

Factors Influencing the Expansion of Environmental Water Markets

Alex Bennett | Lillian Burns | Adriel Leon | Martin Merz | Patricia Song

Project Advisor: Gary Libecap

<http://www.bren.ucsb.edu/~envmarkets>



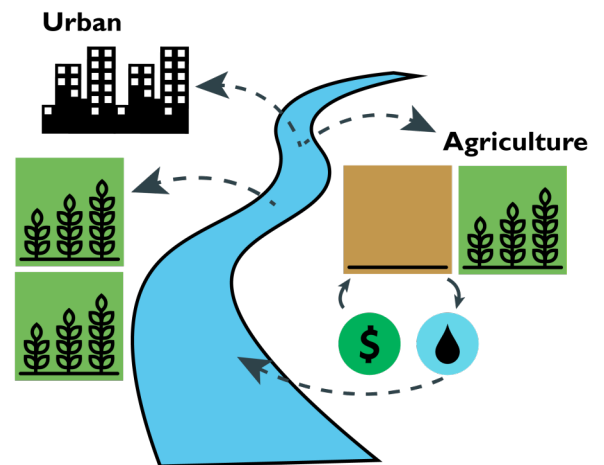
Spring 2016



ENVIRONMENTAL PROBLEM

Growing water demand in the western United States has led to the reduction and even loss of stream flows that provide ecological benefits for fish and other wildlife. Environmental water markets provide a means to redistribute water from existing uses, such as agriculture, back into dewatered streams.

Many obstacles have prevented non-profit organizations and government agencies from expanding environmental water markets to the scale necessary to address the widespread need for streamflow to maintain ecological health.



? What factors help water markets return water to dewatered streams?

PROJECT OBJECTIVE

1. *What conditions enable current environmental water markets?*
2. *What strategies allow environmental water buyers to expand environmental water markets?*

APPROACH

1. Build a structure for analyzing conditions that enable environmental water markets.
2. Compile and analyze information regarding program operations and environmental water market outcomes.
3. Analyze interview findings to identify the key obstacles to expanding environmental water markets and highlight strategies for overcoming them.

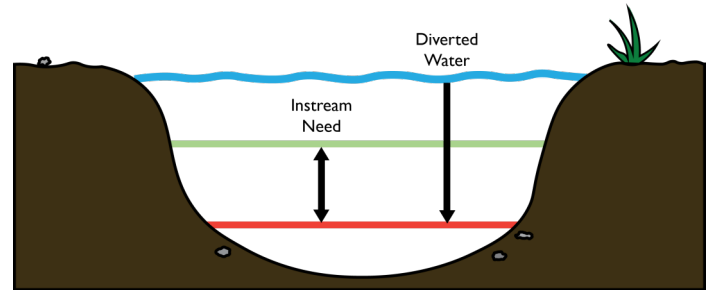
CONDITIONS SHAPING ENVIRONMENTAL WATER MARKETS



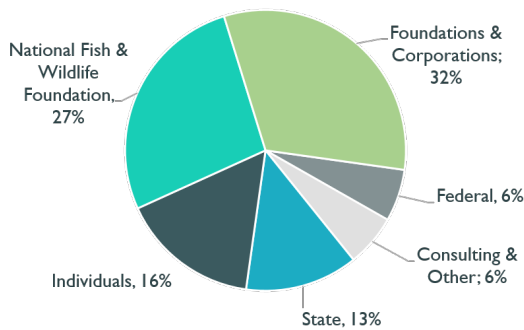
ENVIRONMENTAL WATER DEMAND

Instream need

The amount of water needed for a stream is based on the difference between how much water remains after diversions and how much water is needed for healthy ecosystem function.



Deschutes River Conservancy Funding by Source (2014)



Funding Sources

By balancing diverse funding from state, federal, and private sources, environmental water buyers have flexibility to focus their efforts wherever they will be most effective. Having multiple funding sources also protects environmental water buyers against fluctuations in funding from individual sources.



ENVIRONMENTAL WATER SUPPLY

Crop Characteristics

The type, value, and seasonality of crops can affect the participation of water right holders in a market. Water right holders growing low value crops are more likely to fallow their crops and engage in leases of water rights.

Water Availability

The location of water right diversions should be taken into account in order to ensure that water is returned to streams and protected in target areas. The presence of irrigation organizations and irrigation infrastructure characteristics must be considered in regard to whether water is available for transfer.

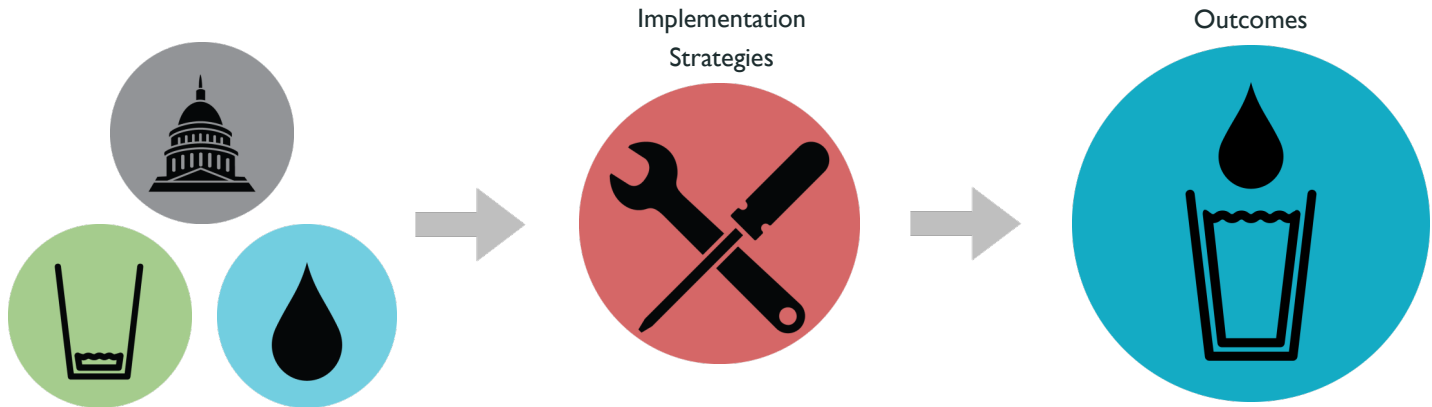


LEGAL STRUCTURE

A state's legal framework and implementation of laws can amplify an environmental water buyer's efforts or make them more costly. Transferability of water rights and recognition of environmental flow as a beneficial use are critical to traditional environmental water transactions. The time it takes a regulator to review a proposed transaction can raise transaction costs and make it more difficult to return water to streams.

State	Average Review Time
California	1.3 years; 4 months (short term)
Colorado	6.5 years
Idaho	3.8 months
Montana	1.5 - 2 years
Oregon	2.8 years ; 30 - 40 days (short term)
Texas	1 year
Utah	1 - 2 years
Washington	0.5 - 6 years
Wyoming	1 year

How do these conditions come together?



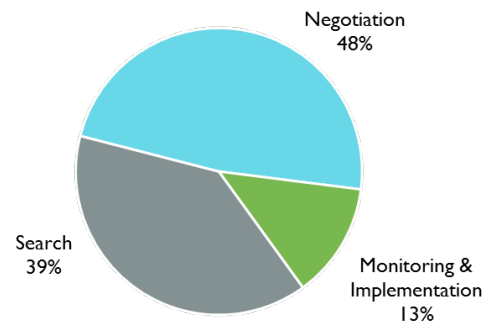
The legal structure provides environmental water buyers with a range of options for engaging in transactions, which can be taken into a specific region with its own demand and supply scenario. The methods that best suit the target area become the implementation strategies for an environmental water buyer. The range and flexibility of these implementation strategies affect the relative success of returning water to dewatered streams.

PROGRAM OPERATIONS

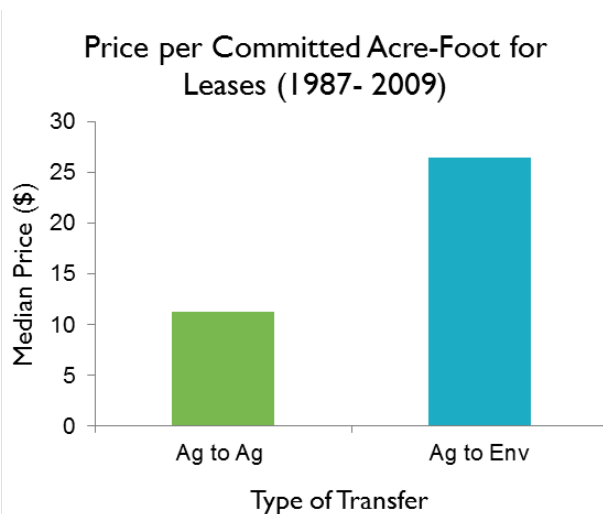
Transaction Costs

The high costs associated with searching for water right holders, negotiating with potential sellers, and the implementation and monitoring of transactions are barriers to developing environmental water markets. Lowering transaction costs is an important component of expanding environmental water markets.

Washington Water Trust Transaction Costs for 2015 Dungeness River Basin



Water Valuation



Environmental water buyers pay a premium when leasing water from agricultural producers. There is sometimes tension regarding how environmental water buyers place a value on water, because their valuation does not account for the ecological value of streamflow. Environmental water buyers would have a more concrete value from which to negotiate if they could consistently and transparently demonstrate the relative ecological value of streamflow over space and time.

RECOMMENDATIONS AND STRATEGIES

- Buyers must clearly understand seller operations to identify mutually beneficial transactions
- Environmental water valuation should be transparent and incorporate relative ecological benefits
- Diverse funding sources allow for flexibility in identifying and managing beneficial projects
- Focused development and effective pilot projects help affect policies and regulation
- Understand how the market administrator can impact market engagement
- Develop replicable steps to obtaining water using available tools

CONCLUSION

Environmental water buyers are faced with barriers to expanding markets, ranging from legal hurdles to mistrust from water right holders. Unfortunately, there is no silver bullet solution to improving environmental water markets across the West. If environmental water buyers align themselves with water right holders, and focus on identifying and overcoming barriers on a community level, they can tailor their approach locally and be more effective at developing environmental water markets across the western United States.

If environmental water buyers across the western United States utilize these strategies, and continue to research and develop creative new approaches, they will be successful in continuing to operate within evolving circumstances to restore streamflow, expanding environmental water markets to a scale that can meet the overwhelming need for restored flow in the West.



ACKNOWLEDGEMENTS



We would like to thank our advisor, Gary Libecap; our clients, Nicholas Brozović and Richael Young; and our external advisor, Michael Jolliffe. We would also like to thank Amanda Cronin and all the individuals who took the time to speak with us.