WATER BANKING & WATER MARKETING IN SELECT WESTERN STATES



About Us

- > 2019 Master of Public Administration candidates at the Evans School of Public Policy & Governance
- > Project delivered through the Evans School Student Consulting Lab



> We have a combined 25 years of experience in research, project management, and communications.



Presentation Outline

- > Research question
- > Research methodology
- > Colorado case study
- > Idaho case study
- > Nebraska case study
- > Findings



> What role do other state governments play in the development and management of water banks?

> What market-based tools for water reallocation are employed in other Western states?



- > Case Study Selection
- > Literature Review
- > Interviews



Case Study Selection

- > Conducted a preliminary review of all Western states with a prior appropriations system
 - State-level legal frameworks, participation rates, user characteristics, management type
- > Narrowed to those with active banks and similar state-level characteristics (e.g. instream flow rule, conjunctive management)
- > Selected to achieve diversity of user characteristics and management types



Literature Review

- > Reviewed published and grey literature (e.g. government reports, legal documents, white papers)
- > General, overarching information related to water banking and water marketing
- > State-specific information for case studies
- > Reviewed all documents for definitions of water banking, legal frameworks, bank design, market mechanisms, and key issues or challenges



Interviews

- > Conducted semi-structured phone interviews with stakeholders in each case study state
- > 28 total interviews completed:
 - 7 in Colorado
 - 9 in Idaho
 - 11 in Nebraska
 - 1 General



Case Study: Colorado



Geography and Hydrology



Source: South Platte Basin Roundtable Basin Implementation Plan

State Water Administration

Colorado Water Court

- > Administration of changes and transfers
- > Coordination of consistent statewide application of rules and regulations
- > Participation in comment period required to claim injury or impairment

Division of Water Resources

- > Statewide hydrological modeling
- > Water rights adjudication
- > Evaluation support for Water Court



State Water Administration

Colorado Water Conservation Board

- > Stakeholder engagement and roundtable coordination
- > Water supply planning
- > Grant funding
- > Instream flows

Water Conservation/Conservancy Districts

- > Voter mandated
- > Funded by property tax levy
- > Purpose-created for specific management tasks
- > 4 conservation districts, 76 conservancy districts



Water Banking and Water Marketing

State Water Market

- > Regulated private market
- > Administered and regulated by Water Court process

Transbasin Diversions

- > Interbasin transfers for supplemental municipal supply
- > Shareholder allocation system

Alternative Agricultural Transfer Method Program

- > Alternatives to "buy-and-dry" transfers
- > Local and regional water banks
- > Conserved water pools for reduced agricultural use



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Colorado Water for the 21st Century Act

Basin Roundtables and Interbasin Compact Committee

- > Improved stakeholder integration in policy and planning
- > Improved water market visibility

Basin Implementation Plans

Colorado Water Plan/State Water Supply Initiative

- > Iterative processes
- > Distributed information-gathering process



Case Study: Idaho



Points of interest

- > Statewide adjudication
- > Idaho Water Supply Bank = agency-managed statewide water exchange market
- > Conjunctive administration bolstered by precision of groundwater monitoring
 - > METRIC and aquifer modeling
- > Extrajudicial water management
 - > Settlement Agreements



Adjudication

- > Snake River Basin Adjudication project was estimated to cost \$27 million and take 10 years to complete. The process actually took \$94 million and 27 years to finish.
 - Vast majority of adjudication was financed by Idaho's general fund
 - Fully adjudicated federal and tribal claims
- > Northern Idaho Adjudication authorized later, and currently underway. Bear River Basin is set to follow.
 - Original intent to make self-funded for these smaller basins, but idea was met with a lot of push back



Water Supply Bank

- > Authorized in 1979
- > Water rights holders can store their water rights for up to 5 years
 - Freezes forfeiture clock
- > Banked rights can be rented for other private beneficial uses or by IWRB to meet minimum stream flows for ESA-listed fish or hydro
 - Rents about 700,000 AF/yr
- > IDWR charges:
 - \$250 for lease applications, and
 - 10% of approved rentals (at \$20/AF)

Water Supply Bank



Water Supply Bank



> Operates at a loss of about \$150,000 per year

- IDWR is considering proposing a rule to charge for rental application fees as well

ESPAM, METRIC, and Conjunctive Administration

- > First developed model in 1970s
- > East Snake Plain Aquifer Model accuracy facilitates conjunctive administration
 - Beginning in 2000, IDWR began using METRIC
 - Gives ET data at 30x30m
 - Sentinel wells and 1000s of readings



SWC-IGWA Settlement Agreement

- Court decision ruled IDWR injury determinations methodology was unfair to surface water users
 - New injury determinations found every 4-5 years would have calls on 70-80% of pumping



ESPA - Cumulative Change in Aquifer Storage



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SWC-IGWA Settlement Agreement

> Provisions of agreement

- ESPA aquifer levels would return to 1991-2001 levels by 2026
- Groundwater users given safe harbor
- Groundwater irrigators shorten their season to April 1 October 31
- All groundwater diversions would require flow meters
- IDWR would monitor 20 sentinel groundwater wells
- Support the Board in meeting its goal of recharging an average of 250,000 acre-feet per year
- > Added municipalities in 2nd Settlement Agreement



Case Study: Nebraska



Background & Context

- > Ogallala aquifer
 - 76% of Nebraska irrigation water
 - 8 maior river basins







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Groundwater-Level Changes in Nebraska - Spring 1981 to Spring 2018

(1 foot = .3048 meters)

For an explanation of information presented on this map, see the 2018 Nebraska Statewide Groundwater-Level Monitoring Report, available for download at go.unl.edu/groundwater CONSERVATION AND SURVEY DIVISION (http://snr.unl.edu/csd) School of Natural Resources (http://snr.unl.edu) Institute of Agriculture and Natural Resources University of Nebraska-Lincoln

Aaron Young, Survey Geologist, CSD Mark Burbach, Water Levels Program Supervisor, CSD Les Howard, GIS Manager, CSD

Data provided by:

Nebraska Natural Resources Districts

Central Nebraska Public Power and Irrigation District

U.S. Geological Survey Nebraska Water Science Center

U.S. Bureau of Reclamation



Legal Framework

> Correlative Rights for groundwater

- > Conjunctive management
 - LB962 and Integrated Management Planning
- > Instream flows
 - 3 statewide, are junior to most other rights
- > Legal Uncertainty
 - Domestic preference
 - Unclear conflict resolution between surface and groundwater users



Water Management Structure

> Surface Water

- Managed by State Department of Natural Resources

> 23 Natural Resources Districts (NRDs)

- Manage groundwater
- Follow major basin boundaries
- Broad authority
- Unique combinations of groundwater management tools
 - > Allocations
 - > Required flow meters
 - > Land occupation taxes



Nebraska Natural Resource Districts





Groundwater Markets

> Scarcity in Western Nebraska

- NRDs declared fully or over-appropriated after LB962
- Republican River Compact
- Platte River Recovery and Implementation Program (PRRIP)
- Aquifer declines
- > Unique market structures
 - Groundwater management tools
 - Water transfer rules



Groundwater Markets

- > 5 Western Nebraska NRDs
 - Formal and informal markets
- > Smart markets
 - Twin Platte
 - South Platte
 - Central Platte
- > Incentive Program
 - Tri-Basin



Findings





Local Governance & Stakeholder Engagement

- > Collaborative roundtables generate social capital
 - Colorado: seen as crucial for tackling future water supply challenges

- > Regular engagement with a variety of stakeholders
 - Idaho: legislators and politicians crucial to the success of settlement agreements





Local Governance & Stakeholder Engagement

- > Emphasis on local conditions and management structures
 - Nebraska:
 - > Flexibility to tailor rules and regulations as appropriate
 - > Affords NRDs credibility
 - > Builds trust and allows for easier engagement





Formal Water Banking & Marketing Structures

- > Unique and innovative structures (e.g. water courts)
 - Colorado: enable a well-functioning private market
 - > Increase transparency and decrease the scope of litigation
- > Introduction of fee structure for lease applications to partially fund operation
 - Idaho: no impact on demand from Water Supply Bank leasing fee
- > Details of regulatory structures are important
 - Nebraska: mixed results with smart markets and incentive programs





Importance of Adjudication

> Idaho: stakeholders perceived adjudication as necessary condition to implementing conjunctive administration

> Colorado: stakeholder see adjudication as enabling framework for healthy water markets



Questions?

