

# Pecos River Settlement Lessons



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Presented to the  
New Mexico Legislature  
Interim Water & Natural Resources Committee

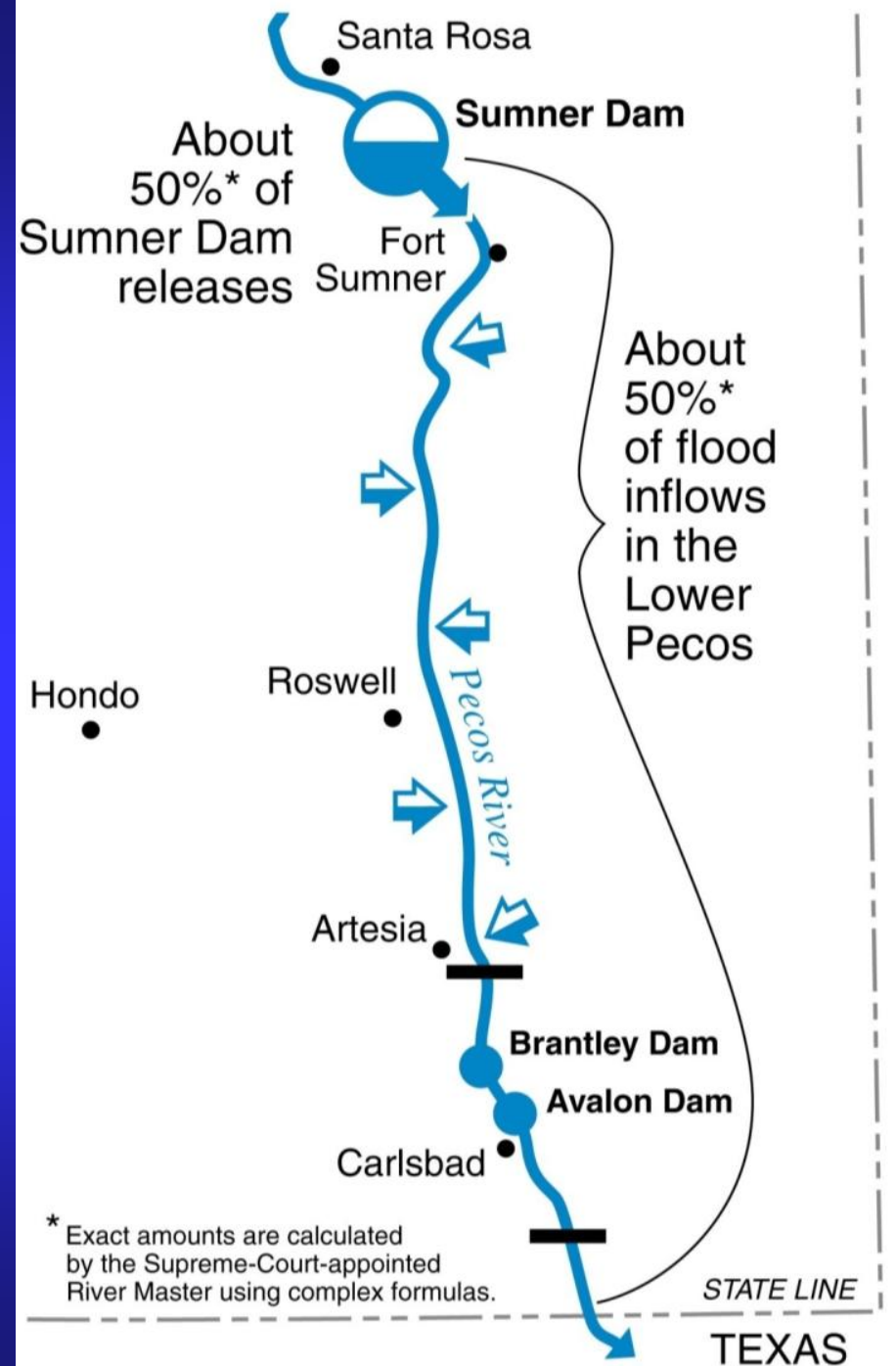
Truth or Consequences, New Mexico

August 27, 2012

# Settlement Background

# The Compact & Decree Require

- Deliveries to Texas calculated on a calendar-year basis
- Use of the Supreme Court River Master's Manual & decisions
- Rapid "repayment" of any net shortfalls



# Pecos Compact Compliance

- NM unable to meet Compact delivery requirements
- NM under-delivers to TX roughly 10,000 AF/yr mid-1950s to mid-1980s
- TX sues NM in Supreme Court in 1974
- NM loses, pays \$14 million fine

# Pecos Compact Compliance

- NM must now abide by Court's 1988 Amended Decree
  - Federal River Master oversees all deliveries to TX
  - No net delivery shortfall allowed
  - Rapid repayment required if shortfall occurs
  - Non-compliance likely result: loss of state control over its water resources

# Settlement Chronology – Cont'd

- March 25, 2003: Settlement Signed by all Parties
  - State Engineer
  - Interstate Stream Commission
  - The United States (DOI–BOR)
  - Carlsbad Irrigation District
  - Pecos Valley Artesian Conservancy District
- June 11, 2009: Settlement Implemented
  - Parties get benefits agreed to

# Settlement Objectives

- Permanent compliance with the Pecos River Compact and Decree
- Increased and stable water supply for Carlsbad Irrigation District
- Reduced likelihood of a priority call affecting groundwater users in Roswell Basin
- Bring basin back into hydrologic balance

# Key Hydrologic Elements

- Retire up to 6,000 acres of irrigation rights within CID and up to 11,000 acres within PVACD
  - Implementation minimums: 4,500 acres CID; 7,500 acres PVACD
- Augmentation pumping up to 35,000 AFY, but not more than 100,000 AF during any 5-year OSE accounting period
- Use CID water allocated to ISC lands for reallocation to CID farmers and for state line delivery

# Pumping Limitations

- Settlement pumping limits based on full implementation
  - To date, only minimum water rights acquired
- ISC agreement with Seven Rivers, Inc.
  - 25,000 AF in one year
  - 50,000 AF in 5-year accounting period

# ISC Acquired Water Rights

- Settlement allows diversion of only consumptive use portion of water right
  - 2.1 AF/acre
- Irrigation users may divert 3.5 AF/acre
  - 3.0 AF/acre FDR + 0.5 AF/acre conveyance loss
- Result is a 40% allowable diversion reduction from artesian aquifer

# Compact Compliance

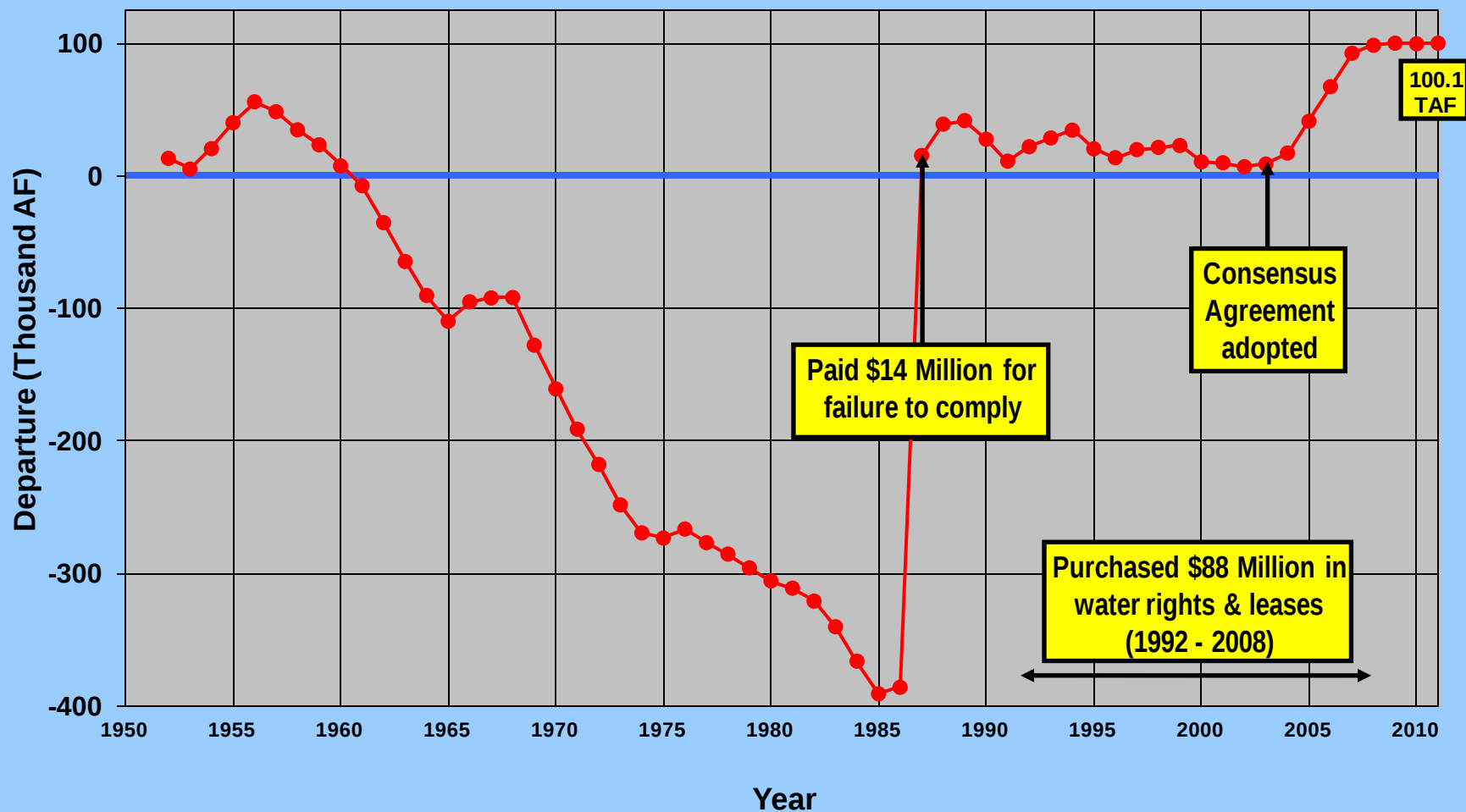
# 2011 Compact Compliance

- Lack of surface water meant small delivery obligation to Texas
- NM ended year with small annual Pecos Compact credit of 500 AF
- NM maintains large net credit of 100,100 acre-feet

# Pecos River Compact

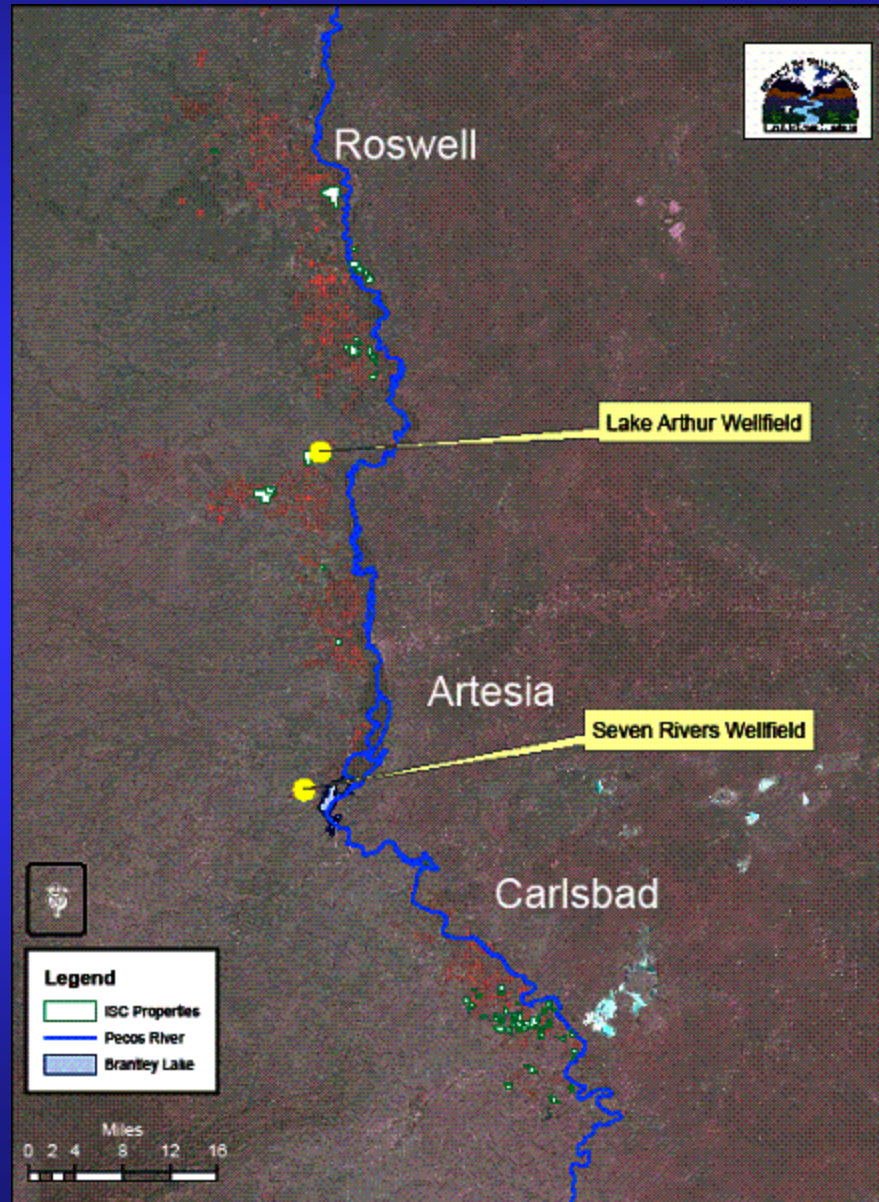
## Cumulative Delivery Departure from Obligation

### 1952 - 2011



# Settlement Operations Since June 2009 Implementation

# Augmentation Well Fields



# Lake Arthur Pipeline Discharge



June 23, 2011

4,400 gpm or 9.8 cfs

# 7-Rivers Brantley Discharge



Line A Outfall Structure - 18,000 gpm or 40.1 cfs

# Triggers for Well Field Operation

(in terms of Project supply available to CID)

- March 1                      50,000 AF (Determined Nov 1)
- May 1                        60,000 AF (Determined Mar 1)
- June 1                       65,000 AF (Determined May 1)
- July 15                      75,000 AF (Determined Jun 1)
- September 1                90,000 AF (Determined Jul 15)

# Augmentation History

- 2009 – No pumping required
- 2010 – No Pumping Required
  - Roughly average water year
- 2011 – First year augmentation pumping needed
- 2012 – Still pumping...

# 2011 Water Supply

- Calendar year 2011 was the 2<sup>nd</sup> driest and 2<sup>nd</sup> hottest in 117 years of record in the Pecos Basin (NM Climate Div. 7, NOAA NCDC)
  - Water year 2011 (Nov. '10 – Oct. '11) was driest and hottest on record
- Runoff was non-existent (3% of average into Santa Rosa Lake)
- Augmentation pumping could not replace lack of natural river flow

# 2011 Augmentation Pumping

- Total Water Year 2011 Pumping:  
12,797 acre feet (March-October)
  - Seven Rivers: 9,598 acre-feet
  - Lake Arthur: 3,199 acre-feet
- No pumping to Provide Water to Texas  
(and none since Settlement implementation)
- All pumping was for CID Farmers' use
  - Settlement added an estimated 6 to 7 inches to each CID farmer's allotment

# Where Are We in 2012?

- Better snowpack than 2011, but:
  - Reservoirs started year nearly empty
- Runoff was disappointing
- Latest projections: 48,000 acre-feet total pumping needed to meet September 1 Target Supply of 90,000 acre-feet
  - Far beyond ISC's pumping capacity

# 2012 Pumping Status

- ISC has pumped  $\approx 17,000$  acre-feet since November 1<sup>st</sup>
  - Significant proportion of CID supply
  - Total CID Project supply on July 15: 28,500 AF
- Seven Rivers production declining
  - From over 20,000 gpm to  $\ll 10,000$  gpm
  - Cutting back pumping to maintain water levels
- Lake Arthur well field inoperable most of year due to low river flows

# 2011 vs. 2012 Water Supply

| Pecos Settlement Augmentation Triggers                                                            |             |                    | 2011                       |                             | 2012                       |                             |
|---------------------------------------------------------------------------------------------------|-------------|--------------------|----------------------------|-----------------------------|----------------------------|-----------------------------|
| Projection Date                                                                                   | Target Date | Target Supply (AF) | Supply on Target Date (AF) | Total Required Pumping (AF) | Supply on Target Date (AF) | Total Required Pumping (AF) |
| November 1                                                                                        | March 1     | 50,000             | 53,659                     | 0                           | 25,536                     | 33,110                      |
| March 1                                                                                           | May 1       | 60,000             | 52,475                     | 8,673                       | 28,966                     | 34,922                      |
| May 1                                                                                             | June 1      | 65,000             | 51,180                     | 14,742                      | 30,556                     | 36,414**                    |
| June 1                                                                                            | July 15     | 75,000             | 53,977*                    | 23,468                      | 28,449                     | 47,815**                    |
| July 15                                                                                           | September 1 | 90,000             | 49,371                     | 49,203**                    | TBD                        | TBD                         |
|                                                                                                   |             |                    |                            |                             |                            |                             |
| Information for this table was taken from pages 11 and 12 of the Settlement Agreement             |             |                    |                            |                             |                            |                             |
| *Value used for projection and supply from July 5 instead of July 15 due to ongoing block release |             |                    |                            |                             |                            |                             |
| ** Value is larger than maximum pumping allowed by Settlement of 35,000 AF in one year            |             |                    |                            |                             |                            |                             |

# Settlement Performance

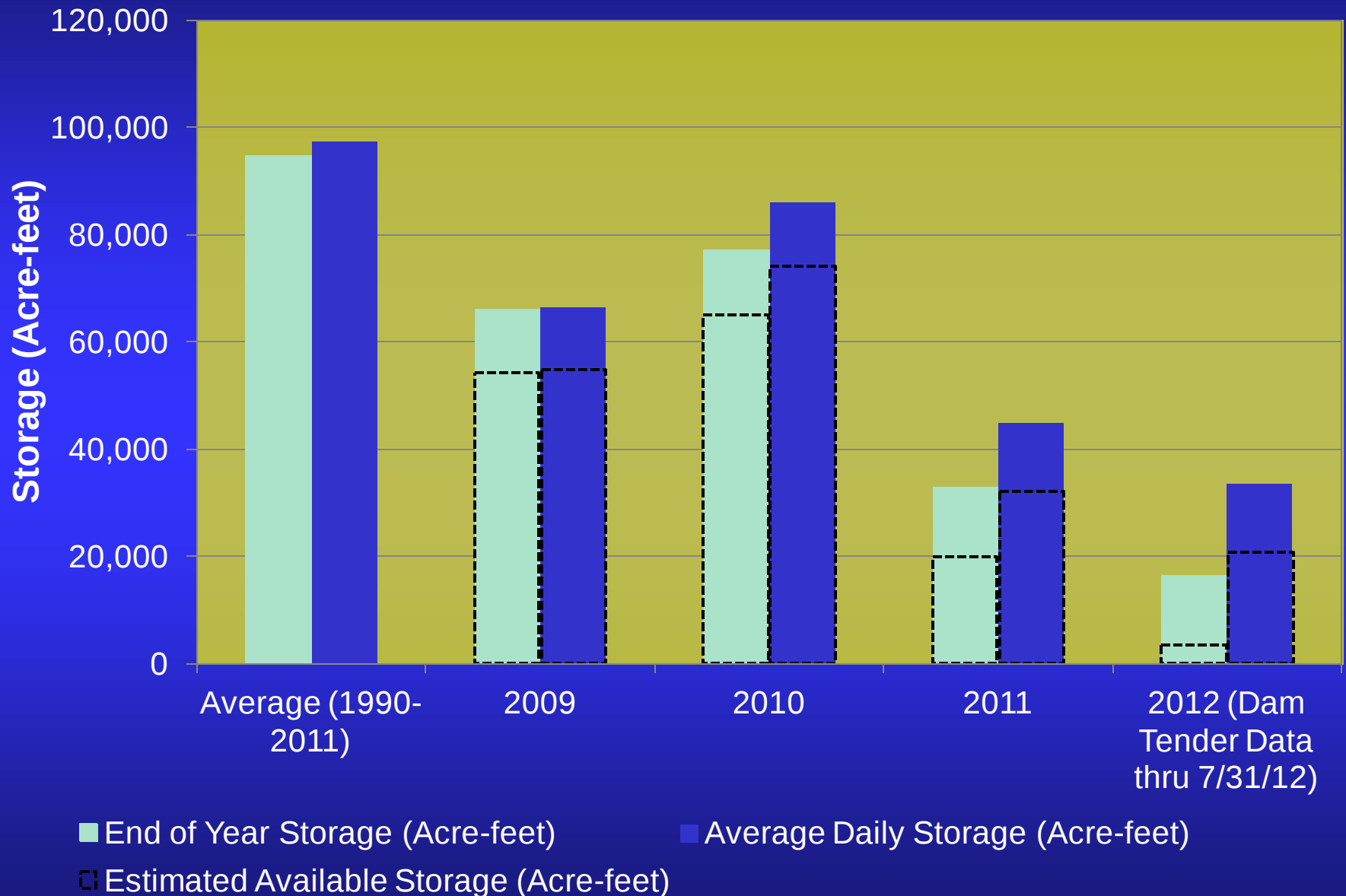
# Is Settlement Working?

- Overall assessment: Yes
  - NM has large Pecos Compact Credit
  - Augmentation pumping has provided significant additional supply to CID
  - ISC has met Settlement's 15,750 AF/year minimum pumping requirement
- But:
  - Extraordinary drought has precluded meeting Settlement supply targets
  - Trial by fire for ISC's well field operations

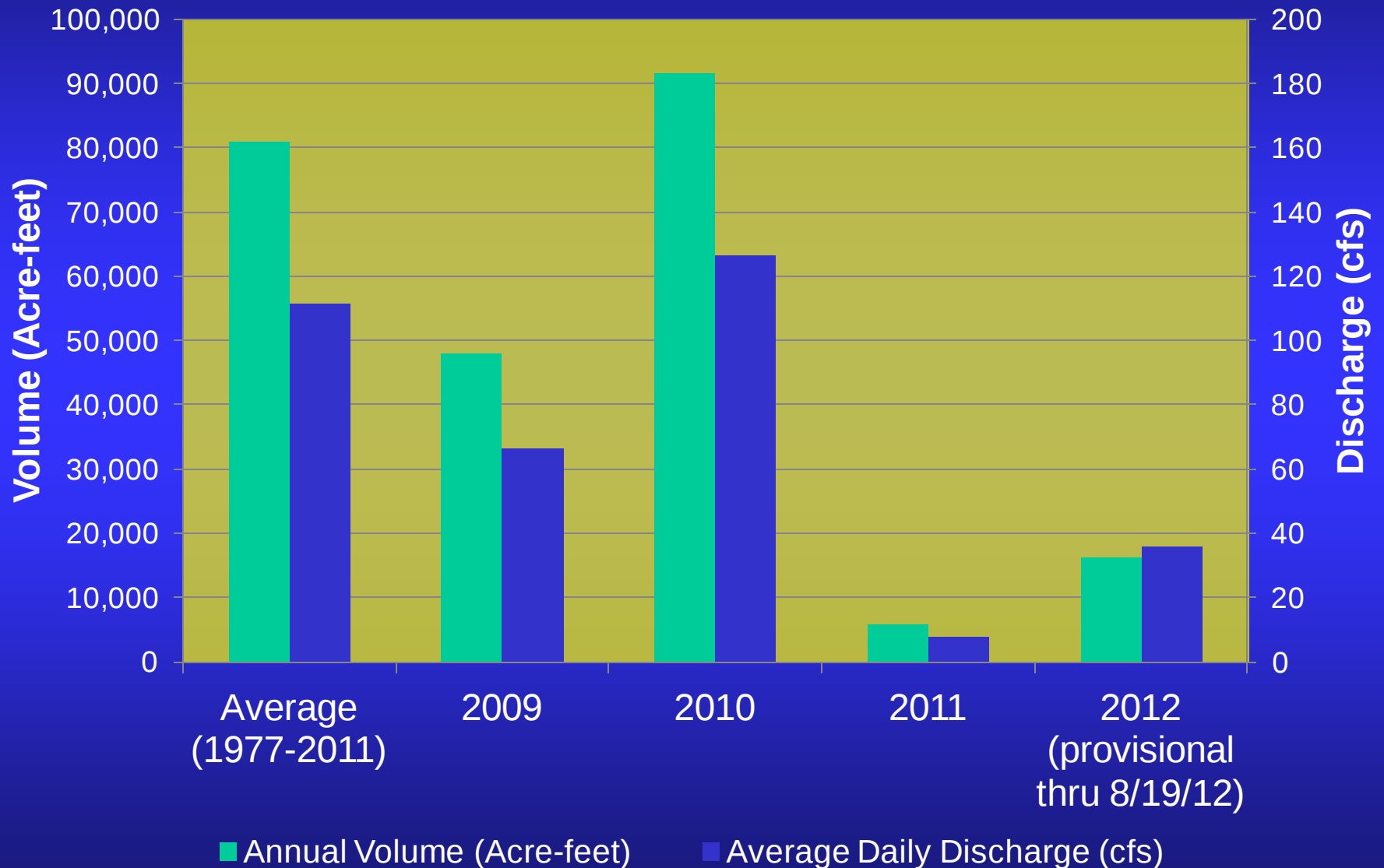
# Why Are Targets Not Being Met?

- DROUGHT!
  - Lack of surface water
  - Available Pumping Capacity
    - Drought has reduced aquifer yield
    - Pumping stress throughout Basin
    - Can't get Lake Arthur water to Brantley with low river flow
- Pumping cannot replace lack of surface water in very dry years like 2011 & 2012

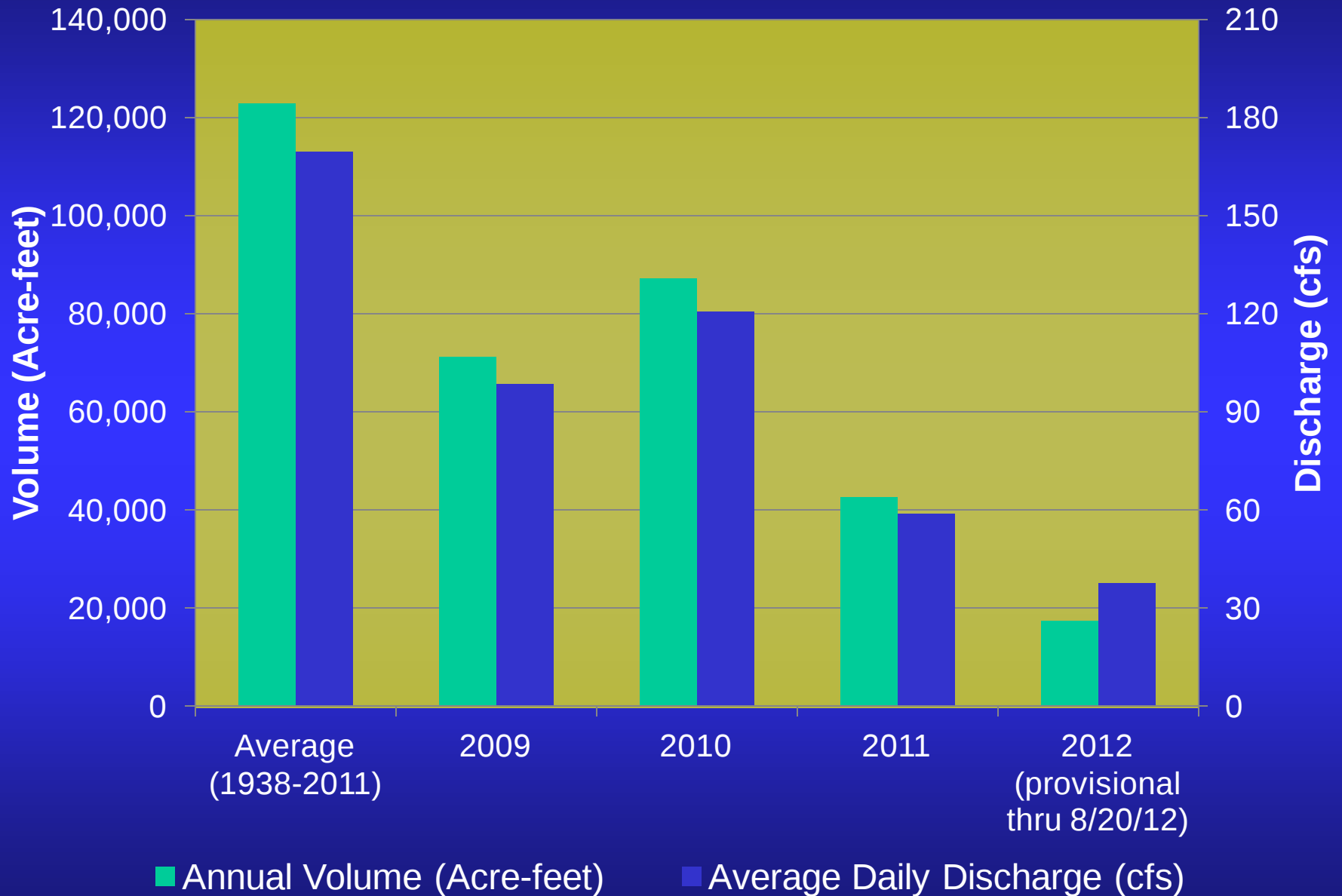
# Total Pecos River Reservoir Storage



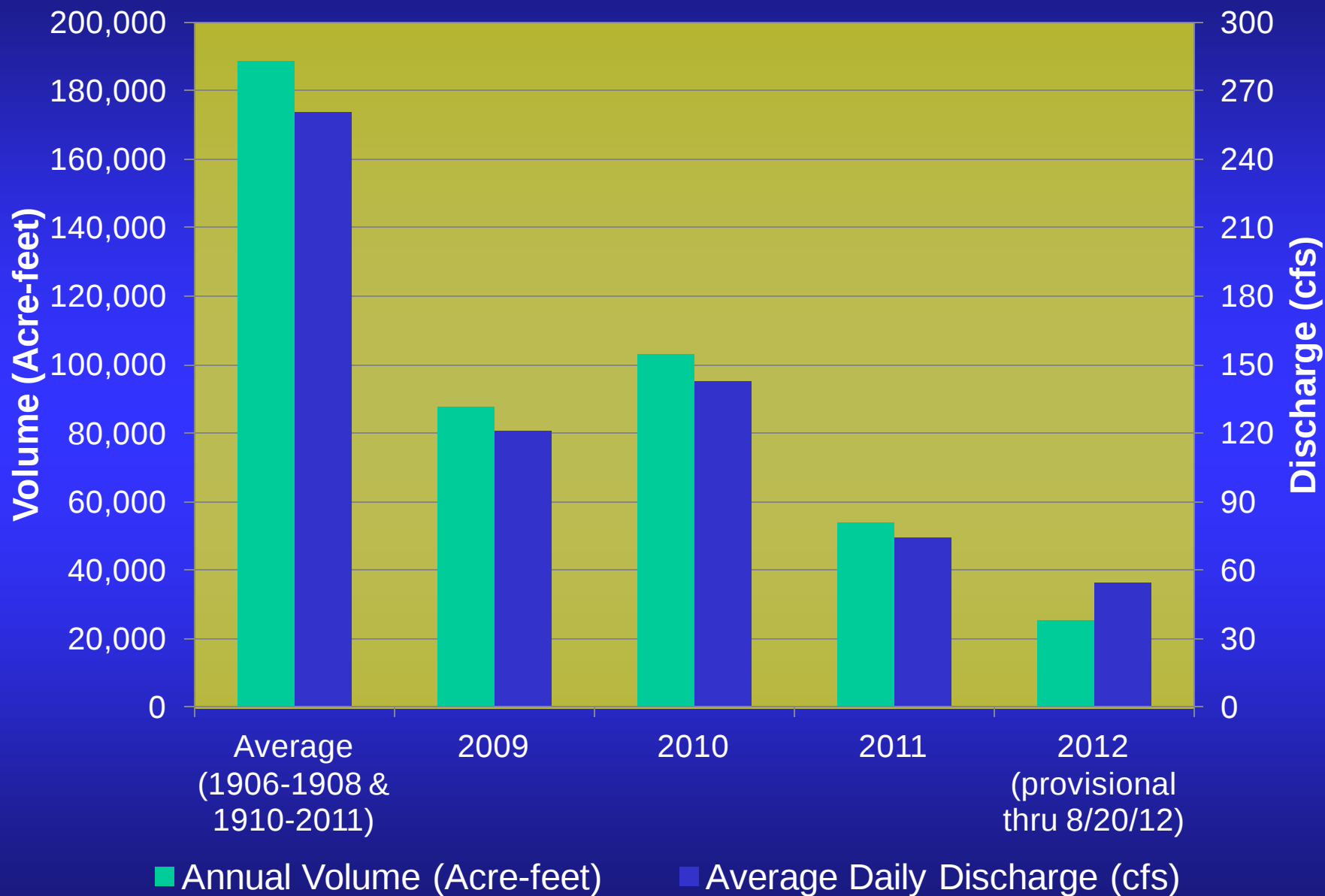
# USGS Gage - Pecos River above Santa Rosa Lake, NM



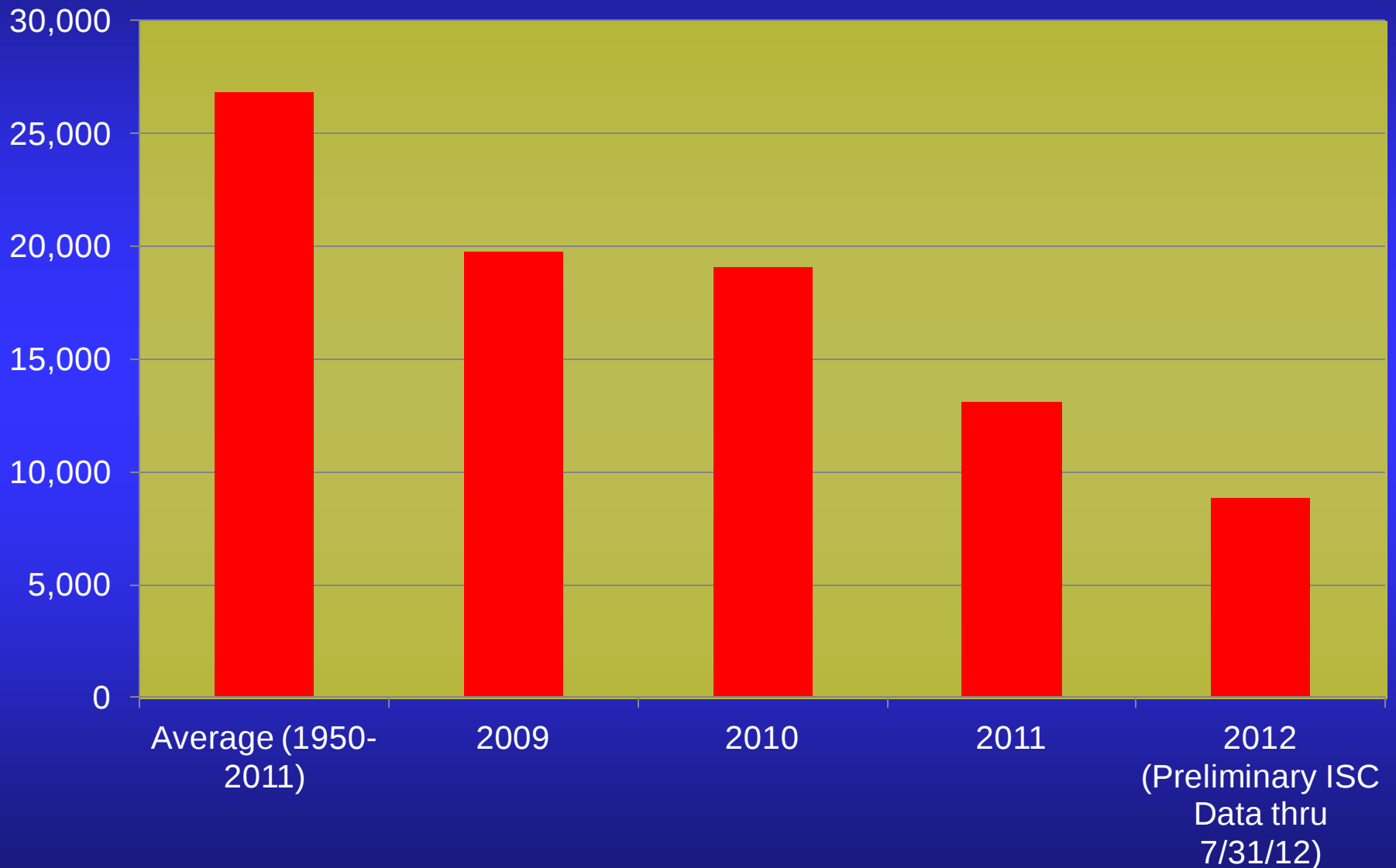
# USGS Gage - Pecos River near Acme, NM



# USGS Gage - Pecos River near Artesia, NM



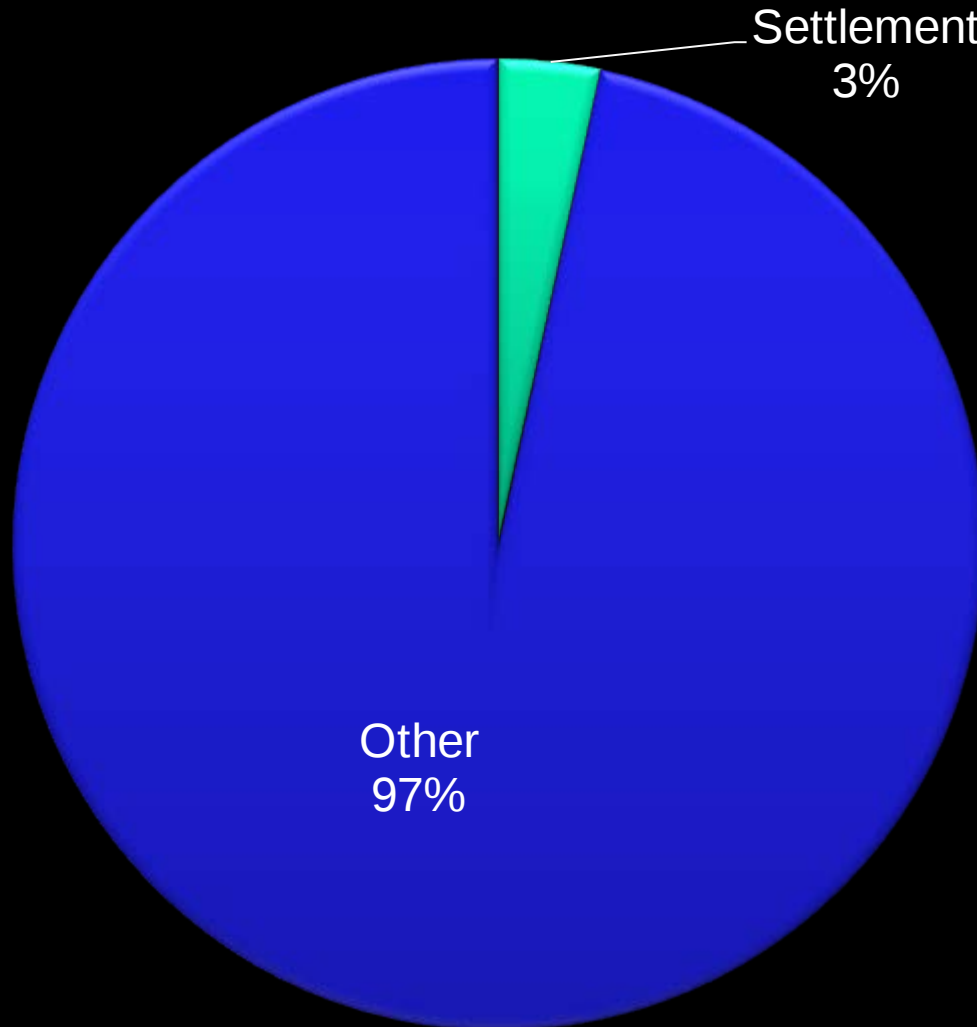
# Pecos River Master Calculated Base Inflow Acme to Artesia Reach (acre-feet)



# ISC Pumping Effects on Basin Aquifer

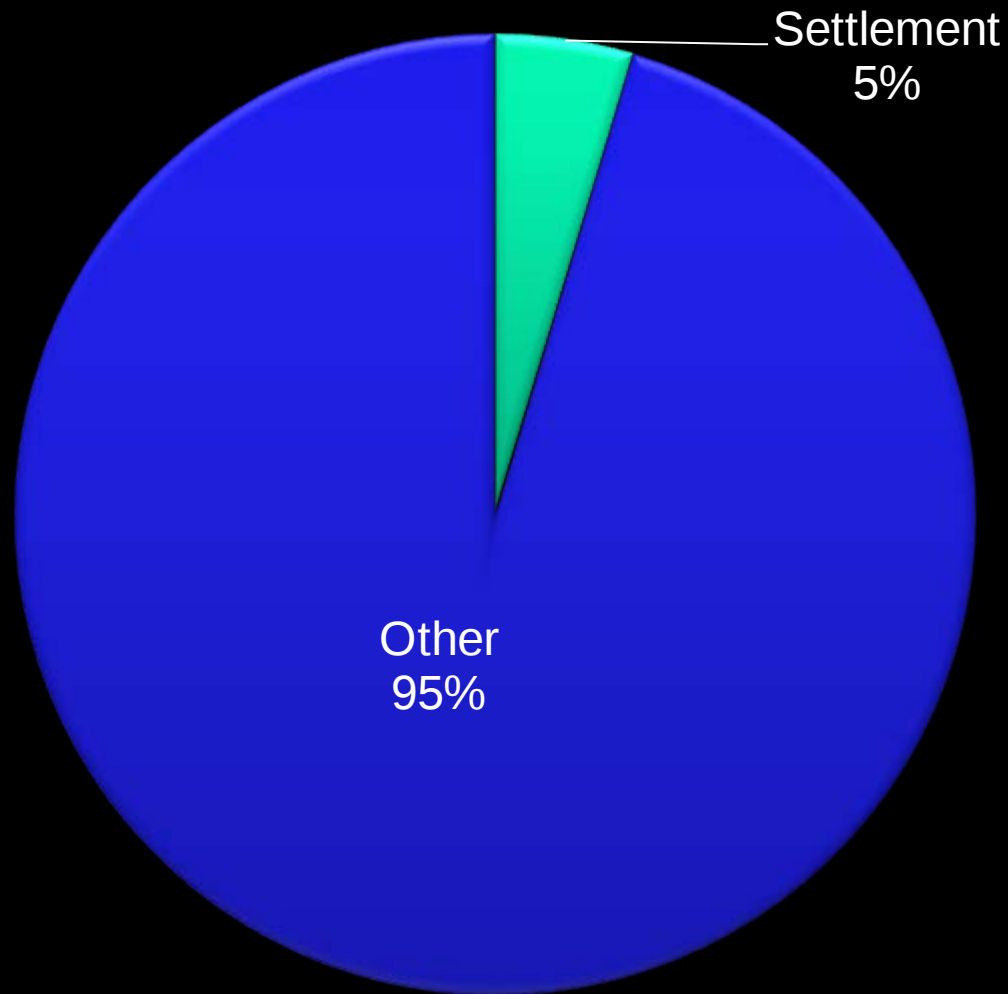
- ISC's Settlement pumping is a small proportion of Roswell Basin pumping
- There are localized effects near well fields

## Roswell Basin Total Pumping WY 2011



Total RAB Pumping WY 2011: 380,123 Acre-Feet

# Roswell Basin Artesian Pumping WY 2011



Total RAB Artesian Pumping WY 2011: 277,366 Acre-Feet

# Misc. Other Issues

- Issuing low-flow management direction for Sumner and Santa Rosa reservoirs
  - Due to minimal water in storage
- Ongoing ESA concerns
  - Currently over 30 miles of dry river from Fort Sumner to Brantley Reservoir
  - Fish salvage operations taking place
  - May affect future water operations

# Summary

- Settlement appears to be working
  - NM has gone from near violation in 2001 to a roughly 100,000 AF credit today
- CID has received additional supply
- Pumping is costly
  - Electricity + O&M roughly \$50 to \$60/acre foot
    - Exclusive of well replacement & repairs
- 2011 was very challenging for all concerned
- 2012 is equally so
- Here's hoping for a plentiful snowpack this winter!

# Seven Rivers Discharge to Brantley Reservoir



