

Water Transfers and the Bureau of Reclamation Opportunities and Challenges

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RECLAMATION
Managing Water in the West



The Walton Family Foundation

Key points covered

- Differing roles Bureau has played in transfers
- Current draft guidelines
- Recommendations

Bureau's role a key topic for decades



Water Transfers: Varying Roles

- Review requests for transfers involving Reclamation project water
- Implement changes in water deliveries and system operations pursuant to approved transfers
- Lease and purchase water within Reclamation projects to fulfill specific federal mandates
- Administer water transfer programs to fulfill federal mandates
- Conduct pilot water transfer programs

Reclamation banking, lease programs

- Pecos River , NM, TX
- Snake River Basin, ID
- Klamath River Basin, OR, CA
- Tenaway River Basin, WA
- Yakima River Basin , WA
- CVPIA, CA
- System Conservation Pilot Program, AZ, CA

Klamath Basin

Augment instream flows for variety of federal purposes

2001 Pilot Programs, during 2001 drought:

- Groundwater Purchase Program - USBR leased 65K af groundwater
- Irrigation Demand Reduction Program - USBR leased 38K af from irrigators, who fallowed land

2002-08 Rangeland Trust Contract

- USBR leased 13K af from ranchers, reduced herd sizes 80 percent

2009: program transferred to the Klamath Water & Power Authority. Bureau funds and manages ongoing Klamath Basin restoration program.

System Conservation – Lower Basin Pilot

- authorized in 2006, reauthorized in 2008-10
- pilot agreements to provide supplemental water related to irrigation drainage water bypassed to Cienega de Santa, Yuma Desalting Plant operations...
 - BOR and MWD/PVID (May '06)
 - BOR and YMIDD (Feb '08, Oct '08, Dec '09)

System Conservation – Lower Basin Pilot

- BOR agreement with MWD/PVID
 - One time agreement
 - \$170/acre-foot
- BOR agreements with YMIDD
 - Three separate agreements, approx 3,500 af each
 - 2008: \$120/acre-foot
 - 2009: \$90/acre-foot
 - 2009: created 3-acre minimum for fields enrolled

Remote sensing long used in Bureau water management

Reclamation's Lower Colorado River Accounting System

Evapotranspiration and Evaporation Calculations

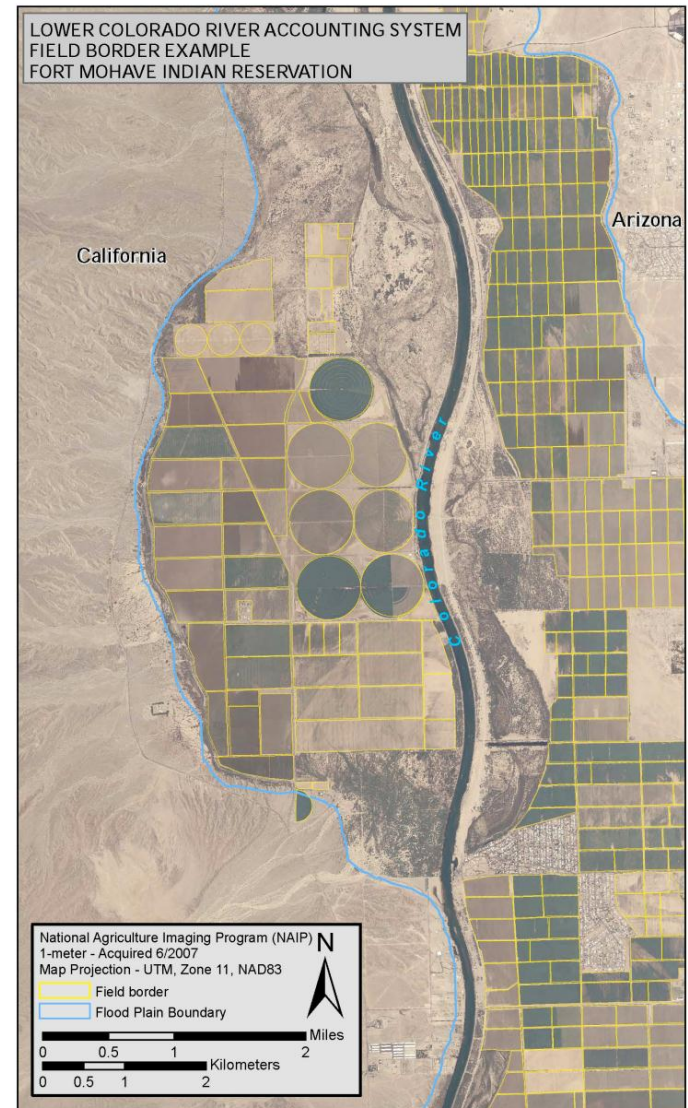
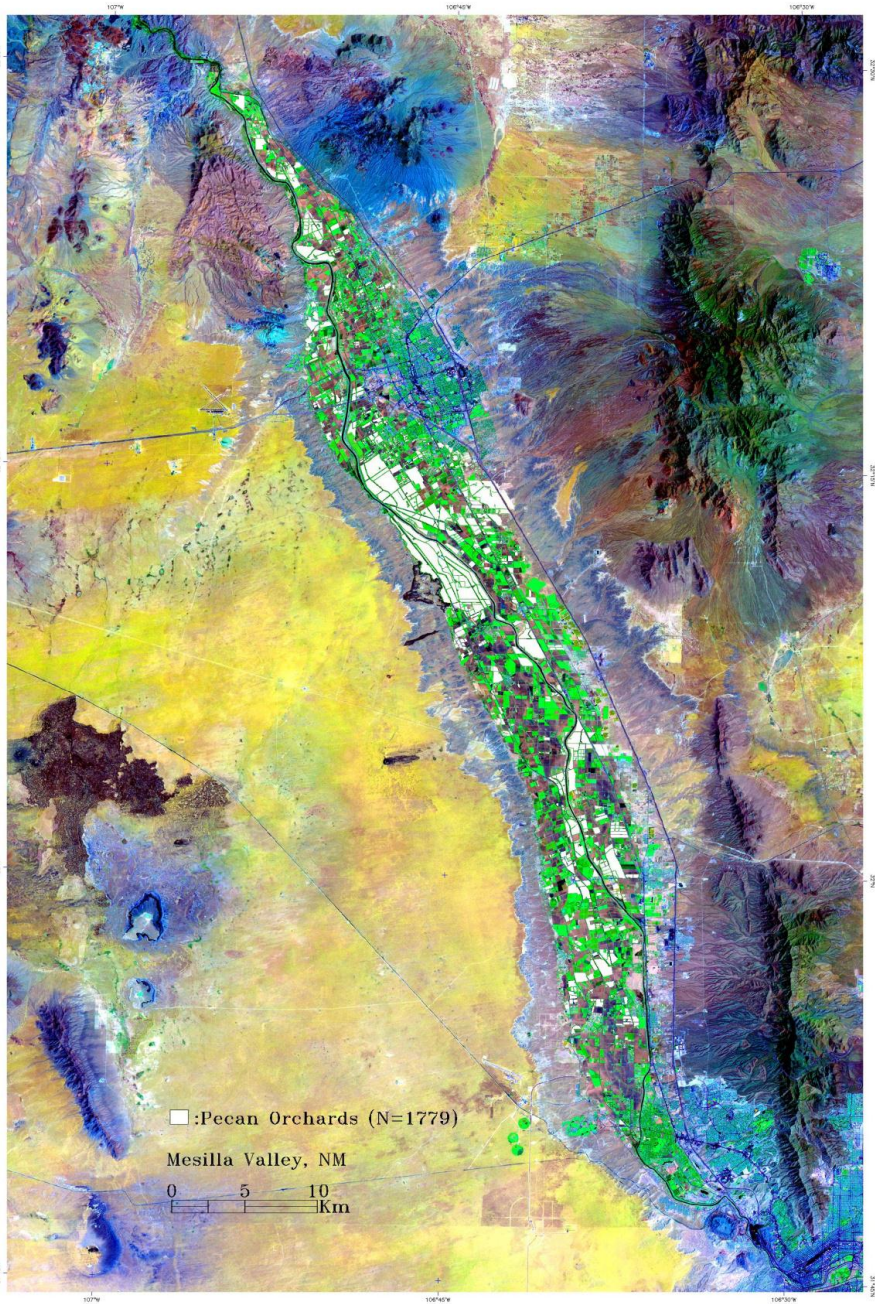


Exhibit 9

Advances in RS allow tracking of crop CU at finer spatial and temporal scales:

- field, sub-field scale
- every two weeks



Mesilla Valley, New Mexico.
Landsat-7 scene, delineated pecan orchards
(as white polygons).

From New Mexico WRRRI Technical Completion Report No. 357
ESTIMATING WATER USE THROUGH SATELLITE REMOTE
SENSING

Cost Effective Monitoring with RS

Idaho DWR - Landsat thermal data, METRIC ET model

Costs to monitor 3,830 irrigation wells
using power consumption coefficients = \$120 per well

Using Landsat thermal data, cost = \$30 per well

RS data significantly higher accuracy, as well as less expensive.

Cost Comparison For Monitoring Irrigation Water Use:

Landsat Thermal Data Versus Power Consumption Data

Anthony Morse, William J. Kramber Idaho Department of Water Resources

Transfer Review: Third Party Impacts, Transferrable Quantity

1) Rebuttable presumption for transferrable quantity, vary by sub basin, set by states

2) Rebuttable presumption for third-party economic impacts and compensation, varies by county, set by states

- local impacts small % of drought costs averted
- incentivize growers to spend payments locally

Rebuttable presumption approach places burden of proof of those objecting to standardized calculations

Reduces transfer review costs while still accounting for important transfer consequences

Review procedures – temporary transfers

Temporary transfers essential for adapting to hydrologic extremes

- Seasonal transfers to maintain fish flows, water quality
- Dry year transfers for urban supply reliability

Temporary transfers particularly need streamlined review procedures.

Draft Guidelines

- Seek to promote local problem solving
- Consider irrigation of riparian vegetation and wetlands as irrigation use, not “misc other use”
 - with agreement of irrig district
 - and otherwise in compliance with state, fed law

Six Guidebooks on Water Transfers

- *Measurement, Monitoring and Enforcement of Temporary and Seasonal Irrigation Forbearance Agreements*, forthcoming, January, 2012
- *Understanding the Value of Water in Agriculture*, August, 2011
- *Entendiendo el Valor del Agua en la Agricultura*, October, 2011
- *Water Banks: A Tool for Enhancing Water Supply Reliability*, 2010
- *Dry-Year Water Supply Reliability Contracts: A Tool for Water Managers*, 2009
- *Water Auction Design for Supply Reliability: Design, Implementation, and Evaluation*, 2009

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<http://ag.arizona.edu/people/profiles/colby/html>