

**A Framework for Developing a Score Card for Enabling Conditions for
Environmental Water Transactions in the Colorado River Basin**

Literature Review and Organizing and Scoring Approach

FINAL

March 2017

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The logo for AMP Insights features the text "AMP Insights" in a bold, sans-serif font. Below the text is a blue, wavy line that resembles a stylized water surface or a signal waveform.

Acknowledgements

This report was funded by the Walton Family Foundation. The authors would like to thank the following individuals for their review and feedback on this Framework Report: Morgan Snyder and Ted Kowalski (Walton Family Foundation), Season Martin (The Nature Conservancy), Robert Wiggington (The Nature Conservancy), Mary Kelly (Culp Kelly LLP), Laura Ziemer (Trout Unlimited), and Gary Libecap (University of California Santa Barbara). All errors and omissions remain the property of the authors.

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1. Introduction

Among the range of possible adaptations to water scarcity in the western U.S., water transactions present a unique opportunity for helping to meet water supply challenges. At their best, water transactions, the market-based transfer of water between users and/or uses, are an efficient and equitable mechanism for moving water where and when it is needed most. Water transactions also represent one of the only reliable mechanisms available to shift some of the allocation of scarce water supplies to environmental uses that were historically left out of initial water allocation decisions. However, the ability to carry out water transactions varies widely across the West based on a number of factors. Hydrologic, social, political, economic, legal, and other factors influence the uptake and availability of water transactions as both a useful tool for the environment and more generally. However, a primary limiting factor of water transaction implementation, especially in support of environmental goals, is the absence of or deficiency in the underlying laws and policies required to enable water transactions.

A growing field of study is focused on these underlying laws and policies, covering both their presence or absence and their specific contours and effectiveness. Some of these studies focus only on environmental water transactions while others focus on transactions more broadly. Whatever the focus, the literature generally agrees that, while there is no silver bullet for fostering environmental and other water transaction activity, key legal and policy mechanisms exist that, when in place and functioning effectively, can combine to encourage transactions. The existing studies broadly ask the question: what is the ideal set of laws and policies to foster environmental and other water transaction activity? Another way of posing this question is to ask what “enabling conditions” are necessary for all types of water transactions to be possible and, better, be readily available and practical to implement as a response to water scarcity?

This report builds on previous studies and presents a framework for analyzing legal and policy “enabling conditions” for carrying out *environmental* water transactions in the Colorado River Basin. It is critical to emphasize that this framework is only focused on legal and policy conditions and not on the other conditions and drivers of transaction activity (social, political, etc.). In the absence of effective legal and policy enabling conditions, environmental water transaction activity is still possible through a variety of project types that work around legal deficiencies. These *workarounds*, important as they are, are not the focus of this report.

Beginning with a literature review on the topic, this report develops a framework for scoring and grading a small set of critical legal and policy enabling conditions at the state level. This scoring in turn will be used to develop a “Score Card” on environmental water transaction enabling conditions in Colorado River basin states. The intention is for this framework to be adopted by an educational institution that will publish an annual “Score Card” that tracks if and how the enabling conditions identified herein change year-to-year. To this end, this report identifies enabling conditions for the Score Card and develops a scoring and grading rubric for analyzing the presence or absence and effectiveness of enabling conditions within each state in the Colorado River Basin.

2. Literature Review: Recent Studies of Water Transaction Enabling Conditions

A number of recent reports catalogue and analyze conditions for water transactions generally and environmental water transactions specifically in the Colorado River Basin and the western US (Schempp 2009; Garrick, McCoy, and Aylward 2011; Costello and Libecap 2013; Culp, Glennon, and Libecap 2014; Szeptycki et al. 2015). These studies provide insight into different approaches to evaluate enabling

conditions. While all the studies can be reasonably said to examine enabling conditions, only one of the studies uses the term “enabling conditions.” The studies also differ in their geographic scope, with some focusing on all the western states while others focus on a subset of states or a single state. Finally, while some studies focus on water transactions for environmental benefit, other studies focus more broadly on water transactions and water transfers of all types and for all purposes. Before reviewing the studies, it is important to define three terms used in the literature review and the remainder of this report: “environmental water transactions,” “conserved water,” and “enabling conditions.”

After defining these terms, this section outlines recent reports on the topic, highlighting the reports’ overall approaches and the range of enabling conditions (whether referred to as such or not) discussed by the various authors. The review of previous studies concludes by highlighting some broad areas of agreement among the reports and describing how the previous work specifically informs the choice and analysis of enabling conditions for the Score Card.

2.1 Defining Environmental Water Transactions

Because enabling conditions for *environmental water transactions* are the focus of this report and of the Score Card that will be developed based on this report, it is critical to define environmental water transactions. Aylward (2013) developed a detailed definition of the term *environmental water transaction*:

An environmental water transaction is any agreement (or set of related agreements) by which a water right holder, contractor, or user commits to a change in their water use and/or water right leading to legal or de facto protection of additional water in a waterway or water body to serve environmental purposes.

This definition includes a number of key concepts: a buyer and a seller; a water right/water use; some type of protection afforded to the water involved; a set of agreements; and an addition of water for an environmental purpose (Aylward 2013). Importantly, Aylward’s definition includes transactions that do not involve formal changes to water rights to effectuate environmental protection. This report however, is only focused on enabling conditions for formal water right changes. Additionally, a few the studies in this literature review section refer more generally to *water transfers* or *environmental water transfers* rather than *environmental water transactions*. The term *transfer* often conflates one or both of a change in ownership (purchase, lease, or encumbrance) with a change in the parameters of the water right to protect environmental flows (for example a change from irrigation to environmental flow use), however it is important to recognize that that these two changes need not always go together. For the purposes of this report then, the key element of an environmental water transaction is the formal change in one or more parameters of an existing water right that result in environmental flows whether or not this change is also accompanied by a change in ownership of the right.

2.2 Defining Conserved Water

Perhaps no terms in the water management lexicon are used to mean more different things than *conserved water* and *water conservation*. Some of the confusion is because the term “conservation” itself is broadly used for two different things: reducing water use and, more generally, describing preservation, restoration, and other environmental water-related activities. Confusion also stems from the fact that *water conservation* is often used to describe either or both of a reduction in the consumptive use of water and/or a reduction in the leakage and other types of inefficiencies that result from certain water management actions.

For the purposes of this report, the terms “conservation” and “conserved water” have the meanings outlined by Aylward (2008). Aylward differentiates between actions that reduce leakage and other water management inefficiencies, from actions that reduce consumptive use of water, and reserves the terms “conservation” and “conserved water” for application to the former category of actions (2008). In other words, the terms reference water management actions that reduce the amount of water that must be diverted to serve end uses, rather than reductions in the amount of water consumed by those end uses. It should be noted however, that some of the literature reviewed does include reductions in consumptive use under the general terms of “water conservation” and “conserved water.” It is especially important to note that in the Colorado River Basin, the term “water conservation” is often equated only with the reduction of water consumption or export, as distinguished from improving the efficiency of an irrigation or other water supply system without reducing water consumption or export.

2.3 Defining Enabling Conditions

It is similarly important at the outset to define the phrase “enabling conditions” as it is used in this report. According to the Merriam Webster Dictionary, “enable” means “to make (something) possible, practical, easy.” At a minimum then, the term “enabling conditions” is used in this report to refer to a range of legal and policy conditions that make environmental water transactions possible. However, simply because water transactions are technically possible does not mean they will occur. Therefore, the framework for analyzing enabling conditions developed in this report attempts to determine whether enabling conditions in the Colorado River basin states make water transactions practical or even easy.

The following sections introduce and briefly discuss five recent studies that discuss enabling conditions from a variety of different perspectives. The studies are discussed in chronological order.

2.4 The ELI Handbook: Western Water in the 21st Century: Policies and Programs that Stretch Supplies in a Prior Appropriation World

In the ELI Handbook, Schempp (2009) identifies specific legal hurdles to sustainable water management under the doctrine of prior appropriation and then, by highlighting existing programs and strategies, identifies ways to overcome these hurdles. The ELI Handbook concludes with recommendations for changing state water laws to better address a more water scarce future.

2.4.1 Approach

The ELI Handbook uses successful examples of innovation either within, or as modifications to, the prior appropriation doctrine, to illustrate necessary changes to state water laws that could increase resiliency of water management. The Handbook is not specifically focused on encouraging additional market-based water transaction/transfer activity, but in practice, many of the highlighted examples are transaction/transfer-related. Schempp (2009) begins by identifying three principles of prior appropriation that present challenges to sustainable water management: the risk of forfeiture and abandonment, time-intensive transfer and change-of-use procedures, and restrictions on using conserved water. Under each of these headings then, the ELI Handbook develops specific as well as general recommendations for overcoming challenges.

2.4.2 Enabling Conditions Identified in the ELI Handbook

As with much of the literature reviewed for this report, the ELI Handbook does not use the term “enabling conditions” to describe the focus of its analysis. Instead, Schempp (2009) focuses on three big-picture changes that could facilitate more sustainable water management.

Table 1: Enabling Conditions Analyzed in the ELI Handbook

1.	Reduce the active disincentives against using less water and supporting future supplies by adding to the definition of “beneficial use” or exempting more activities from forfeiture and abandonment
2.	Allow the use of conserved water for another purpose without losing the water right and its priority
3.	Accelerate the transfer process, particularly for short-term transfers and motivate a broad suite of transfer types

Within each of these three big-picture changes, Schempp (2009) discusses specific examples illustrating how each change can increase water management sustainability.

Table 2: Examples of Enabling Conditions from the ELI Handbook

Reduce the active disincentives against using less water and supporting future supplies by adding to the definition of “beneficial use” or exempting more activities from forfeiture and abandonment; Allow the use of conserved water

Examples	1.	Remove the threat of forfeiture based on non-use from state law (as in Nevada)
	2.	Include water conservation within the definition of beneficial use (as in California and Texas)
	3.	Exempt conserved water from the risk of forfeiture due to non-use (as in New Mexico, Oregon with specific conditions, Idaho, Utah with an application for exemption, and in Colorado for specific types of projects)
	4.	Classify environmental/recreational water uses a beneficial use (either private or public trust rights)
	5.	Include use of water for mitigation as beneficial use (Idaho, Montana)
	6.	Include underground storage in the definition of beneficial use (Montana, California, Utah)
	7.	Include source substitution in the definition of beneficial use (Arizona, California, Oregon, Washington)
	8.	Exempt water enrolled in water banks from forfeiture (Idaho, Colorado, Texas)
	9.	Exempt “substantially used” water rights from forfeiture (Utah)

Table 3: Examples of Enabling Conditions from the ELI Handbook

Accelerate the transfer process, particularly for short-term transfers and motivate a broad suite of transfer types

Examples	1.	Allow the use or sale of conserved water (California, Oregon, Washington, Montana, New Mexico)
	2.	Accelerate the transfer process (Expedited review for certain types of transfers in California, Colorado, Wyoming, Idaho, Washington)
	3.	Protect third parties from various water and land related harms when water is transferred (Colorado (revegetation protections), Wyoming (various injury restrictions, including economic harm), California (delivery capacity protections))
	4.	Make time, place, and use more flexible (Nevada (rotational water use for groups of irrigators), Oregon (split season instream rights),

2.4.3 Conclusions from the ELI Handbook

Schempp (2009) draws from concrete examples in the western states to develop a list of potential mechanisms for increasing sustainable water management. From this diverse list of examples, the ELI Handbook develops three simple conclusions. Reducing disincentives to using less water, allowing the use of conserved water, and accelerating transfer processes and allowing for a more flexible set of transfer types can meaningful move water management toward sustainability. While the approach of presenting

examples is less normative than other literature reviewed, it nonetheless produces an insightful “menu” of enabling condition examples that can be adopted or modified to fit specific state contexts.

2.5 The Cornerstones Report: Market-based Responses to Arizona’s Water Sustainability Challenges

Garrick et al. (2011) wrote the Cornerstones Report to identify “foundational elements” required to develop and implement market-based solutions to support both water users and the environment in the face of competition over scarce water resources. Within this broad goal, the Report focuses more specifically, on how market based tools can contribute to the protection and restoration of ecosystem water needs.

2.5.1 Approach

The Cornerstones Report is focused on water law and policy in Arizona. The Report begins by defining three broad strategies to achieve what it calls “water sustainability:” supply strategies, demand strategies, and reallocation strategies. Market-based reallocation strategies for the environment are explored in depth, along with analysis of necessary conditions, which the Cornerstones Report refers to as enabling conditions, for market-based reallocation. Under the heading of market-based reallocation, the Report examines enabling conditions necessary for general market-based reallocation as well as conditions specifically required for market-based reallocation for environmental purposes. Though the Cornerstones Report is focused on Arizona, many of its conclusions, and especially its analysis of enabling conditions, is more broadly applicable to the Colorado River basin because many states in the basin share most, if not all of Arizona’s water supply challenges.

2.5.2 Enabling Conditions Identified in the Cornerstones Report

As mentioned above, the Cornerstones Report groups enabling conditions in general market-based conditions and conditions specifically relevant to environmental purposes. Tables below show the enabling conditions analyzed by the Report.

Table 4: Cornerstones Report Enabling Conditions for Market-Based Reallocation for General Purposes

1.	Appropriation of surface water and groundwater for beneficial uses is well defined, subject to priority, and permits/rights are tradable
2.	Appropriation of new groundwater permits and management of existing groundwater rights adequately accounts for impacts on surface water
3.	Reclaimed wastewater is permitted and is tradable via contractual agreement
4.	Appropriation of groundwater adequately accounts for overdraft and plans for long-term sustainable supplies
5.	Mitigation for groundwater appropriations can be provided through the recharge-and-recovery of water

Table 5: Cornerstones Report Enabling Conditions for Market-Based Reallocation for Environmental Purposes

1.	Use of water for environmental purposes including water for IS flows, riparian habitat, and off stream needs in floodplains/wetlands recognized as a beneficial use
2.	Permanent or long term change of out of stream rights to environmental purposes (sever and transfer) is permitted, without loss of priority and subject to normal injury review
3.	Short term change of out of stream rights to environmental purposes is permitted without loss of priority and subject to expedited injury review
4.	Residual environmental water is protected, either through limits on further appropriation (closure) of surface water and groundwater (including exempt wells), or through a system of instream water rights of junior priority
5.	Appropriation of groundwater rights in closed basins is allowed when accompanied by effective mitigation for surface water rights
6.	Appropriation of non-consumptive water saved through demand management (conservation) by the proponent is permitted for 'spreading' to other non-consumptive uses, particularly environmental uses

2.5.3 Conclusions of the Cornerstones Report

Garrick et al. (2011) conclude that Arizona has a number of key enabling conditions for general market-based reallocation in place but that their implementation could be improved. Despite general enabling conditions being present in Arizona, the Cornerstones Report found that Arizona lacks several key, more specific, enabling conditions for reallocation of water for environmental purposes. A key insight of the Cornerstones Report is that the simple presence of enabling conditions for water reallocation may not be enough and that how existing policies are implemented is perhaps more important than the simple presence/absence of a list of enabling conditions. These conclusions are a key insight for this report and help to focus this report on enabling condition effectiveness rather than simple presence/absence.

2.6 The University of California Santa Barbara (UCSB) Report: Design Principles for Water Markets: Colorado River Basin

In outlining design principles for water markets in the Colorado River basin, Costello and Libecap (2013) outline a set of “water market fundamentals,” “barriers to development of instream flow markets,” and also draw from experience with water and other ecosystem markets both internationally and domestically to develop their conclusions.

2.6.1 Approach

Costello and Libecap (2013) studied more than 50 different types of markets to draw conclusions for designing water markets in the Colorado River basin. Analyzed markets ranged from water markets in Australia, Chile, and South Africa, to habitat conservation markets, air pollution markets, fisheries markets and water quality markets.

2.6.2 Enabling Conditions Identified in the UCSB Report

Rather than develop a specific set of enabling conditions for the Colorado River basin, the UCSB report develops three broad principles for designing and encouraging environmental water markets. Table 6 below outlines these principles.

Table 6: Design Principles for Environmental Water Markets from the UCSB Report

1.	Focus on furnishing as much information as possible about market fundamentals, characteristics and status of water resources, and the application of relevant regulation
2.	Effort should be dedicated to measuring and adjudicating existing surface water rights and provide secure, transparent property rights
3.	Seek broad political agreement about the extent of and limitations on market development <i>ex ante</i>

2.6.3 Conclusions of the UCSB Report

Unlike the other reports reviewed here, the UCSB report focuses on the context within which environmental water markets thrive rather than specific conditions for increasing market activity. Despite the lack of more specific enabling conditions, this is a critical contribution to the literature because it helps to illuminate the underlying needs for market development. Specifically, Costello and Libecap (2013, 42) conclude that environmental markets “function best when individuals hold clear, secure property rights,” and that “scientific and regulatory uncertainty can undermine the security of property rights.” These two conclusions provide a necessary underpinning for developing enabling conditions that cement the security of property rights, including enabling conditions that clarify and quantify water rights available for transfer. The UCSB report also highlights a conclusion that is beyond the scope of this report but also a critical observation: because environmental water markets impact a broad base of stakeholders, markets must be inclusive and supportive of existing right holders and interest groups or they may fail. This conclusion does not lend itself to enabling conditions, but does further support the concept that environmental water transactions must occur in a transparent way that includes multiple stakeholders. That conclusion does have implications for enabling conditions, mitigating in favor of public participation and inclusiveness when practical. While the UCSB report does not provide a list of enabling conditions, it does provide useful insights into the context in which environmental markets thrive. At a broad level, this context functions like a meta-enabling condition, providing a foundation on which law and policy can be built to encourage environmental water market activity.

2.7 The Brookings Paper: Shopping for Water: How the Market Can Mitigate Water Shortages in the American West

The Hamilton Project, an economic policy initiative of the Brookings Institute, provides a platform for leading economic and policy experts to propose innovative policy options. Writing for the Hamilton Project, Culp et al. (2014) developed a five-part policy proposal to “encourage broader establishment and use of market institutions to encourage reallocation of water resources and to provide new tools for risk mitigation.” These policy proposals are meant to apply to broadly in the western United States.

2.7.1 Approach

Culp et al. (2014) developed five broad policy proposals with detailed recommendations under each proposal. The Brookings paper, unlike some of the other papers reviewed in the current report does not focus on environmental water transactions, but rather is focused on increasing market-based reallocation of all kinds, including some specific recommendations for reallocations to environmental and instream uses. However, the Brookings paper does operate with the broad understanding that increasing overall water market activity will increase opportunities for environmental/instream reallocation. The Brookings paper begins by outlining known challenges to water allocation and reallocation in the West including population and economic growth, environmental stress of overallocation and use of water, increasing supply volatility, and the disjunction between rural and urban water consumption and pricing. The paper then delves into its five policy proposals. Like the Stanford paper and others in this Report, the Brookings Paper does not characterize its policy proposals as enabling conditions. However, the authors’ call to

introduce policy changes that foster broader establishment and use of market institutions is in line with the concept of enabling conditions used in this report.

Additionally, the Brookings Paper also includes a useful description of existing laws, regulations, and practices that impede water transfers (Table 7 below). These impediments act as the opposite of enabling conditions and help frame the discussion of changes necessary to better enable water transactions.

Table 7: Legal and Regulatory Impediments to Water Transfers

Name of rule or doctrine	Description	Effects
Appurtenancy doctrine	Legally links the ownership of water rights to the ownership of those particular lands.	This doctrine creates an important barrier to water trade; typically, special procedures must be followed to sever and transfer the right from one place of use to another.
No-harm-to-juniors rule	Permits surface water transfers only if the owner of the rights shows that the transfer will not harm other appropriators.	This rule significantly increases the transaction costs of any exchange, and thus generates a disincentive to transfer by prolonging the transfer process and creating uncertainty about the scope of water rights.
Anti-speculation doctrine	Requires the applicant for a transfer to demonstrate precisely the new location, purpose, and use of the water.	This doctrine raises the transaction costs of exchanges and therefore discourages transfers in many states.
Beneficial use doctrine	Requires that all water be used for a beneficial purpose. Water not used may be deemed abandoned or forfeited.	This doctrine creates incentives for water owners to ensure its use every year, regardless of efficiency or the potential consequences, in order to avoid the permanent loss of the water right.
Salvaged water doctrine	Prohibits water users from obtaining the benefits of water that they conserve because the conserved water will be used by other senior appropriators.	This doctrine effectively encourages overuse of water because it does not allow farmers and other parties who reduce their water use to use, lease, or sell conserved water.

Source: Culp et al. (2014)

2.7.2 Enabling Conditions Identified in the Brookings Paper

As mentioned above, the Brookings Paper identifies five policy proposals and adds detail to each proposal in the form of specific mechanisms to facilitate the proposals. The five policy proposals and detailed mechanisms are outlined below in Table 8.

Table 8: Brookings Paper Policy Proposals

Facilitate effective short-term water trading

- Link water rights to the amount consumed rather than the amount diverted
- States should jettison the anti-speculation doctrine because it operates to discourage transfers in many states; at a minimum, states should provide an exception to allow for short-term transactions
- Allow conserved water to be sold, leased, or exchanged
- Allow for temporary or seasonal suspension of irrigation of high water use crops without risking forfeiture
- Require irrigation districts/ditch companies to develop rules and regulations that quantify the water rights of farmers in the districts, and that create incentives for farmers to use less than their full allotments (example: allow short term leases with 25% of water or revenue leased be returned to district to mitigate impacts)

Create basic market institutions to facilitate trading of water: Water Banks and Exchanges

- Establish effective frameworks and trading platforms (for example online exchanges and/or water banks) for markets to operate at a variety of scales (watershed, regional, urban and agricultural areas/districts)
- To facilitate the exchange of information necessary for effective exchanges and water banks, states should develop a central registry of water rights that includes characteristics such as location (watershed), designation of surface or ground, priority, type of use (e.g., agricultural or municipal), list of rights holders, diversion amounts, historical consumptive uses, and recent exchanges, including amounts, duration, and prices paid.

Use risk mitigation strategies to enhance system reliability

- Facilitate water trading between users/uses (example: alfalfa to almonds) during times of shortage
- Facilitate tradable reservoir storage
- Allow reservoir users to carry over unused supply or define entitlements as a share of available storage
- Authorize distinct and tradable entitlements for delivery capacity (wheeling)
- Encourage and expand the use of water trusts to mitigate environmental risk

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Protect groundwater resources

- Quantify existing pumpers' groundwater rights and require pumpers to register wells and install meters
- Invest in better groundwater data collection and reporting
- Require groundwater use to be based on established groundwater budgets for individual groundwater basins, where feasible based on sustainable yield
- Where recharge is feasible, provide incentives including tradable credits for recharged water
- Require permits for drilling new groundwater wells

Continue and expand federal leadership

- Facilitate large scale planning and interstate cooperation
 - Develop critical data and information
 - Modernize management of existing federal projects
 - Reform existing federal agriculture policies
-

2.7.3 Conclusions of the Brookings Paper

The Brookings Paper offers a comprehensive and detailed discussion of many specific mechanisms for better enabling market based water transfers in the West. In addition, the Paper also offers a useful list of existing impediments to water transfers that helps frame the necessary changes for better facilitating water transfers. The overall conclusion of the Brookings Paper is that expanding opportunities for water trading has benefits including:

- Meeting demands of changing economies and growing populations;
- Encouraging conservation and stewardship to help address cultural, social and environmental priorities; and
- Managing increasing risks of variability in water availability and supply.

At the root of these conclusions is the assertion that existing structures for managing water in the West are not flexible enough adapt in the face of changing water supplies and other challenges. The enabling conditions identified in the Paper then, are aimed at increasing the ease of moving water between users and uses both through legal and regulatory changes, as well as through development of other support structures and platforms. While several of the conditions analyzed in the Brookings paper are beyond the scope of this report, some of them are critical for this analysis. Specifically, the Paper’s call to protect groundwater resources and manage ground and surface water conjunctively and sustainably, and the call to facilitate short-term water transfers are critical enabling conditions for the Colorado River basin.

2.8 The Stanford Paper: Water Rights Transfers: A Review of State Laws

In cooperation and with funding from the National Fish and Wildlife Foundation (NFWF), the Water in the West program at Stanford University analyzed legal regimes for reviewing and approving environmental water transfers in twelve western states including Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Texas, Utah, Washington, and Wyoming (Szeptycki et al. 2015).

2.8.1 Approach

Szeptycki et al. (2015) limited their analysis to “transactions involving a legally recognized transfer of a water right from an existing use to an environmental purpose” that require some formal judicial or agency approval. The stated purposes of the Stanford paper were to: “analyze and compare” the laws of the twelve western states related to the “permissibility” of transfers of appropriative water rights to environmental uses; assess the extent of past transfers in each state; and identify attributes of the states’ legal regimes that facilitate such transfers. To facilitate this approach, the authors identified ten legal elements that appear in some or all of the laws and/or rules/regulations/policies of each of the twelve states. The legal elements analyzed in the paper were chosen because they could, in the view of the authors, “potentially affect the ease or certainty of different types of environmental transfers” (Szeptycki et al. 2015:12). The authors conducted a presence/absence analysis of the ten legal elements for each of the twelve states, provided additional narrative description of key strengths and weaknesses and relevant transfer activity within the individual states. Finally, the Stanford paper concludes with a set of recommendations for state legal frameworks to better facilitate environmental transfer activity.

2.8.2 Enabling Conditions Identified in the Stanford Paper

Though not specifically called “enabling conditions,” the ten legal elements identified by the Stanford paper fit within the current report’s definition of legal/policy conditions that make environmental water transactions possible, practical, or easy. The legal elements are presented below in Table 9 below.

Table 9: Stanford Paper’s Ten “Legal Elements”

1.	Whether state law explicitly recognizes fisheries habitat, recreation, or other environmental purposes as beneficial uses
2.	Whether transfers of existing diversionary rights to instream or other environmental uses are allowed by state law (whether by statute, court opinion, or agency opinion)
3.	Whether transfers of water rights for environmental purposes are explicitly recognized by statute
4.	Whether private parties can hold instream flow rights
5.	Whether permanent transfers of diversionary rights to instream or other environmental uses are allowed
6.	Whether state law explicitly recognizes short-term transactions and provides some form of expedited review for their approval
7.	Whether transfers of rights for environmental uses are subject to significant limitations that do not apply to other water rights transfers, including geographic limitations, limitations as to purpose, or more stringent procedural requirements
8.	Whether the state has a conserved water statute that explicitly allows some portion of water saved by irrigation efficiency improvements to be dedicated to environmental purposes
9.	Whether the state allows the instream uses to be added to a water right, along with diversionary uses, so that the holder of the right may “stack” instream and diversionary uses on a single water right and allocate water between the two uses without the need for additional state review or approval
10.	Whether the state’s law provides some mechanism for protecting informal short-term private transactions, such as split season agreements or forbearance agreements, from any risk for forfeiture or abandonment

In addition to simply listing the legal elements from the Stanford paper, it is interesting to look at the presence/absence of the elements in the Colorado River Basin states. Table 10 below shows the percent out of the seven Colorado River Basin states that have adopted each of the Stanford paper’s ten legal elements.

Table 10: Stanford Paper: Extent of Uptake of Legal Elements in CO River Basin States

Legal Element #	Legal Element Description	Uptake (Out of 7 CO River Basin States)
1	Whether state law explicitly recognizes fisheries habitat, recreation, or other environmental purposes as beneficial uses	7
2	Whether transfers of existing diversionary rights to instream or other environmental uses are allowed by state law (whether by statute, court opinion, or agency opinion)	7
5	Whether permanent transfers of diversionary rights to instream or other environmental uses are allowed	6
3	Whether transfers of water rights for environmental purposes are explicitly recognized by statute	4
10	Whether the state’s law provides some mechanism for protecting informal short-term private transactions, such as split season agreements or forbearance agreements, from any risk for forfeiture or abandonment	4
6	Whether state law explicitly recognizes short-term transactions and provides some form of expedited review for their approval	3
7	Whether transfers of rights for environmental uses are subject to significant limitations that do not apply to other water rights transfers, including geographic limitations, limitations as to purpose, or more stringent procedural requirements	3
4	Whether private parties can hold instream flow rights	3
8	Whether the state has a conserved water statute that explicitly allows some portion of water saved by irrigation efficiency improvements to be dedicated to environmental purposes	2
9	Whether the state allows the instream uses to be added to a water right, along with diversionary uses, so that the holder of the right may “stack” instream and diversionary uses on a single water right and allocate water between the two uses without the need for additional state review or approval	1

2.8.3 Conclusions of the Stanford Paper

After reviewing the application of their ten legal elements in the twelve western states, Szeptycki et al. (2015) formulated five broad conclusions about how to better enable environmental water transactions:

- Framework of statutes, regulations, and policies, that recognizes and facilitates a broad variety of transaction types and tailors the level of review to the significance and potential impacts of different categories of transactions.
- Streamlined but clear rules for short-term leases of five years or less, and even more streamlined review procedures for very short-term (one year or less) transfers.
- Policies for ensuring that informal, short-term forbearance agreements do not create any risk of abandonment or forfeiture of water rights.
- More streamlined tools are required for measuring consumptive use, the primary measure of the portion of a water right that can be transferred to new beneficial uses.
- Permanent institutions are critical, particularly water banks that facilitate and manage short-term environmental water transfers.

The Stanford paper’s astute conclusions provide an excellent starting place for the Score Card framework. The first two conclusions, taken together, can be summarized as calling for a set of effective water

transaction tools where effectiveness is related to the speed and clarity of the processes that underlie each tools' implementation. The paper's call for streamlined tools to measure consumptive use both facilitates the first two conclusions by speeding up processing of water right changes, and provides a more transparent informational landscape in which transactions can take place.

3. Summary Analysis of Literature Review

The papers and reports reviewed above provide a broad basis for developing a Score Card for enabling conditions in the Colorado River Basin. This section outlines key themes from the literature reviewed above.

- **The reviewed literature generally agrees on several key enabling conditions for sustainable water management:**
 - Expedited processing of short-term water transfers (including environmental transfers);
 - Ability to change the use water resulting from increased water use efficiency (“conserved water”) to new uses/users;
 - Well-defined water rights that can be easily and accurately quantified;
 - Conjunctive management of hydrologically connected surface and groundwater sources.
- **Literature focused on enabling conditions for environmental transfers largely supports some key enabling conditions:**
 - Official recognition/codification of environmental water use as beneficial use;
 - Explicit (statutory, regulatory) pathway for transferring existing out-of-stream water rights to environmental water uses while maintaining priority date.
- **Much of the reviewed literature identifies similar challenges to water transfers/transactions posed by existing law:**
 - Complex, lengthy processing of water transfers and resulting high transaction costs;
 - Uncertainty of transfer outcomes caused by lack of clarity of water right quantity and no-injury rule/analysis;
 - Existing law in many places dis-incentivizes water use efficiency by making unused water (even in the case of “conserved water”) subject to forfeiture or abandonment.
- **Existence of law/policy allowing water transfers on paper does not necessarily enable transfer/transaction activity:** Some of the studies reviewed found states that have multiple laws and/or policies in place that are necessary to enable water markets but where the amount of market activity is nonetheless low. Though it is not clear exactly why this is the case, this observation is critical and highlights a gap in the current knowledge of enabling conditions. More specifically, it raises the question of what conditions are necessary beyond the existence, on paper, of enabling law/policy?

4. Score Card Framework

Several insights from the literature review above help guide formulation of the Score Card. The degree of agreement between existing studies on key enabling conditions provides a starting point for developing a set of underlying legal and policy enabling conditions and water transaction tools that, when in place and operating effectively, can foster increased environmental water transaction activity. The key however, is not the simple presence or absence of enabling conditions. The literature review and experience in the field highlight the need for a more nuanced analysis that includes presence and absence, but also includes analysis of the effectiveness and usability of existing conditions and tools. For example, the Stanford paper demonstrates that simply because eight out of the paper's ten conditions exist in California, it does not follow that California has the most environmental water transaction activity (Szeptycki et al. 2015). Likewise, simply because all of the Colorado River basin states recognize transfers of existing diversionary rights to instream or other environmental uses by statute, court opinion, or agency opinion, it does not follow that such transfers will actually occur with any frequency (Szeptycki et al. 2015).

This section lays out the Score Card framework, beginning with the organizing principle of the framework, challenges with designing the framework, the elements that make up the Score Card, and a preliminary list of enabling conditions for inclusion in the Score Card.

4.1 Organizing Principle and Approach to Grading

At the highest level, the purpose of analyzing enabling conditions for environmental water transactions is to provide a basis for improving those conditions where necessary and thereby increasing environmental water transaction activity to achieve desired outcomes. That said the Score Card is limited to analysis of the conditions themselves and not the outcomes. Practitioners, policy makers, and stakeholders are ultimately responsible for using the analysis as a diagnostic tool for identifying needed legal/policy improvements in each jurisdiction. Over time, additional reporting will be needed to track the causal linkage between progress with respect to the policy/legal framework and on-the-ground outcomes.

The Score Card analysis is organized along four primary inquiries applied to each of the Colorado River basin states: 1) clear legal and/or administrative authority to permit and regulate water uses including environmental uses; 2) the ability to protect environmental water rights from harm and/or legal injury by third party water users; 3) the scope of environmental water rights compared to out-of-stream water rights in permitting and other legal/administrative processes and the integration of environmental water use into decision making and policy development; and 4) the process for approving environmental water transactions.

This organization is based on a theory that the ideal context for robust environmental water transaction activity is one where the necessary law and policy conditions and a diverse and user-friendly set of transaction tools are in place and inform a legal and policy setting that enables transactions, protects environmental water rights like other water rights, and integrates environmental flows into broader water management decisions. Stated differently, an effective set of enabling conditions for environmental water transactions provides diverse tools for creating environmental water rights (playing "offense"), mechanisms for protecting environmental water rights within the overall water use and water regulation context (playing "defense"), and a level playing field on which environmental water transactions are given similar treatment to non-environmental water transactions and water rights.

4.2 Challenges

With the organizing principle and approach in mind, several challenges present themselves in designing the Score Card and carrying out the grading process.

The first challenge is temporal. Many of the major enabling conditions discussed in the previous literature and that are candidates for inclusion in the Score Card are laws and policies that will change, if ever, over a long time scale. An annual report card that doesn't change annually will not be a useful tool for practitioners and policy makers. Therefore, the Score Card needs to be designed to pick up on conditions, or elements of conditions, that change as frequently as annually. In other words, the Score Card cannot simply track the presence/absence of big picture law and policy enabling conditions and transaction tools, but should attempt to track more granular, incremental progress toward bigger change.

A second challenge in designing the Score Card framework is targeting the information and analysis to the correct audience. Discussions of enabling conditions can easily become mired in technical, sometimes arcane, details of water law. The purpose of the Score Card is not to provide a forum for this type of discussion, but instead to present information on enabling water market activity for a mix of both technical and non-technical readers. On one hand, the Score Card is meant to be a tool for practitioners to track long-term progress toward better enabling conditions. On the other hand, the Score Card should also be a tool to help policy makers with a wide variety of knowledge and background on water issues to understand what can be done to foster water market activity generally, and environmental water market activity specifically. The Score Card will therefore be presented in a short, visually engaging format requiring technical information to be distilled into relatively simple graphics and limited narrative.

The final, and perhaps biggest challenge, is developing a grading process that is grounded in reality but that also leaves room for a nuanced analysis of the evolution of enabling conditions. Final grading will necessarily entail a degree of subjectivity and the challenge will be finding the right balance between objective scoring that can be completed based on factual research and subjective grading.

With all of this in mind, the following sections outline the Score Card framework, including the initial list of proposed enabling conditions for analysis.

4.3 Score Card Elements

Because the Score Card is meant to be a short, engaging format, organization and simplicity are critical. This section briefly outlines the four groups of enabling conditions analyzed by the Score Card:

- 1) Clear legal authorization;
- 2) Protection of environmental water rights;
- 3) Scope of environmental water rights; and
- 4) Process for approving environmental water transfers.

In addition to describing each grading element in more detail, the following sections also show the basis for scoring each enabling condition in the Score Card.

4.3.1 Clear Legal Authorization

Conditions analyzed under this first section of the Score Card mirror a number of the enabling conditions upon which previous studies agree. These enabling conditions provide the necessary foundation for water transactions to occur and essentially help answer the relatively straightforward questions of whether environmental water transactions are theoretically possible and whether clear pathways exist in law, administrative policy, or both. Some of this analysis will involve simple scoring based on presence or absence of conditions while other analysis will delve deeper into specific enabling conditions to determine whether they are present but not having an enabling effect due to some identifiable flaw or reliance on another condition that is missing.

Table 11: Clear Legal Authorization Enabling Conditions and Scoring

Grading Element	Related Enabling Conditions	Scoring Basis	Y	N
Legal Authorization	Permitted environmental water rights can be created through a statutory or administrative change to an existing water right	Y/N	15	0
		Basis is in formal statute or regulation? (Y/N)	0	-10
		Spatial restrictions? (Y/N)	-4	0
		Temporal restrictions? (Y/N)	-4	0
		Private ownership allowed? (Y/N)	0	-2
		New environmental right from conserved water? (Y/N)	10	0
	Are there non-transaction mechanisms for setting aside or otherwise protecting environmental flows?	Permitted Junior Rights? (Y/N)	10	0
	Exemption or protection from forfeiture/abandonment for specific actions that support environmental flows	Y/N	5	0
Maximum Score			40	

4.3.2 Protection of Environmental Water Rights

The enabling conditions analyzed in this section are broken into two basic questions. The first question is whether, once an environmental water right is created (either temporarily or permanently), that water right can be the basis for a regulatory *call* according to its priority date in the same way that traditional water rights are under the prior appropriation doctrine. The term “call” in prior appropriation is shorthand for a request by a water right holder for the state to regulate water rights junior to the callers’ water right to ensure that their water right is not being infringed by out of priority diversion. It is also important to analyze the scope of a potential call for an environmental water right – whether environmental water rights can be called in a reach below downstream diversions (which would be allowed for a senior irrigation water right for example) or whether the state applies some limitation on the reach of environmental water rights. The second question under this section is whether environmental water rights are protected from harm by two different types of groundwater pumping: pumping that occurs under a permitted groundwater right and pumping that occurs under a permit-exempt groundwater use (generally for relatively small domestic uses). In states that treat ground and surface water as separate sources (that is they do not *conjunctively* manage ground and surface water) groundwater pumping can reduce surface water flows, thereby harming environmental and other water rights. The presence of some level of conjunctive management, either protecting surface flows from permitted uses, or from permitted and permit-exempt uses, is critically important for protection of environmental water rights.

Table 12: Protection Enabling Conditions and Scoring

Grading Element	Related Enabling Conditions	Scoring Basis	Y	N
Protection of Environmental Water Rights		Y/N	10	0
	A private individual, state agency, or the public can make a "call" that will result in regulation of other water rights in favor of an environmental water right	Call only to POD in all scenarios? (Y/N)	-5	0
		Ability to protect CU past downstream diversions in at least some scenarios? (Y/N)	5	0
		Call for Conserved Water? (Y/N)	5	0
		Local regulatory/enforcement presence? (Y/N)	5	0
	New water users and existing groundwater users cannot harm or legally injure environmental water rights	GW Regulated w/Surface? (Y/N)	10	0
		Protection from New Permitted GW Wells? (Y/N)	5	0
Maximum Score			40	

4.3.3 Scope of Environmental Water Rights

This grading element looks broadly at how environmental water rights and transactions are or are not integrated into each state’s overall law and policy climate. States where environmental water transactions and water rights are more integrated into state policy and where environmental water rights can have equal footing with more traditional water right types provide better climates for successful environmental water transactions. The first inquiry is therefore whether environmental use is equal to other beneficial uses. Additionally, the question is asked of each state whether they limit environmental uses to only a specific use or broadly interpret environmental uses to include a range of benefits. The second and third inquiries under this grading element ask: whether each state has explicitly included environmental flows as part of the mission statement for its primary agency charged with administering water rights; and whether each state has either or both dedicated funding and staff for environmental flows. The theory behind these questions is that a state that explicitly lists environmental flows as part of mission, and dedicates funding and staff towards that end, will provide a more positive climate for environmental water transactions. These conditions can often be the difference between a state or state agency that encourages these transactions and works cooperatively with individuals and NGOs on these transactions, and one that discourages such transactions.

Table 13: Scope of Environmental Water Rights Enabling Conditions and Scoring

Grading Element	Related Enabling Conditions	Scoring Basis	Y	N
Scope of Environmental Water Rights		Y/N	15	0
	Recognition of environmental use as beneficial use equal to other out of stream beneficial uses	Are beneficial environmental uses limited to any specific uses narrower than broad categories (like fish and wildlife, recreation, etc.)?	-5	0
	Is there a state agency with regulatory authority that has environmental flows as an explicit part of its mission?	Y/N	15	0
	Dedicated funding and/or staffing for agency environmental flow program	Dedicated funding for purchasing and/or facilitating environmental flows? (Y/N)	5	0
		Dedicated staff for environmental flow program? (Y/N)	5	0
	Maximum Score			40

4.3.4 Process for Approving Environmental Water Transfers

The final grading element looks at the availability and effectiveness of three specific environmental water transaction tools from the perspective of the process of implementing each tool. This analysis differentiates between states that have explicit law or policy supporting a tool and states that only allow a tool based on less formal approvals (such as a court case or a State Engineer’s opinion). Then, for each tool, scoring is based on the effectiveness or usability of the tool based on actual experience, if any. These analyses involve factors such as whether a defined administrative pathway exists for implementing the tool or whether the tool is only available through a lengthier, costly process such as a judicial proceeding. Actual use of tools—whether and how much a tool has been used in the past—will also influence scores for some of the tools analyzed. Finally, when a state scores at least 6 points in the lease category, the state’s score is given an additional one point. This additional weighting reflects the importance of leasing as a tool that can lead to additional transactions in the future and helps keeps the point total for each grading element at a maximum of 40 points.

In addition to outlining the tools, it is important to briefly define each tool:

- Permanent or Long-Term Change:** This tool involves the permanent or long-term (generally five years or more) change in type of use of an existing water right to environmental use. The type of use of the existing right becomes either instream for flow restoration purposes, or environmental for uses such as watering riparian plantings. The place of use is either changed to a reach of the target stream/river or the place of use for riparian plant irrigation or other environment use.
- Lease:** This tool involves the short-term (up to five years) change in type of use of a water right. This inquiry is specifically aimed at determining whether each state has a distinct process for leases rather than requiring short-term changes of use to go through the same process as permanent or long-term changes. Experience in the Northwest has demonstrated that providing a distinct process for short-term changes of use, often with a more expedited administrative process, can provide an *on-ramp* of sorts that allows NGOs to engage with landowners without the specter of a permanent change of their water rights.
- Conserved Water:** As used here, this tool refers to a change in use of conserved water (defined above in Section 2.2) to a flow restoration or other environmental use. This analysis does not

differentiate between whether conserved water can be permanently or only temporarily dedicated to a flow restoration/environmental use.

Table 14: Process for Approving Environmental Water Transfers Conditions and Scoring

Grading Element: Process for Approving Environmental Water Transfers			Permanent or Long-Term (>5 Years) Change	Lease (1-5 years)	Conserved Water Reallocation
Enabling Conditions	Scoring Basis	Score			
Legislative/Regulatory Provisions	No explicit law or rule (statute or regulation; "workarounds" don't count)	0			
	State uses change/transfer rules not specifically designed for ISF	1			
	Explicit authorization for ISF subject to limitations (i.e. no permanent allowed)	2			
	Explicit Authorization for ISF, no limitations	4			
Approval Process	None specified in law or rule	0			
	Judicial	1			
	Administrative	3			
	Expedited	5			
Administrative Uptake	Never tried/all attempts failed	0			
	All attempts are not yet complete	1			
	Successful proof of concept	2			
	Multiple and recent successes (more than 1, 1 in last 3 years)	4			
Maximum Score per Tool (Leases are weighted +1 if they score 6 or more)			13	14	13

4.4 Proposed Score Card Scoring Process

Researchers will score each state for each of the four grading elements to arrive at a final total score for the Score Card. To the extent possible, the questions underlying the scoring have been developed so that they can be answered by readily available information in statutes, regulations, and other sources combined with interviews of experts and state agency personnel within each state. This does not imply that there is no subjectivity involved. Rather, the subjectivity is built into the grading elements, questions and enabling conditions themselves and is informed both by the experience of the authors and the literature review.

The maximum score for each grading element is set at 40 points for a total of 160 available points. Tables 15 through 18 below show the research/analysis question for each of the enabling conditions and related scores.

Table 15: Scoring Analysis for Legal Authorization

Grading Element	Related Enabling Conditions	Scoring Basis	Research/Analysis for Scoring
Legal Authorization	Permitted environmental water rights can be created through a statutory or administrative change to an existing water right	Y/N	Presence/absence of law (statute), regulation (administrative rule), or other (formal legal opinion, court case) allowing for existing rights to be changed to environmental use
		Basis is in formal statute or regulation? (Y/N)	Is the allowance for changes to environmental use explicit in either statute or regulation?
		Are there ANY Spatial restrictions on any tools? (Y/N)	Does the state impose ANY types of spatial restrictions on any of the change of use to environmental flow mechanisms?
		Are there ANY Temporal restrictions on any tools? (Y/N)	Does the state impose ANY temporal restrictions on any of the change of use to environmental flow mechanisms?
		New environmental right from conserved water (through reduced diversion)? (Y/N)	Does the state allow for changes of use to water saved through reduced diversion (as opposed to limiting changes to reduced consumptive use through fallowing or another strategy)?
	Permitted junior environmental water rights can be created or residual water protected from further appropriation	Permitted Junior Rights? (Y/N)	Presence/absence of law or regulation allowing for creation of new, junior environmental water rights where water availability allows
Exemption or protection from forfeiture/ abandonment for specific actions that support environmental flows	Y/N	Does the state exempt any of the following from forfeiture: conservation, enrollment in fallowing program (formal or informal), enrollment in water bank, others?	

Table 16: Scoring Analysis for Protection

Grading Element	Related Enabling Conditions	Scoring Basis	Research/Analysis for Scoring
Protection of Environmental Water Rights	A private individual, state agency, or the public can make a "call" that will result in regulation of other water rights in favor of an environmental water right	Y/N	Does the state have a process (legal or regulatory) that allows for "calls" for regulation to be made on behalf of environmental water rights based on the priority date of those rights?
		Call only to POD in all scenarios? (Y/N)	Once an instream change has been approved, does the state limit regulation of the instream right to a "call" only to the POD of the water right that was changed for all instream change tools?
		Ability to protect CU past downstream diversions in at least some scenarios? (Y/N)	Once an instream change has been approved, will the state protect the new instream water right in a reach below the original POD (either to or below the point of return flows, if the right is senior to other diversions in the reach) for any of the instream change tools?
		Call for Conserved Water? (Y/N)	Does the state have a process (legal or regulatory) that allows for "calls" for regulation to be made on behalf of instream water rights created by changes of use to saved (conserved, salvaged) water?
		Local regulatory/enforcement presence? (Y/N)	Does the state have one or more local employees charged with regulating water rights in all watersheds where water right regulation according to priority is or may be required?
	New water users and existing groundwater users cannot harm or legally injure environmental water rights	GW Regulated w/Surface? (Y/N)	Does the state, by law or regulation, uniformly and explicitly, manage hydrologically connected ground and surface water systems as one source?
		Protection from New Permitted GW Wells? (Y/N)	Does the state protect existing surface water rights (including environmental rights) from new permitted GW wells when aquifer is hydrologically connected to surface waters?

Table 17: Scoring Analysis for Scope

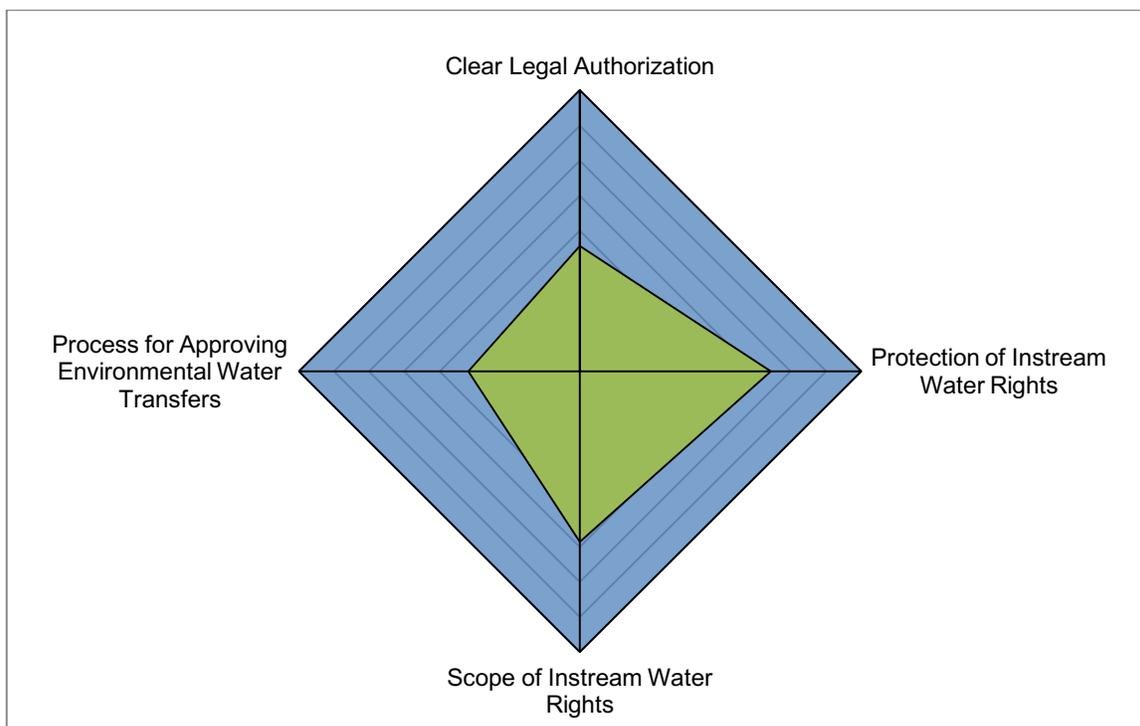
Grading Element	Related Enabling Conditions	Scoring Basis	Research/Analysis for Scoring
Scope of Environmental Water Rights	Recognition of environmental use as beneficial use	Y/N	Does state constitution, law, rule, case law, or policy recognize environmental use as a beneficial use?
		Are beneficial environmental uses limited to any specific uses narrower than broad categories (like fish and wildlife, recreation, etc.)?	Are there any types of environmental uses that are not considered beneficial (for example, limiting the applicability of any of the instream change tools to only watershed with cold water fish species)?
	Is there a state agency with regulatory authority that has environmental flows as an explicit part of its mission?	Y/N	Does the mission statement of the state agency that regulates water and water right changes contain specific language supporting environmental flows?
	Dedicated funding and/or staffing for agency environmental flow program	Dedicated funding for purchasing and/or facilitating environmental flows? (Y/N)	Has the state ever dedicated state money (either general fund or otherwise) for acquiring or otherwise facilitating environmental flows?
Dedicated staff for environmental flow program? (Y/N)		Does the state water resources department, or another related department of the state have staff dedicated specifically to environmental water (quantity, not just quality)?	

Table 18: Scoring Analysis of Process for Approving Environmental Water Transfers

Enabling Conditions	Scoring Basis	Score	Research/Analysis for Scoring
Legislative/ Regulatory Provisions	No explicit law or rule (statute or regulation; "workarounds" don't count)	0	State does not provide ANY legal or regulatory basis/process for implementing the tool
	State uses change/transfer rules not specifically design for ISF	1	State provides a process for implementing the tool but the process is not laid out in specific statute or rule (i.e. uses the general change process for all water rights or authorizes only under an SEO or AG opinion)
	Explicit authorization for ISF subject to limitations (i.e. no permanent allowed)	2	State provides explicit basis/process for implementing the tool but limits it spatially or some other way
	Explicit Authorization for ISF, no limitations	4	State provides explicit basis/process with no limitations
Approval Process	None specified in law or rule	0	State does not outline (in rule, policy, or law) a specific process for analyzing and approving implementation of the tool
	Judicial	1	State only provides a judicial process for analyzing and approving implementation of the tool
	Administrative	3	State provides an administrative process for analyzing and approving implementation of the tool
	Expedited	5	State provides a process for short term leases that is short enough for leases to be identified, applied for, and approved within a single year (process is less than 6 months to approval)
Administrative Uptake	Never tried/all attempts failed	0	Either the state does not provide a process for implementing the tool and it has therefore never been attempted, or the state provides a process but all attempts to use the tool have failed
	All attempts are not yet complete	1	State provides a process for implementing the tool and applications have been submitted but no applications have been approved
	Successful proof of concept	2	State provides a process for implementing the tool and one to three applications have been submitted and approved
	Multiple and recent successes (more than 1, 1 in last 3 years)	4	State provides a process for implementing the tool and more than one have been approved, with at least one approval in the last three years

After scoring each state, total scores are tallied and used to generate a visual depiction of enabling conditions in each state. Figure 1 below is an example of how scores may be depicted in the final Score Card. In addition to visually depicting each state's score, the Score Card may also include a variety of summary comparisons. This could include comparing the states' total scores, comparing scores for individual grading elements for each state, and other analyses as space allows. Finally, the scores could also be used to compare the grading elements against one another. For example, by averaging the total scores from each state for each grading element, the grading elements can be ranked from lowest to highest average score to see, at the Colorado basin scale, how the grading elements score.

Figure 1: Example Visual Depiction of Scoring



Note: The figure above represents one possible way to show the scoring results, but may not represent the final approach.

5. Conclusion and Next Steps

This report outlines a framework for analyzing and scoring legal and policy enabling conditions and available tools for environmental water transactions in the Colorado River basin states. The enabling conditions and tools were selected based on an analysis of current literature on the topic combined with the authors' experience implementing environmental water transactions in the western US. The framework is organized into four broad categories: clear legal authorization, protection of environmental water rights, equal treatment of environmental water rights, and availability of tools. The final grading elements broadly represent critical factors that, when combined, provide a supportive context for environmental water transactions. The intent in developing this framework is to provide the foundation for an annual Score Card that will be a tool for practitioners and policy makers to track progress (or highlight a lack of progress) toward better enabling conditions for environmental water transactions in the Colorado River basin states. In turn, increasing the profile and prompting regular discussion and analysis of the legal and policy requirements for effective environmental water transactions will hopefully provide a platform for increasing the number, scope, and impact of these transactions.

AMP Insights (AMP) is partnering with the Water in the West program of the Woods Institute at Stanford University to produce the first Score Card in 2016. This draft of the Score Card framework was circulated by AMP and the Water in the West Program for review by experts in western water policy and law in early 2016. Reviewer feedback has been incorporated into this draft. In 2016, AMP and the Water in the West program will conduct the necessary research to produce scores for each of seven Colorado River Basin states (Wyoming, Colorado, Utah, New Mexico, Arizona, and Nevada). Leon Szyeptycki, Executive Director of the Water in the West program, will conduct the final grading based on the scoring

and additional insight and analysis. In addition to grading, the Score Card may also highlight several brief case studies of emerging policy and environmental water transaction trends related to enabling conditions and transaction tools. The final Score Card product will be produced and distributed by the Water in the West program in late 2016 or early 2017.

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