

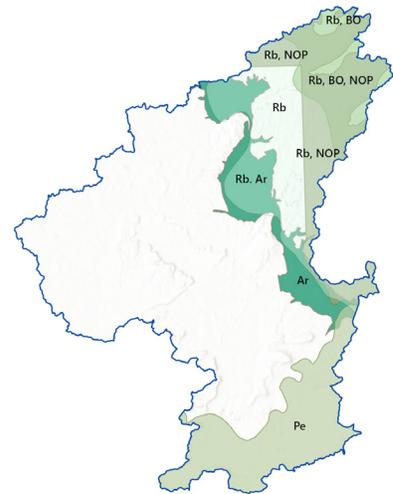
BASIN 47

Lower Arkansas River - 2 / Lower Arkansas Region



Surface Water Legend
 □ Planning Basin
 — OWRB Major Streams
 ■ OWRB Lakes

Groundwater Legend
 □ Planning Basin
 Major Bedrock Aquifer
 Roubidoux (Rb)
 Minor Bedrock Aquifer
 Boone (Bo)
 Northeastern Oklahoma Pennsylvanian (NOP)
 Pennsylvanian (Pe)
 Major Alluvial Aquifer
 Arkansas River (Ar)



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

SUMMARY

- Basin 47 - Lower Arkansas River - 2 demands are supplied by a combination of surface water, groundwater, and out-of-basin supplies.
- Water demand (withdrawal) is projected to increase by 6,594 acre-feet per year (13%) between 2020 and 2075.
- Physical surface water gaps are projected in Basin 47 as early as 2030 and will continue through 2075.
- Physical alluvial groundwater depletions are projected in Basin 47 as early as 2030 and will continue through 2075.
- Physical bedrock groundwater depletions are projected in Basin 47 as early as 2030 and will continue through 2075.
- Basin 47 is projected to have surface water available for appropriation through 2075, but its permitting may be subject to provisions of the 2016 Water Settlement Agreement.
- Basin 47 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**
 - Continue/increase reliance on in-basin groundwater (all sectors). **WSS** **WDI**



OWRB Water Planning Page
oklahoma.gov/owrb/water-planning

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

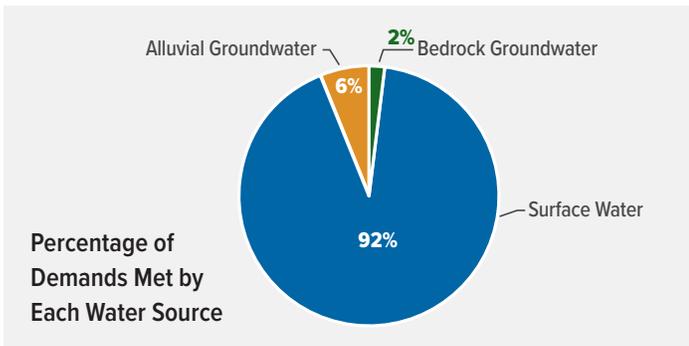
How is the population expected to change in the future?

2020	2030	2035	2045	2060	2075
60,128	59,932	58,402	55,893	53,121	49,912

Water Demand Projections

How much water is needed to meet Oklahomans' needs?

Basin 47 accounts for approximately 53% of the overall water demands of the Lower Arkansas Region.



Total Demand by Sector (AFY)

	2020	2030	2035	2045	2060	2075
Self-supplied Domestic	307	316	312	306	301	294
Self-supplied Industrial	12,505	12,190	11,859	11,274	10,588	9,818
Crop Irrigation	12,136	14,374	15,486	17,733	20,423	20,423
Livestock	1,231	1,211	1,213	1,188	1,150	1,120
Oil & Gas	61	61	61	61	61	61
Public Supply	16,695	16,462	15,980	15,162	14,224	13,145
Thermoelectric Power	6,962	7,363	7,814	8,606	10,068	11,629
Total	49,896	51,976	52,724	54,329	56,813	56,489

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	29	-	40	325	640	11%
Alluvial Groundwater Depletion	4	-	-	-	22	1%
Bedrock Groundwater Depletion	4	4	4	3	2	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)
8,712,500	Yes	No	894,470

- If, yes – basin wholly or partially subject to the provisions of the 2016 Water Settlement Agreement.
- If, 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 47 Evaluation
Demand Management	PS, SSI, OG, TE	Effective at Meeting Future Demands
Agriculture Options	CI, LS	Effective at Meeting Future Demands
Increase Reliance on In-Basin Surface Water	All sectors	Effective at Meeting Future Demands
Increase Reliance on In-Basin Groundwater	All sectors	Effective at Meeting Future Demands
Stormwater Capture & Use	PS, SSI	No Shortage or Needs Met by Other Strategies
Reuse	PS, SSI	No Shortage or Needs Met by Other Strategies
Water Transfers	All sectors	No Shortage or Needs Met by Other Strategies

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.