

Pecos River Settlement Lessons



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

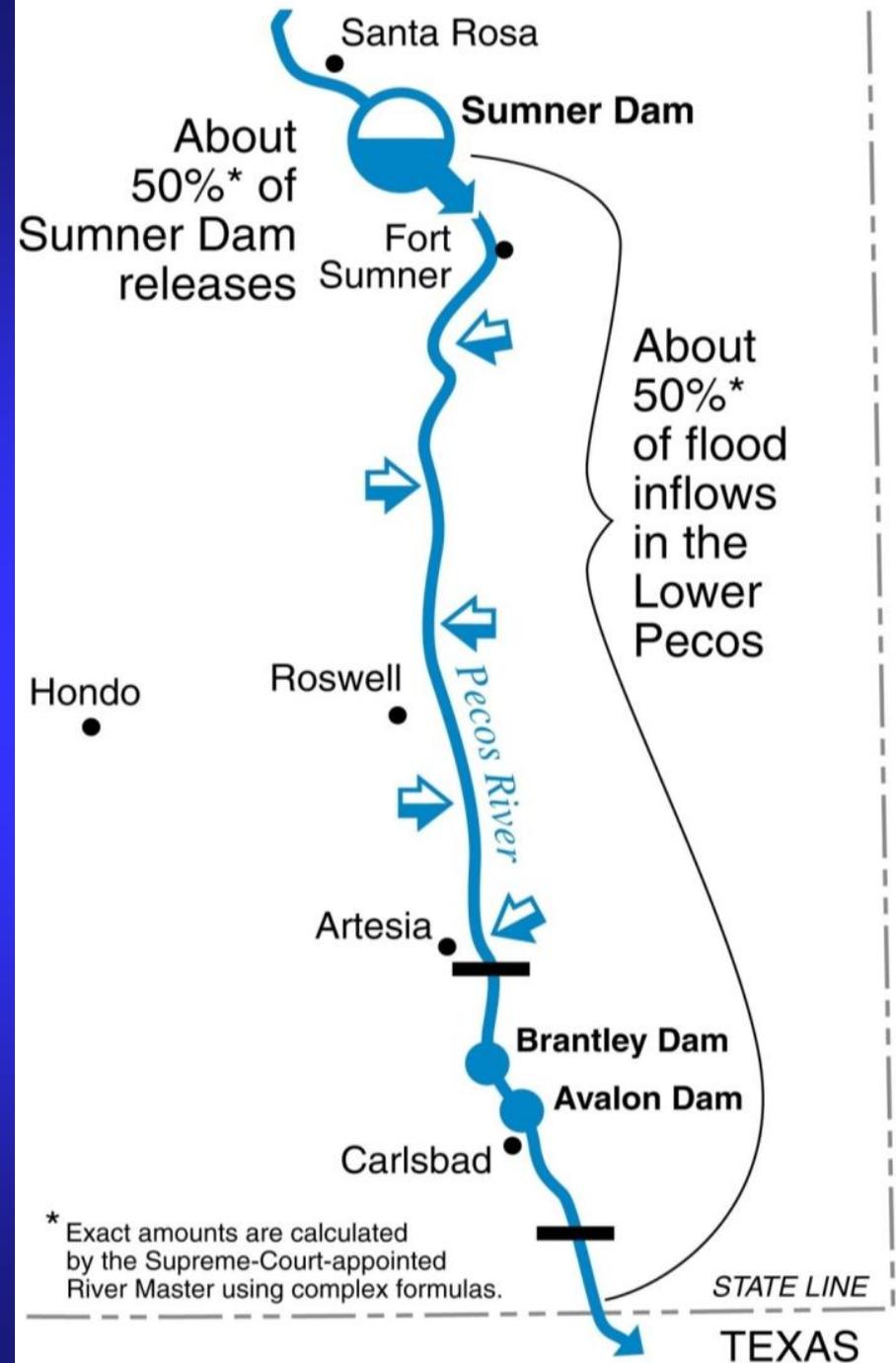
Truth or Consequences, New Mexico

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

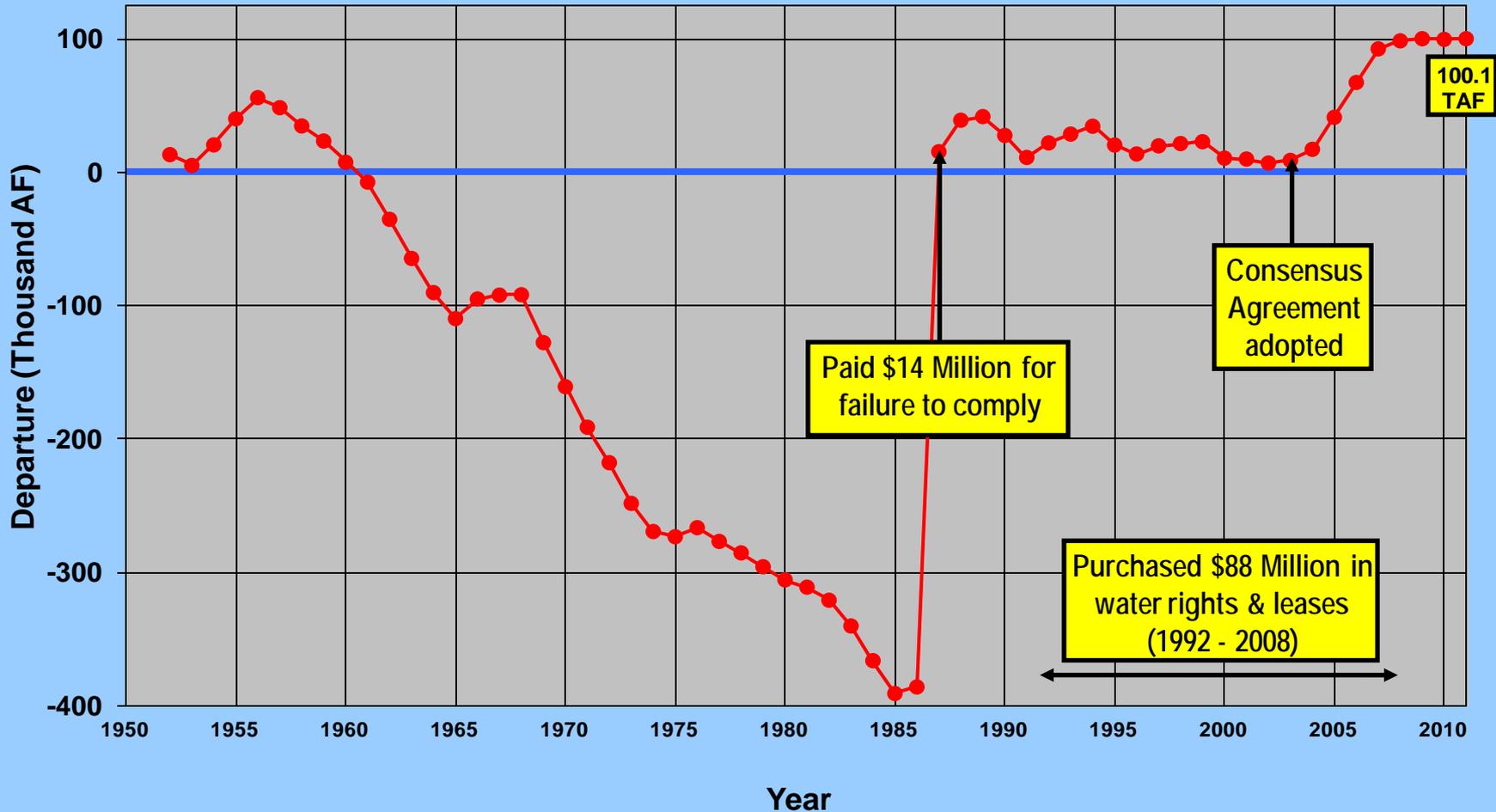
- Settlement allows diversion of only consumptive use portion of water right
 - 2.1 AF/acre
- Irrigation users may divert 3.5 AF/acre
 - 3.0 AF/acre FDR + 0.5 AF/acre conveyance loss
- Result is a 40% allowable diversion reduction from artesian aquifer

Compact Compliance

2011 Compact Compliance

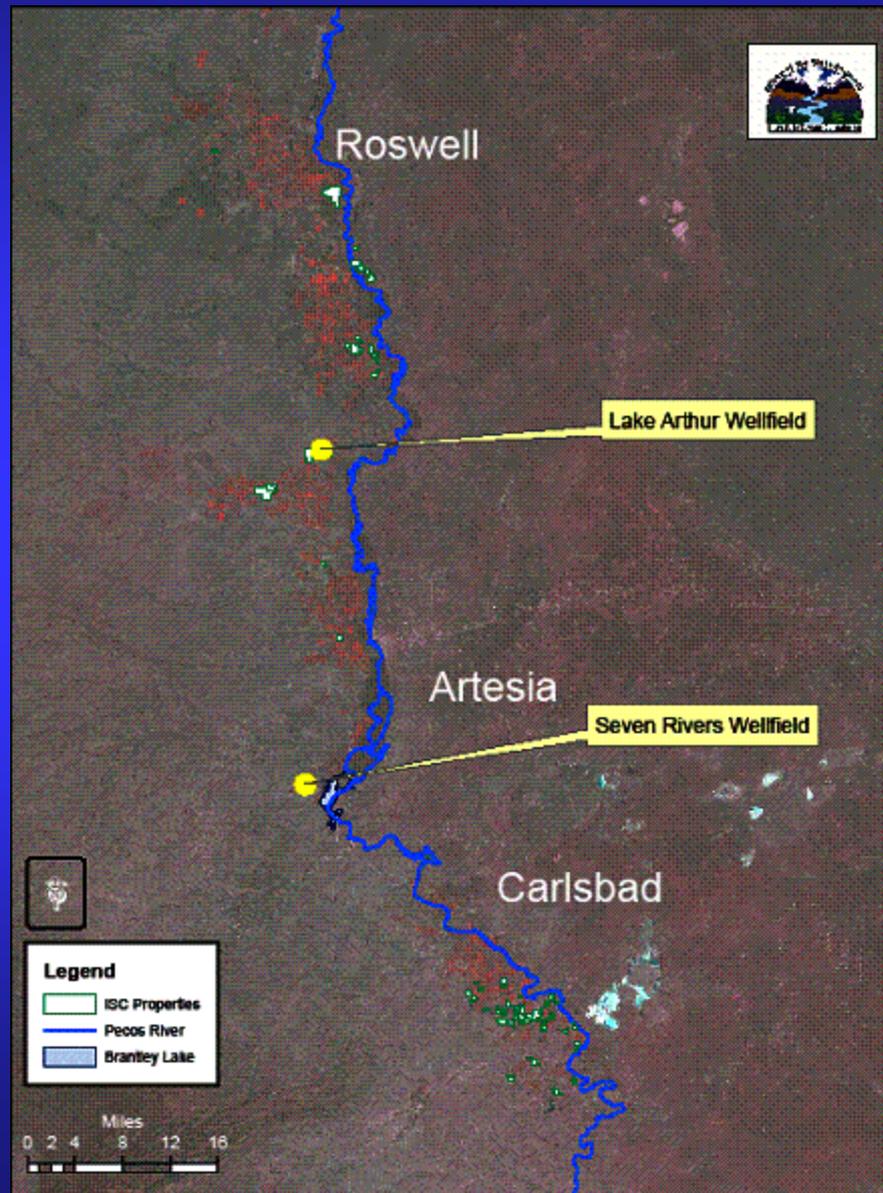
- Lack of surface water meant small delivery obligation to Texas
- NM ended year with small annual Pecos Compact credit of 500 AF
- NM maintains large net credit of 100,100 acre-feet

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 2nd driest and 2nd 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 1st
 - 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

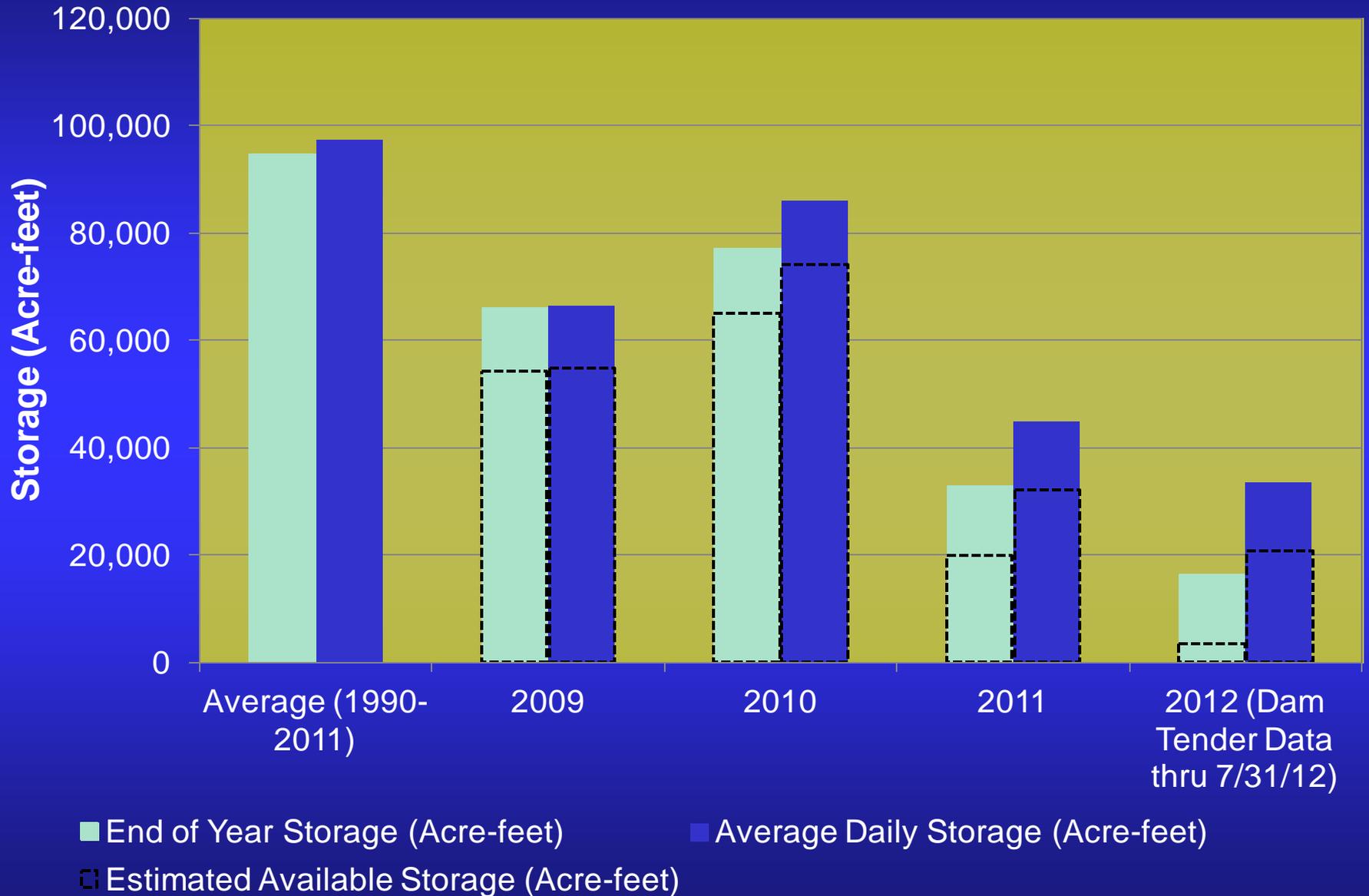
Is Settlement Working?

- 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

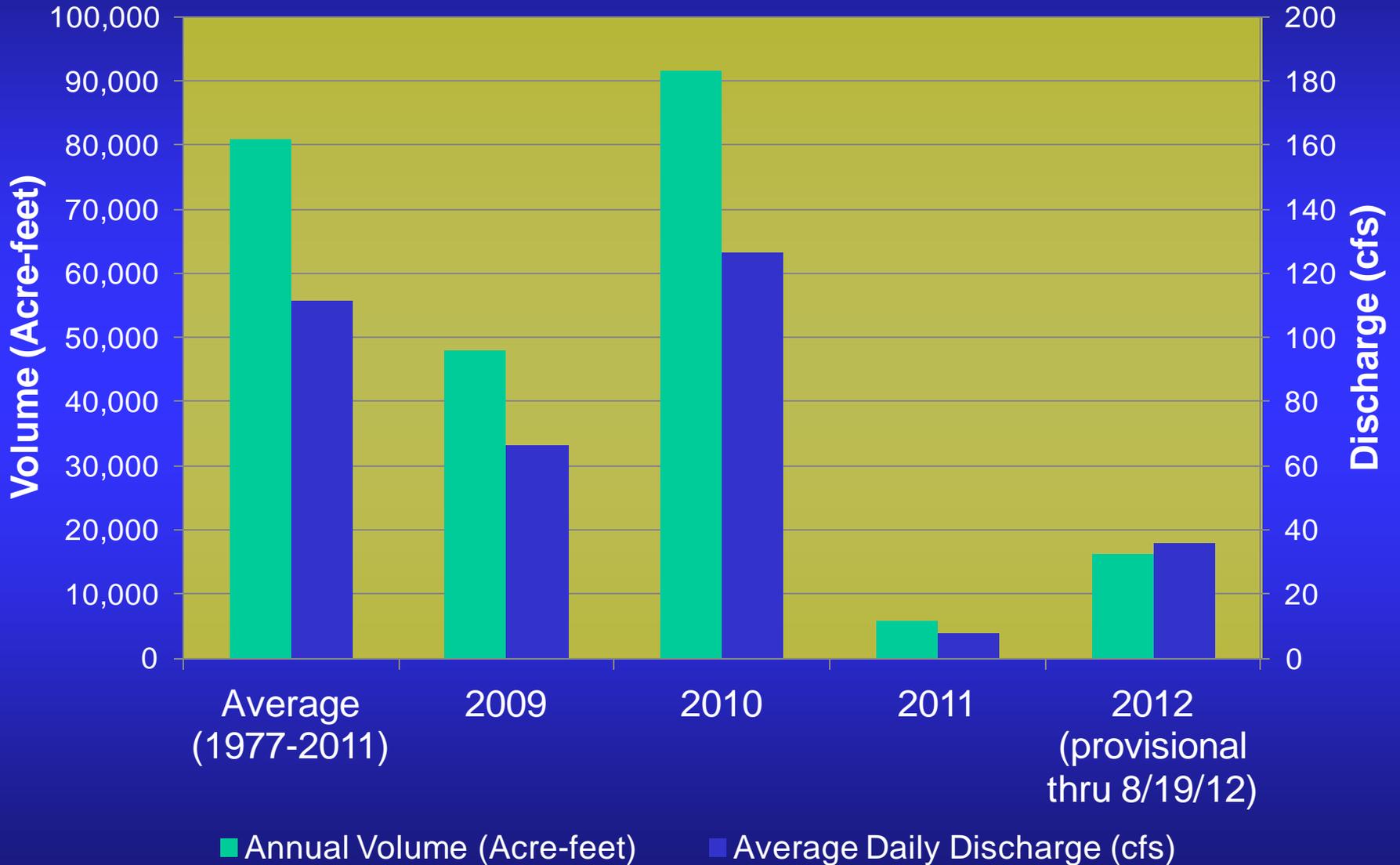
Why Are Targets Not Being Met?

- 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

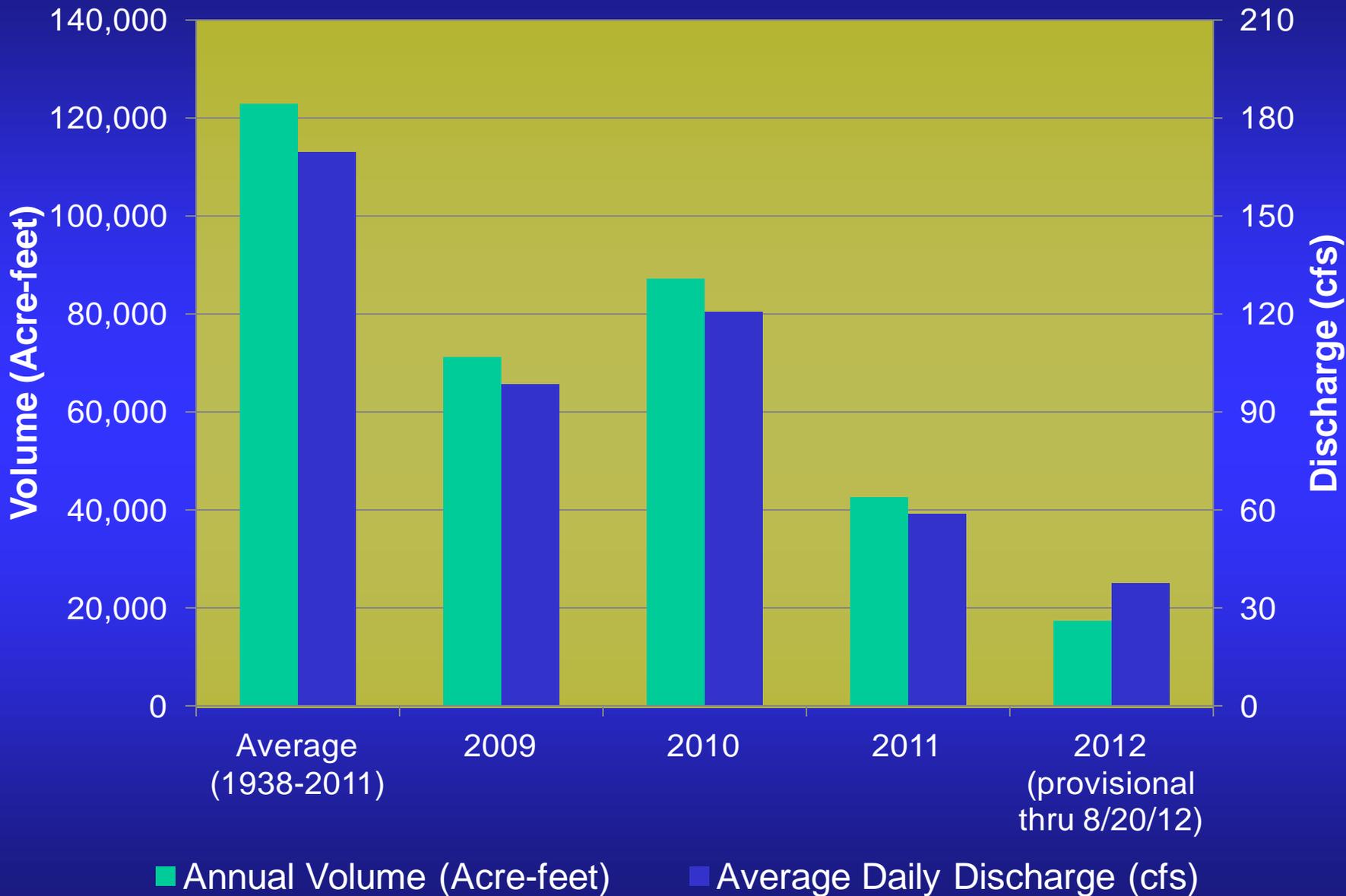
Total Pecos River Reservoir Storage



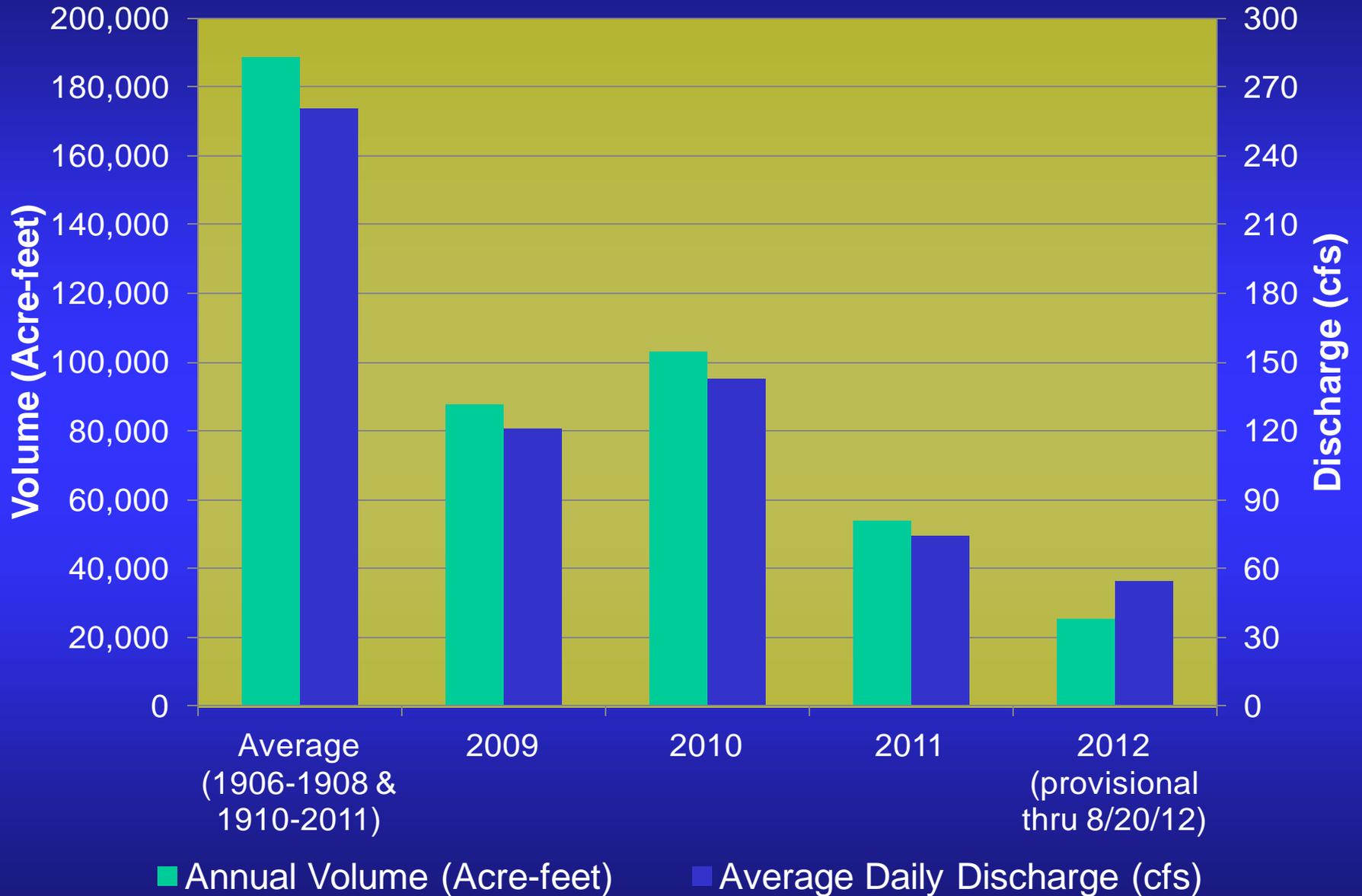
USGS Gage - Pecos River above Santa Rosa Lake, NM



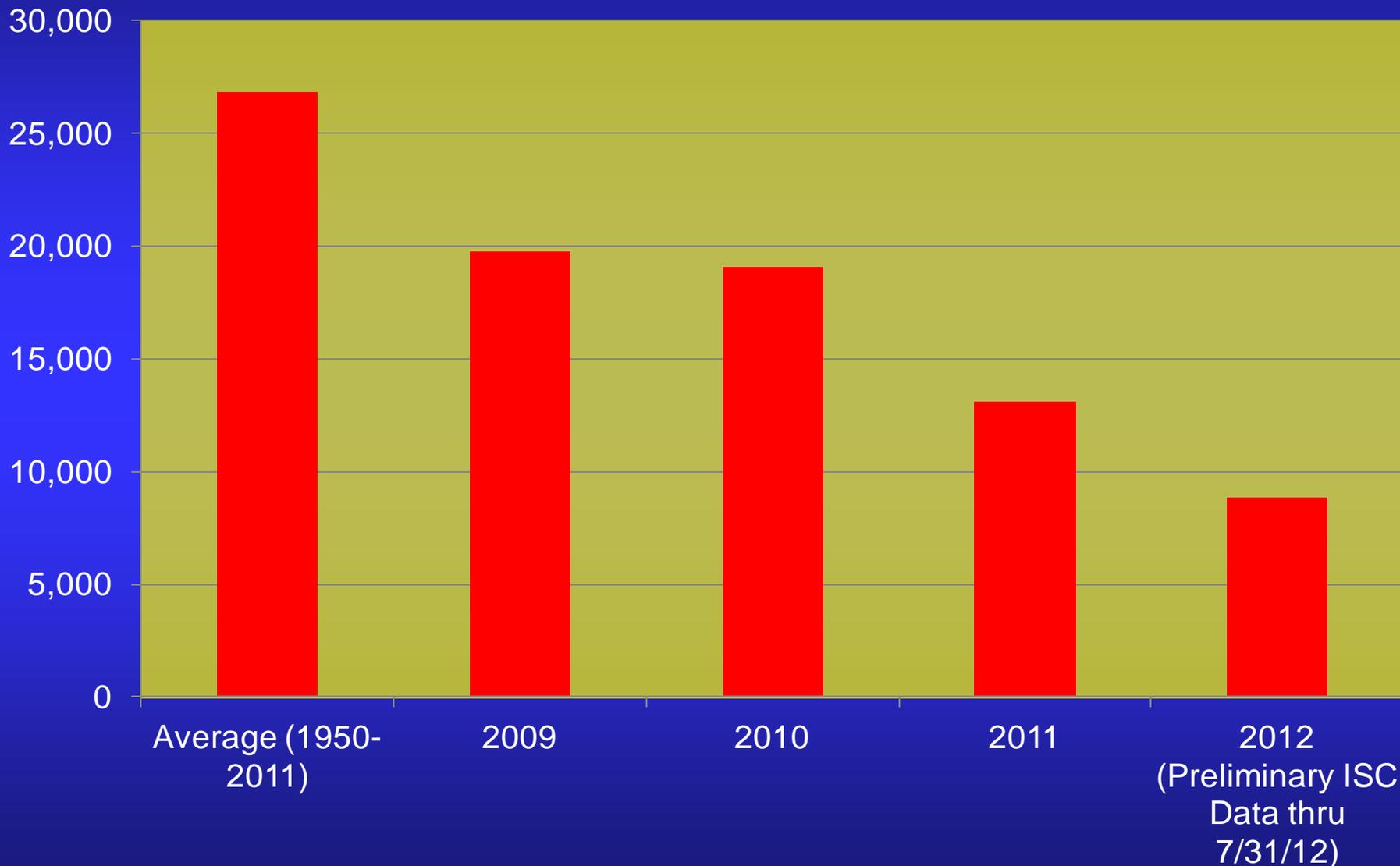
USGS Gage - Pecos River near Acme, NM



USGS Gage - Pecos River near Artesia, NM



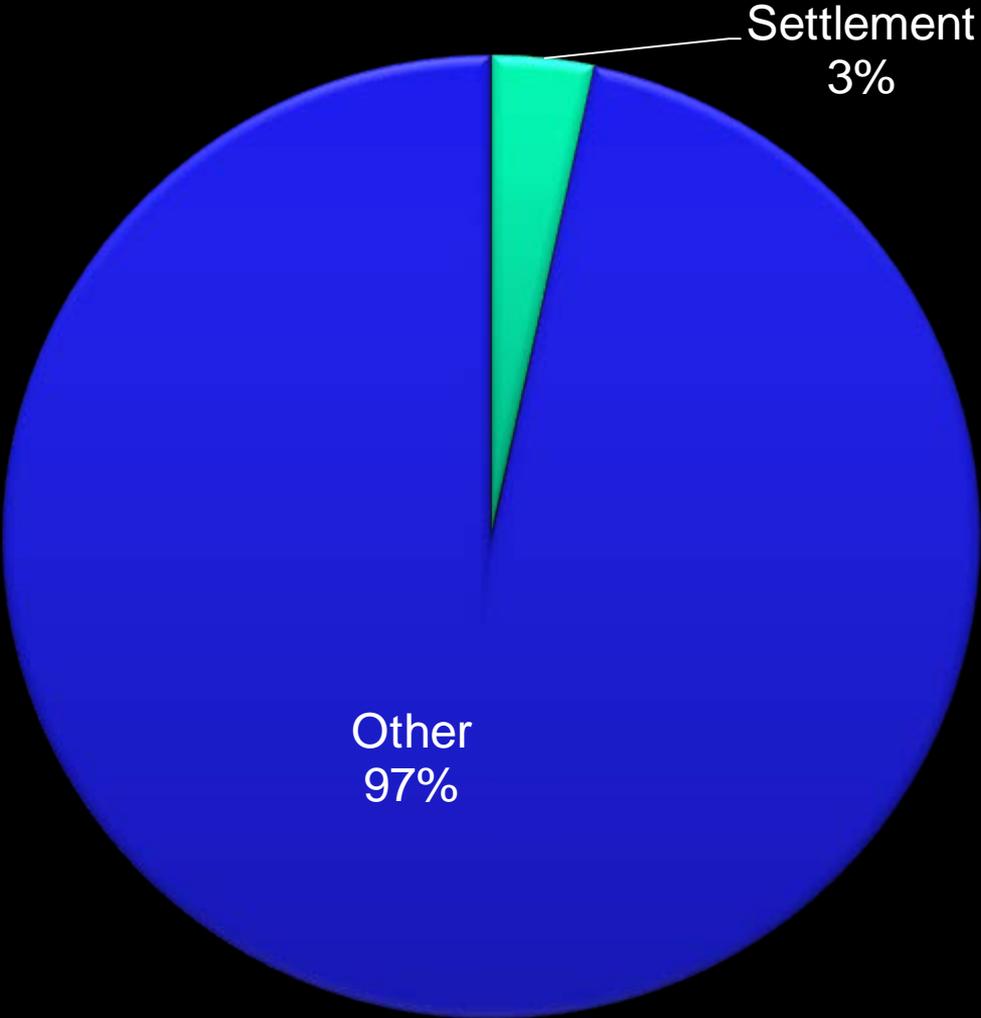
Pecos River Master Calculated Base Inflow Acme to Artesia Reach (acre-feet)



ISC Pumping Effects on Basin Aquifer

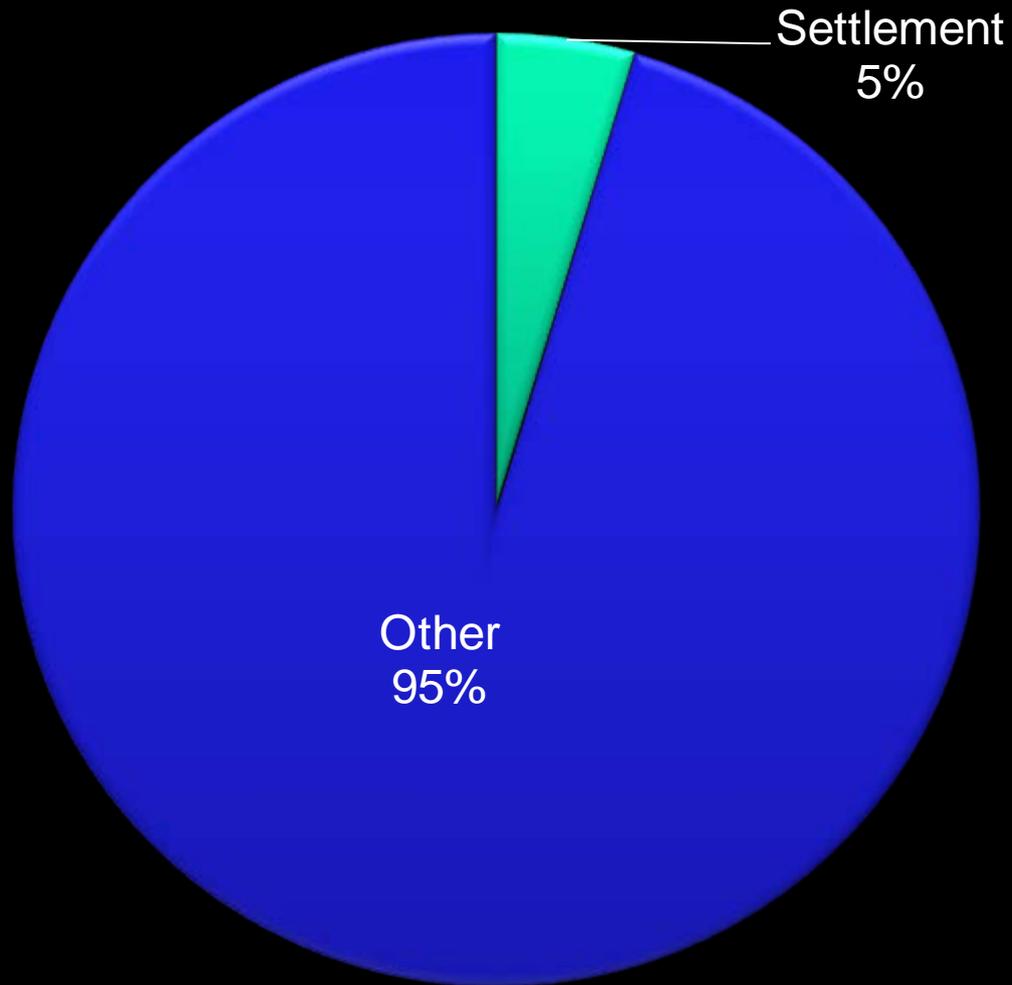
- ISC's Settlement pumping is a small proportion of Roswell Basin pumping
- There are localized effects near well fields

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



