RIVER FACTS

- 1350 MILES LONG THRU 7 STATES AND 2 COUNTRIES
- 25+ MILLION PEOPLE
- 2 MILLION ACRES OF IRRIGATION
- COMPLEX LEGAL AND INSTITUTIONAL FRAMEWORK
- 60 MAF STORAGE
- 10 BILLION KWH OF HYDRO ANNUALLY
- LIFEBLOOD OF SOUTHWEST
RIVER OVER ALLOCATED

- UPPER BASIN: 7.5 MAF
- LOWER BASIN: 7.5 MAF
- MEXICO: 1.5 MAF
- TOTAL ALLOCATED: 16.5 MAF
- MEASURED HISTORIC FLOW: 15.0 MAF
- OVER ALLOCATION: 1.5 MAF
LONG RECOGNIZED PROBLEM

- BASIN STUDIES IN THE 60’S AND 70’S
- NEED FOR AUGMENTATION IDENTIFIED IN THE 1968 COLORADO RIVER BASIN PROJECT ACT
- ACTUAL USE HAS BEEN LESS THAN ALLOCATION
- CURRENT USE IS ABOUT 14.3 MAF
THE PROBLEM IS HERE

- 12 YEAR HISTORIC DROUGHT
- COLORADO RIVER STORAGE REDUCED TO NEARLY 50% OF CAPACITY
- CLIMATE MODELS SUGGEST AVERAGE FLOW WILL BE 13.7 MAF
- 600 KAF DEFICIT TODAY
RESPONSE TO DATE

- 2007 SHORTAGE/BANKING GUIDELINES
- 2009 BROCK RESERVOIR
- INCREASE IN CONSERVATION AND REUSE
- WATER TRANSFERS
WHAT DOES THE FUTURE HOLD?
BY 2060

- SLOW GROWTH WATER DEMAND – 15.3 MAF
- FAST GROWTH WATER DEMAND – 17.7 MAF
- PROJECTED SUPPLY 13.7 MAF
- DEFICIT OF 1.6 TO 4 MAF
- BASIN STUDY DEFICIT OF 3.5 MAF
WHAT ARE THE OPTIONS?

- WEATHER MODIFICATION
- M&I CONSERVATION
- AG CONSERVATION/TRANSFER
- REUSE
- VEGETATION MANAGEMENT
- LEGAL AND INSTITUTIONAL CHANGES
- DESALINATION
- AUGMENTATION FROM OTHER BASINS
- OTHER?
WEATHER MOD

- INEXPENSIVE – $30/AF
- HARD TO MEASURE AND ACCOUNT FOR (10%)
- INTERBASIN CONCERNS
M&I CONSERVATION

- $500+ PER AF
- CONCERN FOR DEMAND HARDENING
- MAY CAUSE REDUCED RETURN FLOWS IN BASIN
- WOULD BE DONE LOCALLY – MAY NOT BENEFIT COLORADO SYSTEM
AG CONSERVATION/TRANSFERS

- $150 TO $500 PER ACRE FOOT
- POTENTIALLY LOTS OF WATER
- WILL REQUIRE FOLLOWING WITHIN BASIN
- LOCAL ECONOMIC/SOCIAL EFFECTS
- LEGAL AND INSTITUTIONAL CONSTRAINTS
VEGETATION CONTROL

- $400 PER ACRE FOOT
- DIFFICULT TO MEASURE AND ACCOUNT FOR
MAJOR LEGAL AND INSTITUTIONAL CHANGE

- COULD ENHANCE INTERSTATE/INTERBASIN COOPERATION (WATER MARKETS, ETC.)

- VERY DIFFICULT – WOULD REQUIRE CONSENSUS

- SOME CHANGES WILL EVOLVE OVER TIME
$1000 TO $2000 PER ACRE FOOT

BRACKISH, PACIFIC OCEAN, GULF OF CALIFORNIA

WOULD REQUIRE EXCHANGES WITH CALIFORNIA OR MEXICO

ENERGY INTENSIVE

ENVIRONMENTAL PERMITTING MAY BE DIFFICULT
INTERBASIN AUGMENTATION

- COLUMBIA, MISSOURI, MISSISSIPPI
- $1800+ PER ACRE FOOT
- REGIONAL CONFLICTS
- FRONT RANGE EXCHANGE
- 600 KAF INCREMENTS
- WATER QUALITY
- ENVIRONMENTAL PERMITTING
WHAT IS THE ANSWER?

- ALL OF THE ABOVE
- USE BASIN STUDY AS A FRAMEWORK
- MANY OPTIONS REQUIRE DECADES
- NEED TO START NOW
- STATES AND BUREAU DEVELOPING NEXT STEPS
- PROMOTE UNIFIED APPROACH