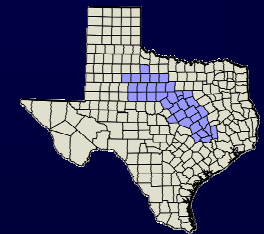


***Agenda Item 8.10(b)***  
***Safe Yield Analyses for Reservoirs***  
***Upstream of Possum Kingdom***  
***Reservoir***

**June 9, 2004**

**BRAZOS G**  
WATER PLANNING GROUP

**HDR**



# Background

---

- ✓ **Policy Recommendations in the 2001 Brazos G Regional Water Plan include:**

“Recommend that ‘safe yield’ as opposed to ‘firm yield’ be used in the development of available water supply estimates for reservoirs, as appropriate”

- ✓ **April 14, 2004**
  - **HDR presented draft water supply/demand comparisons based on firm yield estimates**
  - **Brazos G RWPG directed HDR to estimate safe yields in addition to firm yields for reservoirs upstream of Possum Kingdom Reservoir**
- ✓ **Today** – Present comparison of safe yields and firm yields for 11 reservoirs

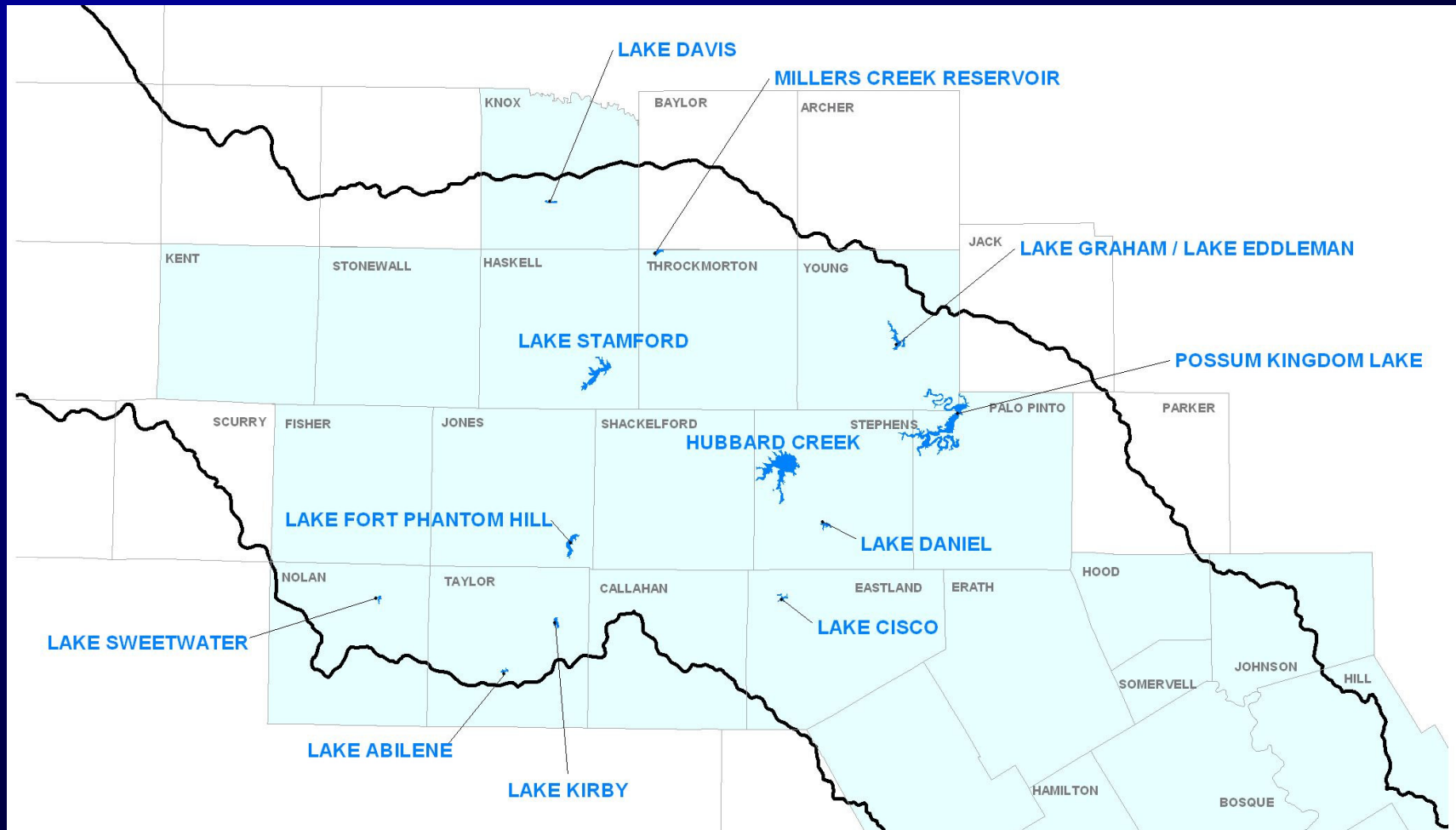
# Definitions

---

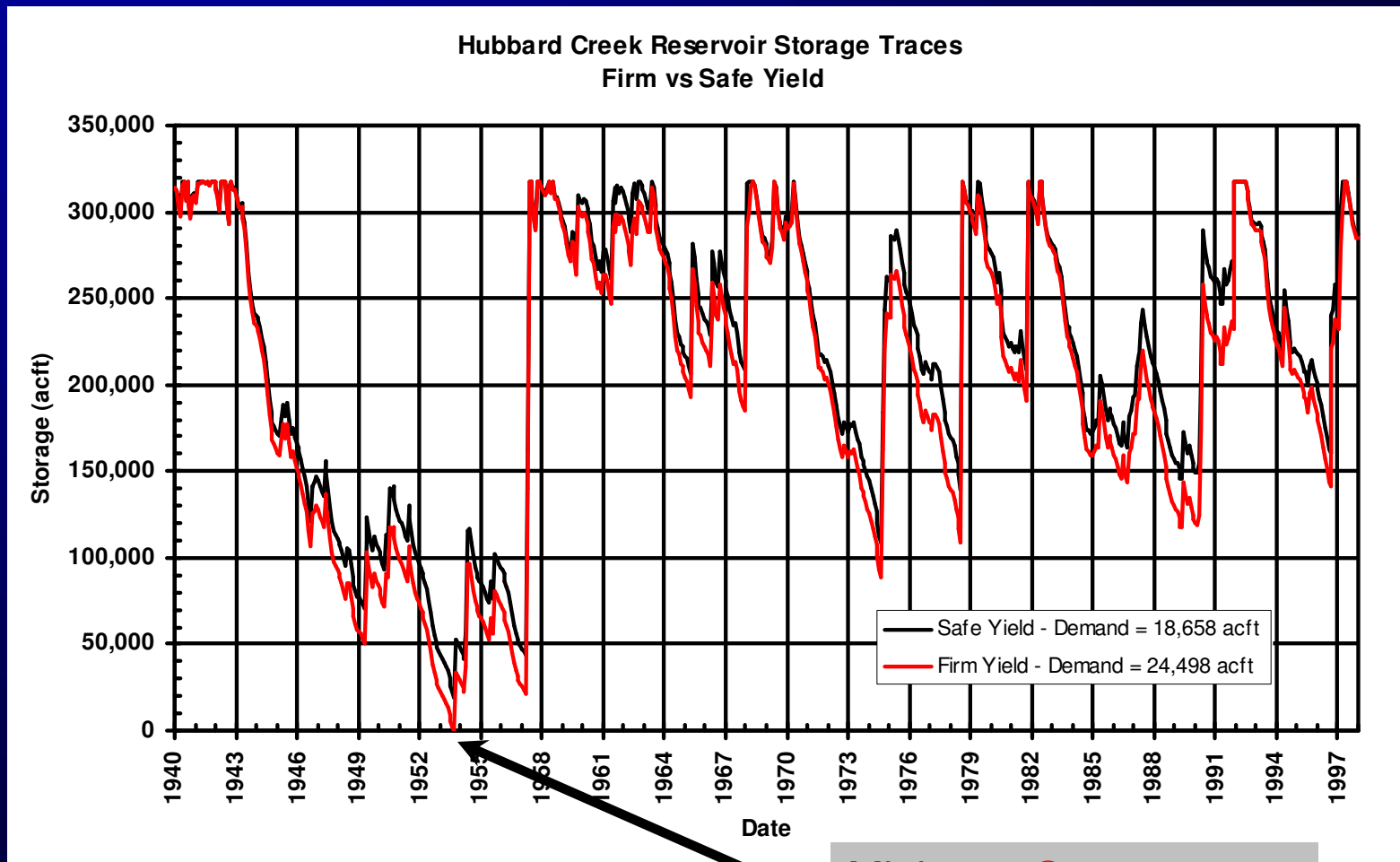
**Firm Yield** – Maximum annual quantity that can be withdrawn from a reservoir such that the reservoir just, or nearly, goes dry during the critical period of the drought of record.

**Safe Yield** – Maximum annual quantity that can be withdrawn from a reservoir such that a given volume remains in storage (usually equal to the safe yield) during the critical period of the drought of record.

# Reservoirs Studied



# Example Reservoir Storage Trace



Minimum Storage  
During Critical Period

# Comparison of Safe and Firm Yields

Reservoir	Water Right Holder	County	Permitted Authorization	2006 Brazos G Firm Yield		Safe Yield	
				Year 2000 Yield	Year 2060 Yield	Year 2000 Yield	Year 2060 Yield
Abilene	City of Abilene	Taylor	1,675	1,675	1,414	1,200	525
Cisco	City of Cisco	Eastland	2,027	1,492	1,488	1,340	1,340
Daniel	City of Breckenridge	Stephens	2,100	1,370	1,230	650	550
Davis	League Ranch	Knox	2,000	200	0	100	0
Graham/Eddleman	City of Graham	Young	20,000	6,200	5,342	4,650	3,700
Fort Phantom Hill	City of Abilene	Jones	33,190	22,325	21,120	14,800	13,590
Hubbard Creek	West Central Texas MWD	Stephens	56,000	24,498	23,408	18,658	17,760
Kirby	City of Abilene	Taylor	3,880	980	730	500	320
Miller's Creek	North Central Texas MWA	Baylor	5,000	4,500	1,197	2,650	480
Stamford	City of Stamford	Haskell	10,000	8,650	8,100	5,890	5,400
Sweetwater	City of Sweetwater	Nolan	3,780	1,406	1,392	1,035	980
<b>Total:</b>			<b>137,652</b>	<b>73,296</b>	<b>65,421</b>	<b>51,473</b>	<b>44,645</b>

## ***Discussion***

---

- ✓ **Safe Yield reduces the cumulative supply estimate for the 11 reservoirs by approximately 30 percent**
- ✓ **Reduced supply will likely increase needs and could necessitate additional water management strategies in 2006 RWP**