Water Markets & Policy:
Western Water Rights
Transfers & Banking

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Issues

- “water flows uphill to money”
- “it is easier to catch flies with honey than with vinegar”
- Transfers: buying irrigation water for municipal & suburban development
- Water banks: using markets to achieve specific water policy objectives
  - Streamflow restoration quantity & quality
  - Ground water mitigation
Water right transfers

- **Priority**: first in time is first in right
- **Priority administration**: state water officials will issue closing orders to **junior** appropriators when upstream **senior** appropriators make a **river call**, aka **priority call**
  - Procedures vary widely across the West
- Irrigators (and tribes) have most of the **senior** rights, so M&I & environmental advocates who need water can buy rights from senior irrigators
Transfers, con’t

- **Appurtenancy**: appropriative water right is legally tied to the land where the water was first used.

- Appropriator can in most appropriation states sell the **consumptive use** to someone who wants to use the water somewhere else.

- Diversion – return flows to the stream = consumptive use:
  - 2 cfs diverted – 0.5 cfs returns = 1.5 cfs CU

- Or: can determine consumptive use based on acres irrigated & crops grown:
  - 130 ac corn x 6”/ac CU = 65 AF CU
2 measures for national water use

Water withdrawals by use:
- Irrigation: 41%
- Domestic: 39%
- Thermoelectric: 12%
- Industrial: 8%

Water consumption by use:
- Irrigation: 85%
- Domestic: 4%
- Thermoelectric: 3%


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Transfers, con’t

- Transfer cannot harm downstream junior appropriators—”no injury” rule
- Senior appropriators protected by priority
  - Buyer can always be called out by senior appropriators
- Junior appropriators are entitled to have traditional return flows maintained
- Most disputes are regarding how to measure consumptive use vs return flows
  - Seller & buyer: maximize CU
  - downstream juniors: maximize return flows
criticisms

- Numerous academic criticisms, as well as from the real estate developers who need the water to develop
- Process is time consuming, expensive, at least somewhat uncertain
- Easy to rewrite statutes to deal with this but getting them legislatively enacted is another matter 😊
- Transfer analysis: environmental & community impacts
  - Community: reduced irrigation acreage’s impact on local economic infrastructure

- **Washington**: 327,000 AF
- **Oregon**: 1.5 million AF
- **Idaho**: 6.6 million AF
- **Montana**: 85,000 AF
- **Wyoming**: 382,000 AF
- **Utah**: 370,000 AF
- **Nevada**: 321,000 AF
- **Colorado**: 1.6 million AF
- **New Mexico**: 678,000 AF
- **Arizona**: 8.4 million AF
- **Texas**: 2.9 million AF
environmental water trades

Figure 3: Cumulative Environmental Volume Acquired, 2002-2013

Volume – AF (Thousands)

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Figure 6: Total Value Traded by State, 2003-2012

- California: $251,009,216
- Oregon: $39,780,485
- Washington: $14,357,235
- Idaho: $50,661,872
- Nevada: $5,005,902
- Utah: $0
- Colorado: $5,376,185
- Arizona: $64,814,491
- New Mexico: $2,723,097
- Texas: $52,911,344
- Louisiana: $36,725
water banks

- Can broker private water sales or leases
- Can take water deposits at fixed price & allow water withdrawals at fixed price
- Can acquire water or water rights to achieve various water policy outcomes
  - Ground water storage or aquifer recovery
  - Streamflow mitigation
  - EMV: bank may quantify cfs of streamflow enhancement, etc.
California Emergency Drought Water Bank

  - State Water Plan deliveries to cities were cut to 10% & to zero to irrigation districts
  - Central Valley Project deliveries cut to 50% for cities & to 25% for irrigation districts
- Bank facilitated moving irrigation water south for fixed prices
  - 1991: $125 for water deposits & $175 for withdrawals
  - 1992: $50 for deposits & $72 for withdrawals
  - 1994: $50 for deposits & $68 for withdrawals
2001 California dry-year purchasing [i.e. leasing] program

- 2001: SWP deliveries >25% & CVP down to 15%
- SWP users asked DWR to establish water leasing program between willing buyers & sellers
- Same objectives as drought water bank except used more flexible pricing
- DWR got offers from buyers & then attempted to find sellers—essentially brokering the transfers
- Operated 2001-2003
- Irrigation water freed up by land idling ("fallowing")
1996 Arizona Water Bank

- Recharges surplus Central Arizona Project (CAP) water for future use & to avoid letting California get it.
- Water storage credits transferred to the Central Arizona Groundwater Replenishment District:
  - District buys water storage credits in dry years to supply CAP subcontractors (cities & irrigators) with stored GW.
- AZ also stores GW for Nevada:
  - when Nevada needs more CAP water, cashes in its water storage credits for water from Lake Mead.
  - AZ offsets with GW withdrawals—trading AZ SW for NV GW credits/stored GW.
Arizona water bank recharge area
Oregon Water Trust

- Objective: instream flow restoration & enhancement
- Background: since 1987 Oregon water law allows
  - Existing [senior] appropriations to be converted to instream flow appropriations and
  - Conserved water: 75% to conserving appropriator & 25% to instream flows
- Allowed NGOs (1) to purchase/lease appropriations for instream flows & (2) to engage in water conservation projects for instream flow enhancement
Oregon Water Trust

- Oregon Water Trust established 1993
  - now Freshwater Trust
- Has acquired 136 cfs of instream flow from 162 instream flow agreements
  - Focuses on tributaries etc.
- Also fences off streams to reduce nutrient loadings from livestock watering in the stream
- Riparian habitat restoration to shade small streams & reduce water temperature for fish
Deschutes River Water Bank

- Background: area proposed to be closed to new wells to protect streamflows
  - Senior appropriators & instream flows
  - Protected streamflow & endangered species issues
- Instead, Oregon DWR authorized Water Bank & requires new wells to offset streamflow depletions
- DRWB sells mitigation credits for new wells
  - Water conservation—replacing irrigation canals with buried pipe—118.9 cfs
Deschutes River Water Bank, con’t

- Leases water rights from irrigators who either rotate crops or fallow their land—62.5 cfs
- Acquires water rights by purchase or donation—16.5 cfs
- Total streamflow augmentation 2014: 199.4 cfs
- Funded by state, foundations, grants, donations, mitigation credit sales [presumably]
- Uses market to avoid regulation, willing buyer-willing seller, etc.
Questions? Thank you! 😊

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