Colorado River Compact Water Bank Feasibility Study

STRATEGIES FOR UNCERTAINTY

- 1. Limit new consumptive uses to times when system storage is full (Sen. Isgar) and risks to existing uses minimal
- 2. Use of water banks to avoid or survive a future curtailment.
- 3. Implement consumptive use caps based on storage levels
- 4. New storage or better use of existing storage
- 5. Some combination of the above four

Colorado River Compact Water Bank

- What is it?
- Why are we studying it?
- What have we found so far?
- What's next?

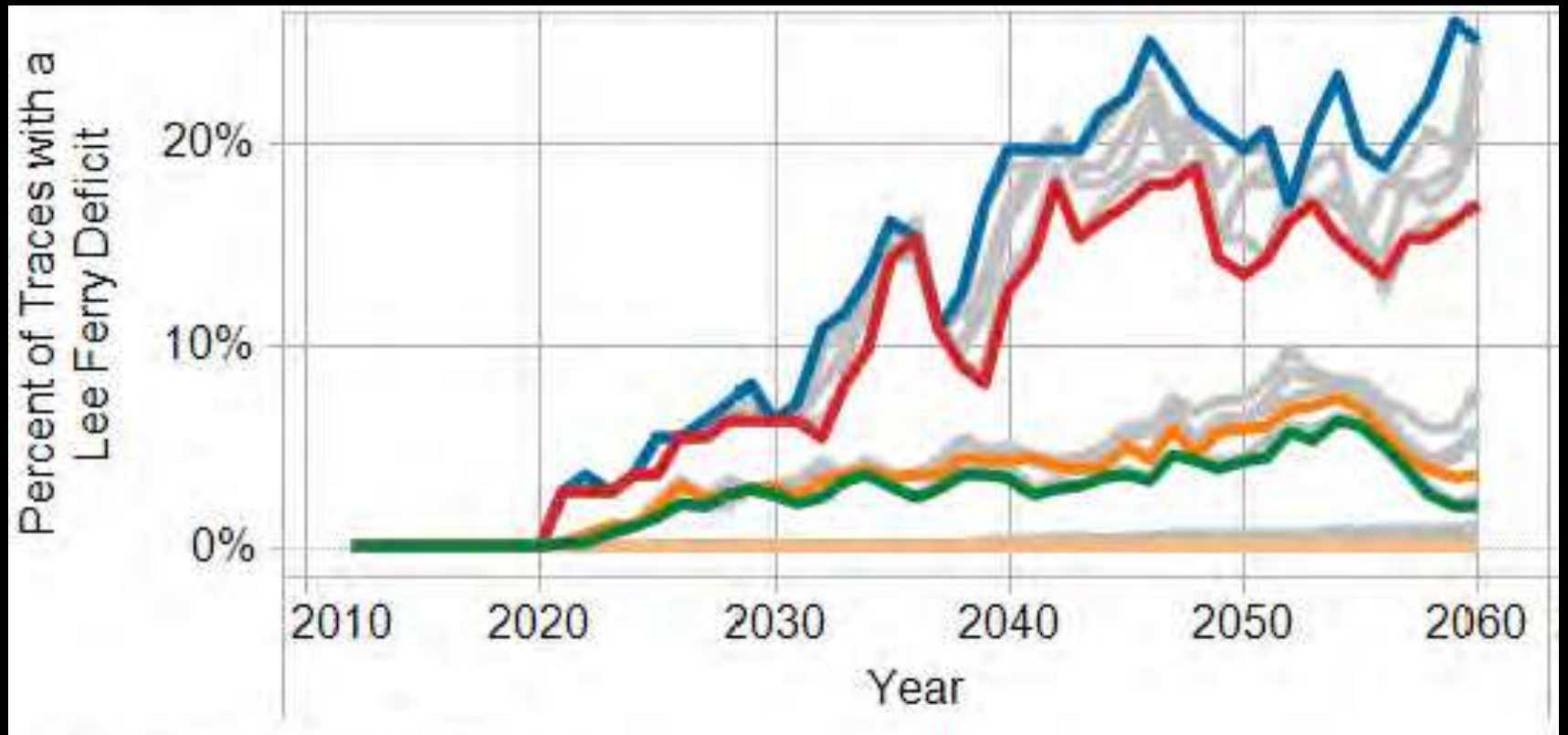
What Is A Compact Water Bank?

- Bank is intermediary/broker
- Interruptible supply arrangements with owners of pre-1929 water rights
- Supplies are interrupted to:
  - Prevent compact curtailment
  - In event of curtailment, allow certain post compact uses to continue
- Voluntary/Market-based

Why a Bank?

- Help protect essential post-compact uses of water
- Allow Colorado to fully use, but not overdevelop, Colorado River supplies
- Avoid rush to "buy and dry" pre-compact water

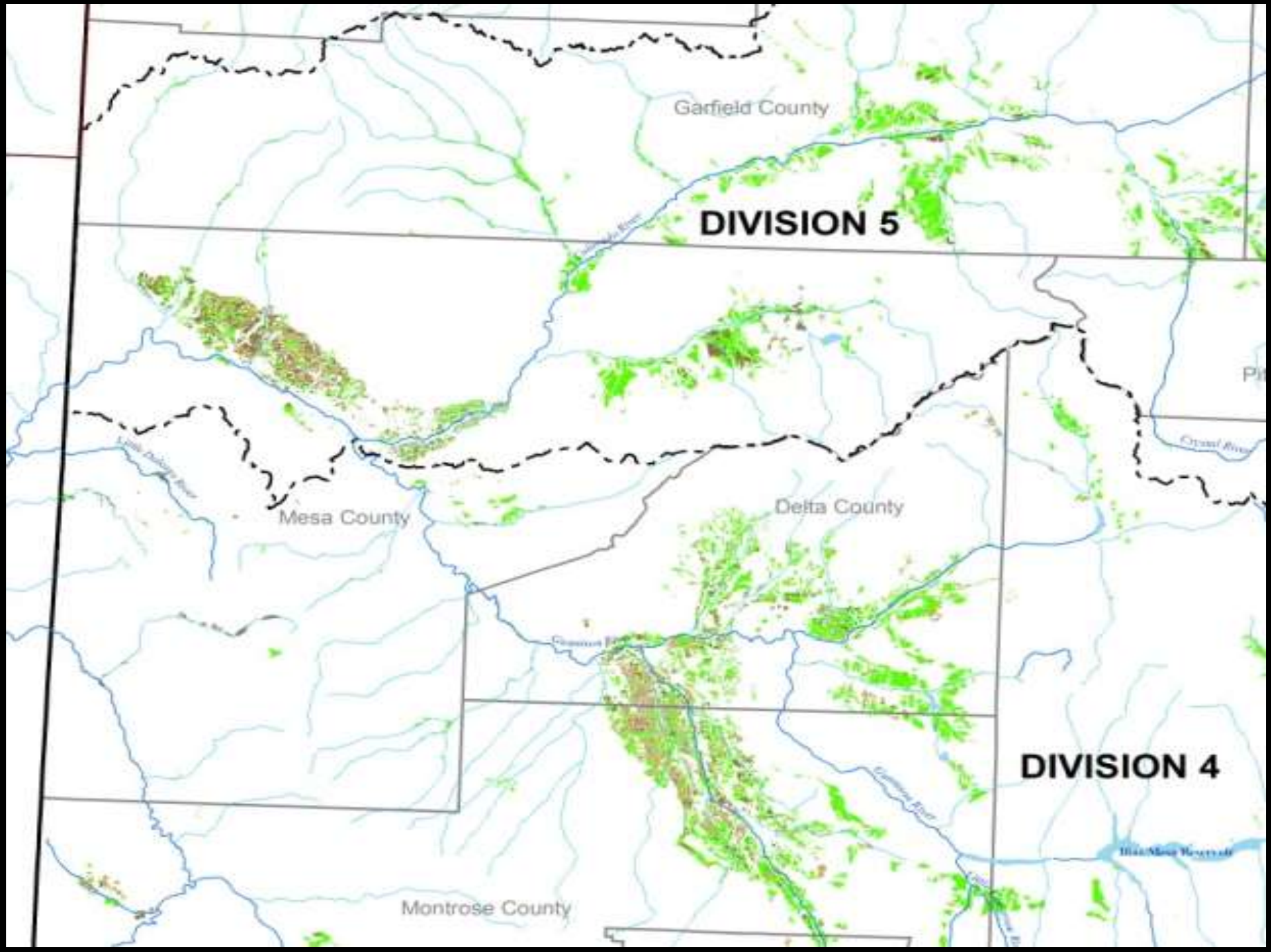
Vulnerability: Lee Ferry Deficit



What is a Water Bank?

- Two Basic Water Bank Strategies
- 1. Use Bank to Avoid a Curtailment
- 2. Use Bank to Survive a Curtailment

- Irrigators paid to reduce consumptive uses – deficit irrigation or fallowing
- Savings “banked” in a reservoir


Garfield County
DIVISION 5
Mesa County
Delta County
DIVISION 4
Montrose County

Who is studying the water bank?

- Study Partners:
  - Colorado Water Conservation Board , Southwestern Water Conservation District , Colorado River Water Conservation District, The Nature Conservancy, Front Range Water Council
- Working Groups:
  - variety of other interests including tribes, agricultural interests, and Bureau of Reclamation

What have we learned so far?

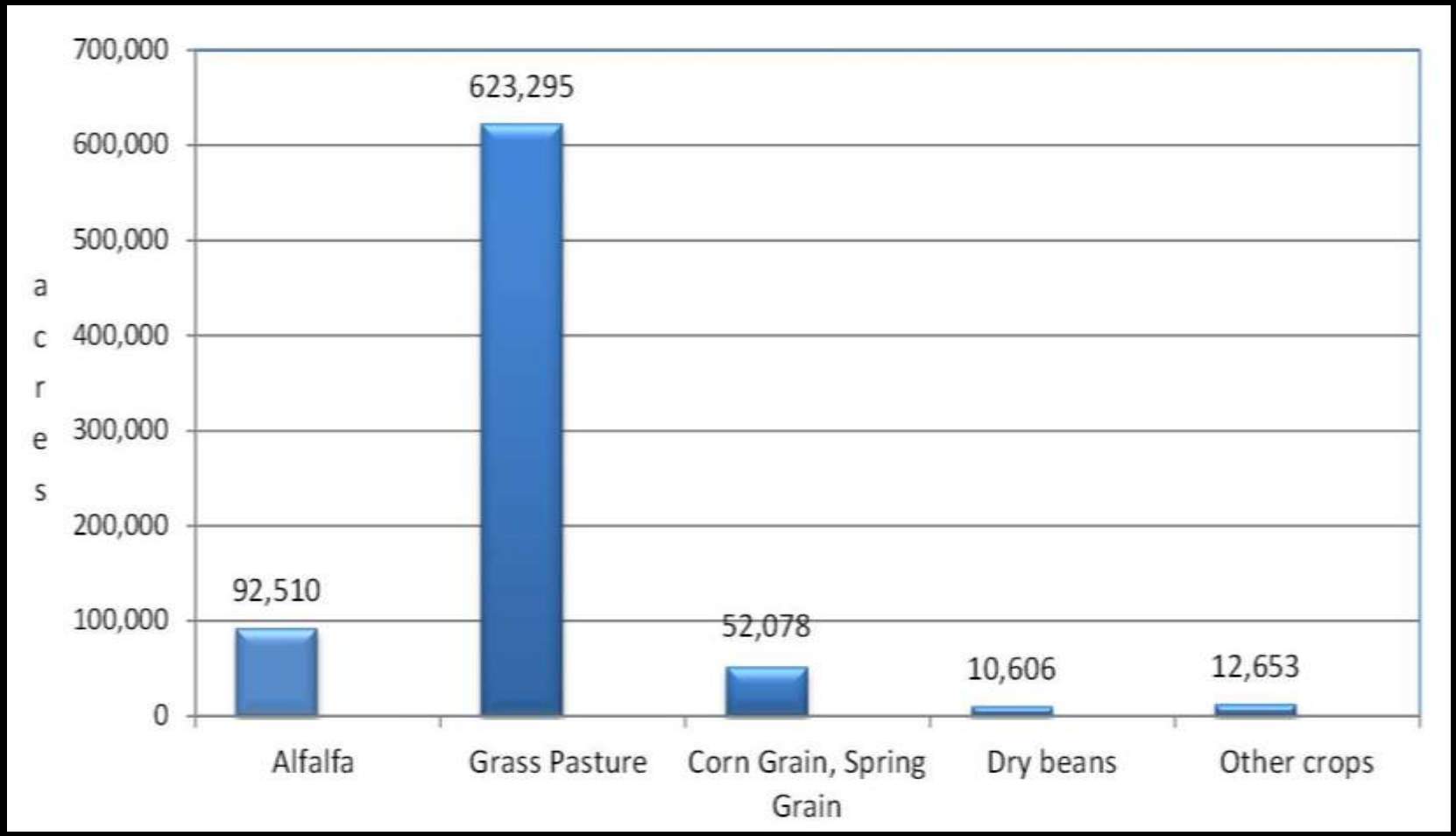
Post-Compact Uses

Total Post-Compact M&I Depletions	Current Average Annual Water Use (AFY)
Residential Indoor	109,320
Residential Outdoor	99,050
Commercial/Industrial	109,380
Self Supplied Industrial	32,940
Total	350,690

Post-Compact Uses (cont.)

West Slope Post-Compact M&I Depletions	Current Average Annual Water Use (AFY)
Residential Indoor	1,390
Residential Outdoor	16,675
Commercial/Industrial	4,210
Self Supplied Industrial	32,940
Subtotal	**55,215**
East Slope Post-Compact M&I Depletions	
Residential Indoor	107,930
Residential Outdoor	82,375
Commercial/Industrial	105,170
Self Supplied Industrial	
Subtotal	**295,475**

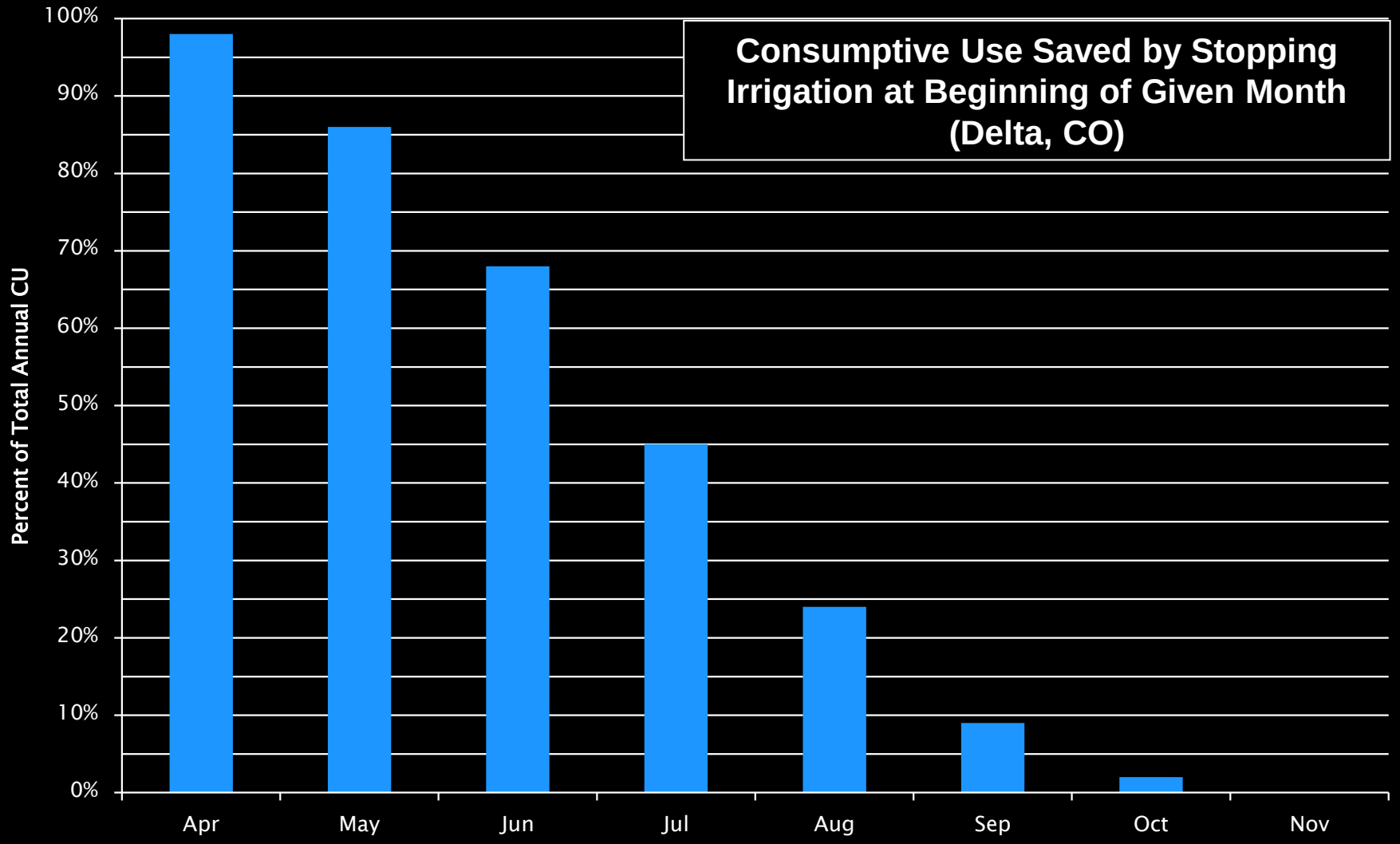
Irrigated Acres By Crop Type In Water Divisions 4–7



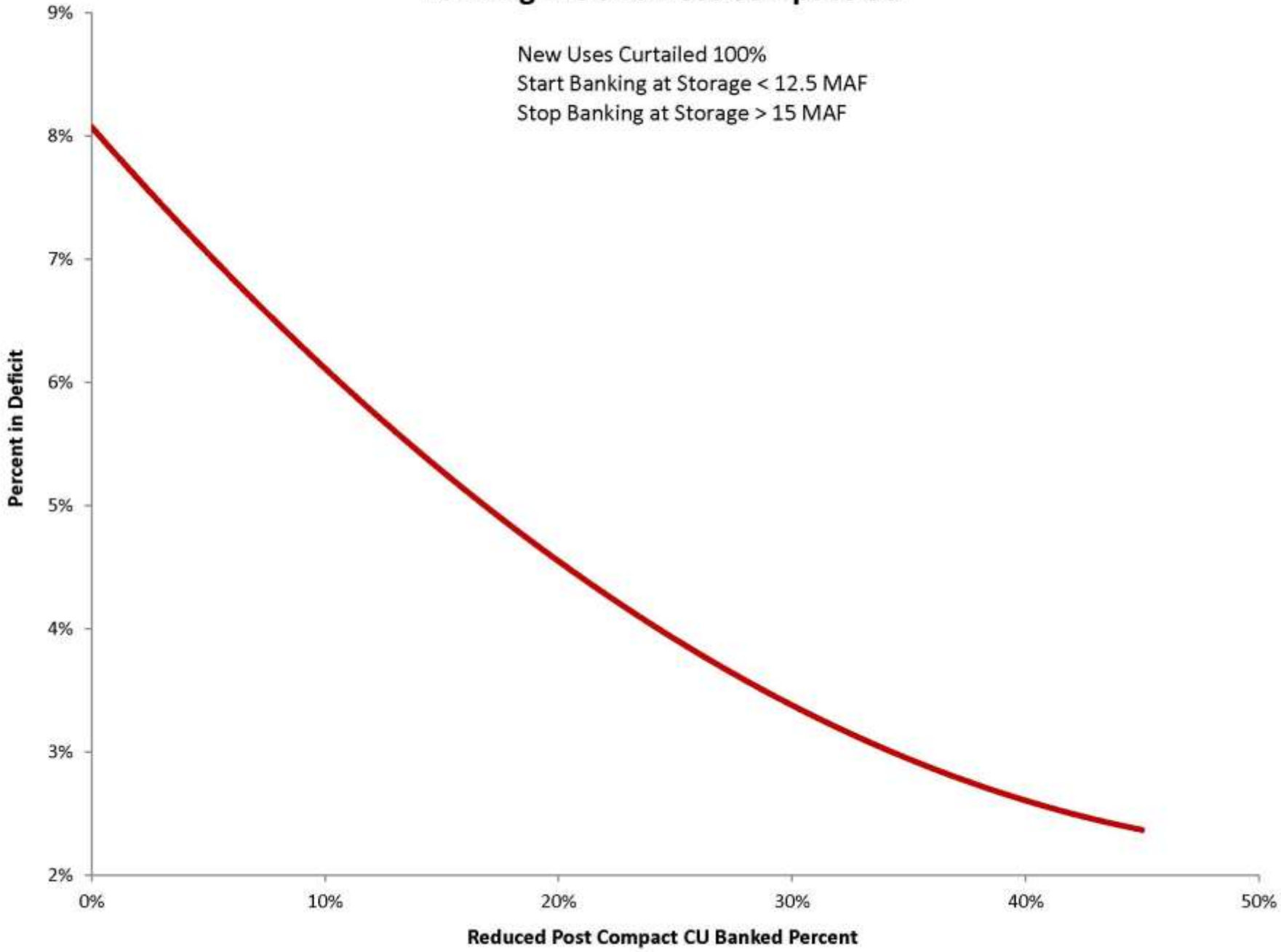
Pre-Compact Irrigation Use

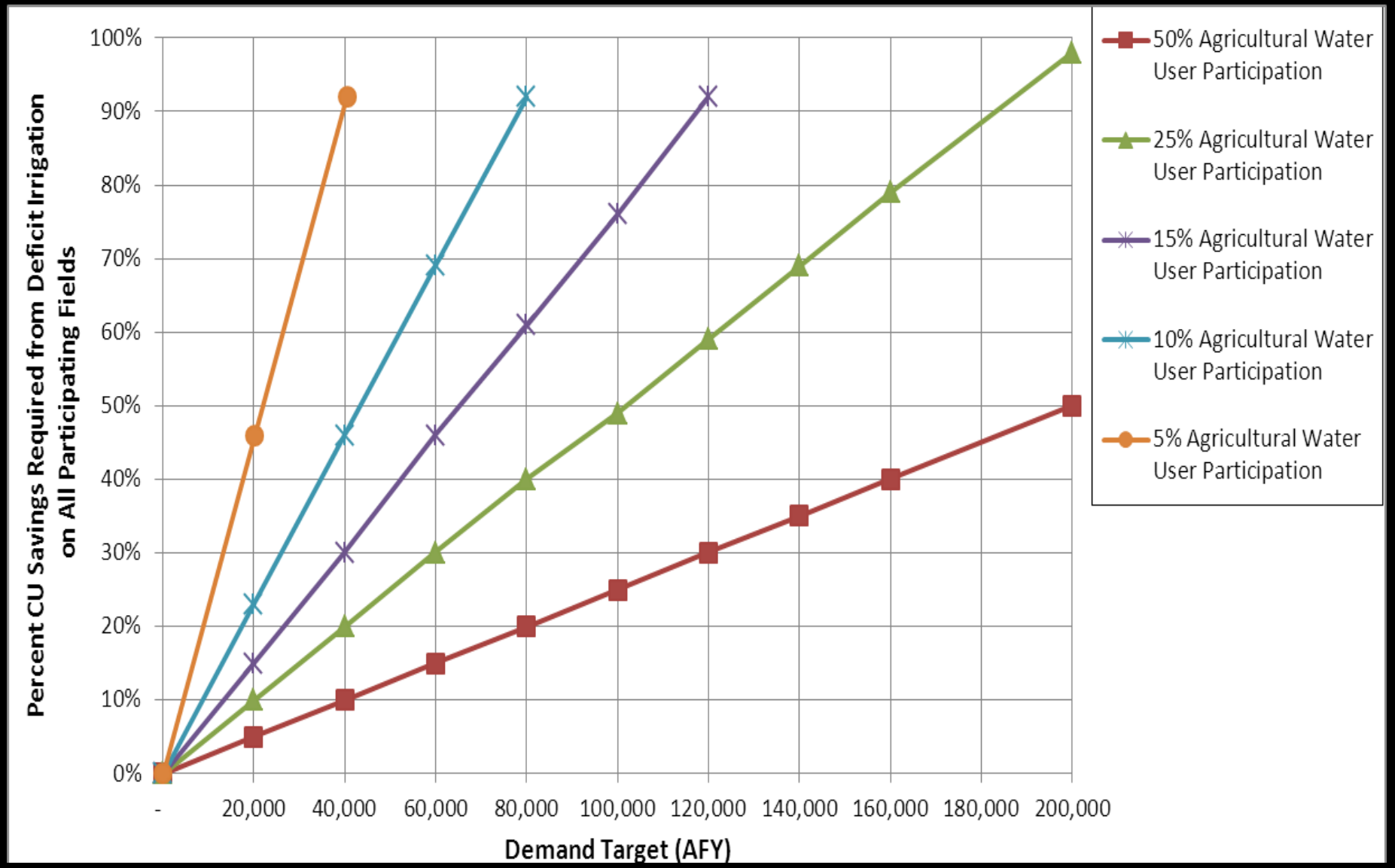
Total for Basin				
Water Rights Category → Appropriation/Adjudication	Not Known	Pre-Compact	Post Compact Water Rights	Total
Crop Type ↓	Consumptive Irrigation Use (acre-feet/year)			
Alfalfa	43,219	110,164	25,368	178,750
Corn Grain	1,492	34,504	3,476	39,473
Dry Beans	4,618	6,905	1,37	11,660
Grass pasture	80,233	794,074	195,451	1,069,759
Orchard with Cover	565	1,496	345	2,406
Orchard without Cover	3,160	5,574	582	9,317
Spring Grains	2,809	27,830	3,192	33,830
Vegetables	895	549	28	1,472
Others	1,616	5320	2,161	9,097
Totals	138,607	986,416	230,740	1,355,763
Percent of Totals	10.2%	72.7%	17.0%	100%

Deficit Irrigation Saved Water



Banking Pre and Post Compact CU




Percent CU Savings Required from Deficit Irrigation on All Participating Fields
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
-
20,000
40,000
60,000
80,000
100,000
120,000
140,000
160,000
180,000
200,000
Demand Target (AFY)
50% Agricultural Water User Participation
25% Agricultural Water User Participation
15% Agricultural Water User Participation
10% Agricultural Water User Participation
5% Agricultural Water User Participation

Phase II – Pilot Studies

Candidate System	Division	Source
Colorado Cooperative Ditch	4 - Gunnison River Basin	San Miguel River
Dr. Morrison Ditch	7 - San Juan River Basin	Pine River
East Mesa Ditch	5 - Colorado River Basin	Crystal River
Ekhart Ditch	6 - Yampa River Basin	Elk River
Grand Valley Canal	5 - Colorado River Basin	Colorado River
Grand Valley Project	5 - Colorado River Basin	Colorado River
Redtop Valley Ditch	5 - Colorado River Basin	Stillwater Creek
Trampe Ranch	4 - Gunnison River Basin	Gunnison River
Uncompahgre Region	4 - Gunnison River Basin	Uncompahgre River

Conclusions from Pilot Studies

- Many technical issues will need to be addressed, e.g. deficit irrigation
- Banking for high altitude cow-calf operations would be difficult
- More workable for lower valley producers
- Bureau projects = more complications
- MORE STUDIES NECESSARY

What is next?

Phase IIB

- More detailed look at 3 or 4 systems
- Fallowing or deficit irrigation approaches
- Consumptive use and return flows
- Economic effects

LEGAL AND POLITICAL QUESTIONS

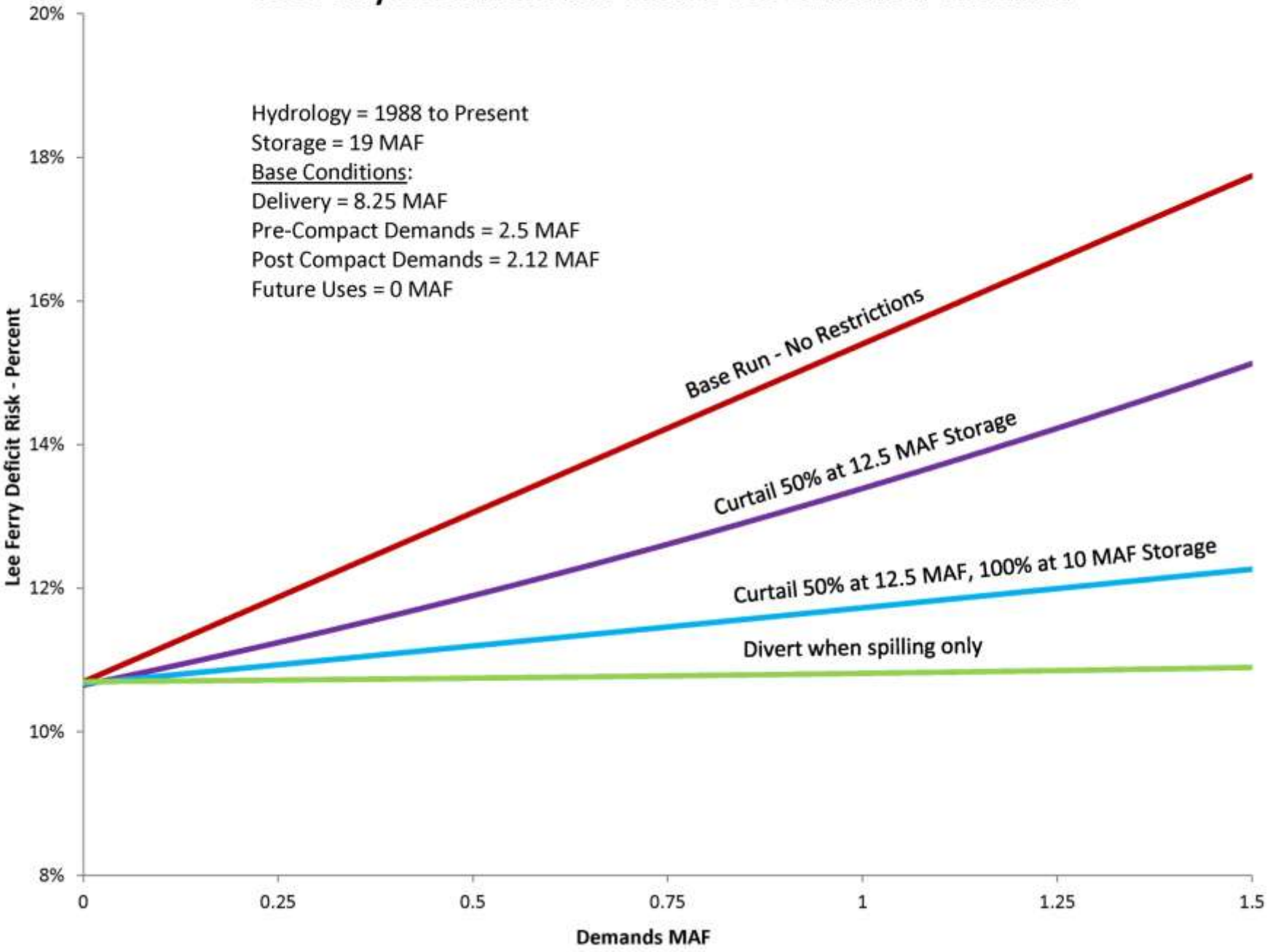
- How do deliver banked water downstream?
- Do we have separate accounting
- What about federal projects?
- How do we govern a bank?
- Do we need new federal or state legislation?

The Lee's Ferry annual flow, and 10 year flow rolling average.

The 10 year provision gives the Upper Division States some time to know that a crisis is coming.

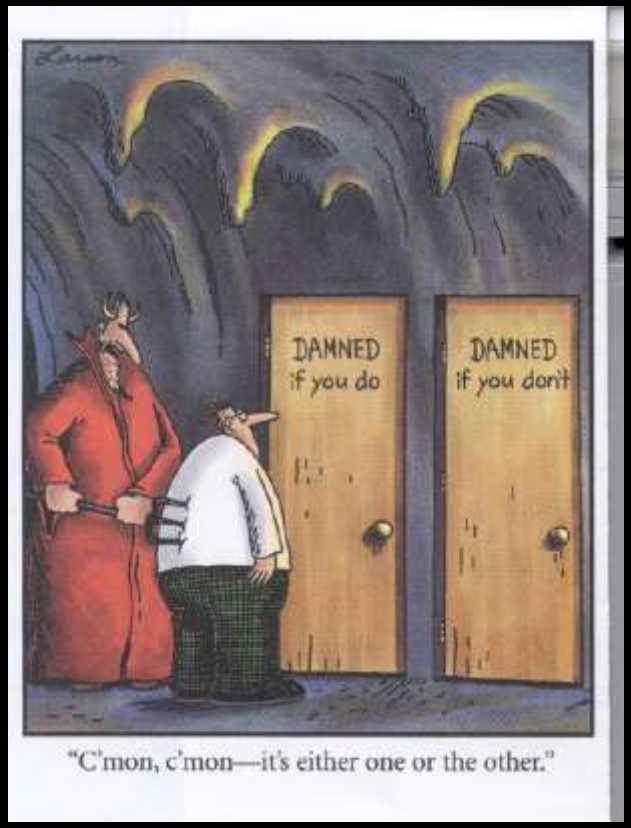
YEAR	Annual Release (AF)	10 year average (AF)
2000	9,530	101,754
2001	8,361	101,983
2002	8,348	102,308
2003	8,372	102,543
2004	8,348	102,585
2005	8,395	101,738
2006	8,508	98,716
2007	8,422	93,265
2008	9,180	89,004
2009	8,406	85,870
2010	8,436	84,777
2011	12,754	89,169
2012	>9,514	>90,335

Lee Ferry Deficit Risk and Future Use Limitation Scenarios



Questions

Compact Development



"C'mon, c'mon—it's either one or the other."