies |
| Stormwater Capture & Use | PS, SSI | Ineffective at Meeting Future Demands |
| Reuse | PS, SSI | Effective at Meeting Future Demands |
| Water Transfers | All sectors | Potentially Effective with Local Variability |

In addition to the water management strategies, water users need:

- Options to address water quality concerns, which could include expanding source water protection programs and expanding water quality studies.
- Ways to address infrastructure limitations, which could include additional water funding from the State, Federal, and/or public-private partnerships, and by providers setting water rates that fully fund system operation and maintenance.