YMD Joint Water Management District

Water Supply
And
Watershed Management

- Dean Pennington Ph.D.
- Stoneville, Mississippi
The aquifer is the source of ~90% of irrigation used in Mississippi Delta.
Permitted Water use locations in Mississippi

+90%
Groundwater

Delta
3,000,000 acres farmed
2,000,000 irrigated
Ground ZERO well

Sunflower - L027

WL Decline: 21.5 ft
1990-2012
Aquifer before 1975

Min of 100 cfs

Flow from aquifer into River

Aquifer today

Min of 10 cfs

Loss of flow from aquifer

Sunflower River

Sunflower River
Irrigation Season
Drier late summer. Flows to zero without irrigation runoff.
What can we do to balance the Delta’s water budget?

1) Conservation (Only as much as you need)
2) New surface water supplies (projects)
Irrigation Method

Contour  3.8 ft

Straight  3.1 ft

Side Inlet  2.3 ft

Zero Grade  1.6 ft
What can we do to balance the Delta’s water budget?

1) Conservation (Only as much as you need)
2) New surface water supplies (projects)
Project Locations

East
Arkabutla,
Sardis,
Enid,
Grenada,
Reservoirs

West
Mississippi River
-Direct
-Well fields
Sunflower Weir in Clarksdale
The aquifer is the source of ~90% of irrigation used in Mississippi Delta.

Map credit: US Geological Survey
Lower Mississippi River has 2 of the top 10 states for irrigated acres

<table>
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<tr>
<th>Top States in Irrigation (millions of acres)</th>
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<tbody>
<tr>
<td>Nebraska</td>
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<td>California</td>
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Groundwater And Surface Water

Agriculture And Environment
Average = 400,000 acre foot loss per year