Surface Water Delivery Projects

Grand Prairie
Bayou Meto
Plum Bayou
“Irrigation water for the rice fields has been obtained almost entirely from shallow wells in the past, but overdrafts on these wells have lowered the ground water table sufficiently to seriously affect production costs in some localities.”

“Some studies have already been undertaken to determine the extent of the overdraft and means of supplementing the ground water supplies with surface water...”
ARKANSAS WATER RESOURCES

1939
THE WHITE HOUSE
WASHINGTON
June 21, 1949

Dear Governor:

I appreciated very much yours of the seventeenth in regard to the Arkansas River project and the Grand Prairie irrigation project. I am familiar with both of them and I hope some means can be found to work them out eventually.

Sincerely yours,

[Signature]

Honorable Sid McMath
Governor of Arkansas
Little Rock, Arkansas

[Stamp] Jun 23 1949
Governor 25 8
Then we **really** started irrigating.

---

**Total Ground Water Use in Arkansas**  
1936 - 2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Million Gallons / Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1936</td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td></td>
</tr>
<tr>
<td>1960</td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td></td>
</tr>
<tr>
<td>1975</td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td></td>
</tr>
<tr>
<td>1985</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
</tr>
</tbody>
</table>
Alluvial Aquifer Depth to Water 2015, (Feet)

Legend

DTW Feet

- 1.37 Ft. to 17.16 Ft.
- 17.17 Ft. to 27.31 Ft.
- 27.32 Ft. to 37.45 Ft.
- 37.46 Ft. to 48.16 Ft.
- 48.17 Ft. to 61.13 Ft.
- 61.14 Ft. to 74.66 Ft.
- 74.67 Ft. to 88.75 Ft.
- 88.76 Ft. to 102.84 Ft.
- 102.85 Ft. to 117.50 Ft.
- 117.51 Ft. to 145.12 Ft.

*Surface Created by Natural Neighbor Interpolation (ArcGIS 10.3/ Spatial Analyst Extension)

This map based on 449 data points, and the portions of counties not shaded indicate no well data collected in 2015.
What’s the plan?

- Conserve
- Use mostly surface water
- Prepare for drought
- Educate
Solutions from 1990 Water Plan

• Groundwater depletion
  – Excess water should be provided from the White River and Arkansas River for use in the Grand Prairie Region

• Surface-Water Depletion
  – Excess water should be provided from the Arkansas River to Plum Bayou and Bayou Meto
Average Annual Basin Yield

92 million AFY

57 million AFY

Out-of-Stream Needs
- Existing Riparian Use
- Federal Projects
- Projected Future Riparian Use

Total Available Water (Potential for future use)
26 million AFY

Excess Surface Water (25% of total available water)
9 million AFY

In-Stream Needs
- Aquifer Recharge
- Fish & Wildlife
- Interstate Compacts
- Navigation
- Water Quality
On this farm, 569 acres were watered from PBID in 2015. Fees were $15.18 per acre.
Grand Prairie

- Pump Station will be able to pump 1,640 cfs of water from the White River
- Pumping capacity includes four 360 cfs pumps and two 100 cfs pumps driven by 1,650 HP motors
- Over 250,000 acres of irrigated cropland in the heart of the Grand Prairie Critical Groundwater Area
- Includes on-farm conservation as a major component
- Environmental and flood control benefits
Bayou Meto

- Two major pump stations constructed
- 1,750 cfs from the Arkansas River
- Four 1,500 h.p. pumps and two 500 h.p. pumps
- Approx. 268,000 irrigated acres
- Bayou Meto WMA – Flood control
Plum Bayou

- Completed 1992
- 14,000 acres
- <180 cfs
- Over 10 miles of pipelines
- Real estate tax about $2 per irrigated acre
- Water charge
  - $24 acre rice
  - $16 acre corn
  - $8 acre soybeans
Why invest in surface water delivery?

• By 2050, only 20% of groundwater use will be sustainable
• ANRC estimates conservation will get us 25% reduction in unsustainable use
• The remainder must come from surface water conversion
• Grand Prairie and Bayou Meto will reduce unsustainable use by 15%
http://anrc.ark.org/
arkansaswaterplan.org/
edward.swaim@arkansas.gov