

# LIQUID ASSETS:

Protecting and Restoring the  
West's Rivers and Wetlands through  
Environmental Water Transactions

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## Preface

*Liquid Assets: Protecting and Restoring the West's Rivers and Wetlands through Environmental Water Transactions* by Steven Malloch was written to help conservation organizations, government agencies and regulators understand the new and growing use of market-based mechanisms to shift water from historic uses to the environment. The objective, of course, is to protect and restore aquatic ecosystems; effective use of environmental water transactions is an important means to that end.

The chapters that follow survey some of the most important environmental water transaction efforts in the West. The main body of the text presents an approach to the problems encountered, and the lessons learned by practitioners in the field. It is not intended to be a “how-to” handbook, because every state has its own law, practice and problems. Specialized expertise – lawyers, water engineers, biologists – should be consulted before beginning any transaction. This report does, however, provide a framework for approaching environmental transactions and guidance on the current state of the art. The appendices present accounts of selected state law systems and the organizations working in those states.

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# Chapter I

## Environmental Water Transactions

### I.1 Introduction

During the past decade, a new tool has emerged to address the problem of providing water for fish and wildlife. Added to the common techniques of litigation, regulation and legislation is a new emphasis on acquisition – buying water for the environment.

In this process, large quantities of water are acquired, usually through short-term leases but also as permanent water rights, for environmental use. The amounts of water and money involved are large -- in California, Idaho and Oregon over 850,000 acre-feet are leased yearly for environmental use at an annual cost of about \$67 million. Most acquisitions are made with federal funding, either directly by federal agencies such as the Bureau of Reclamation and the US Fish & Wildlife Service, or indirectly by local government and non-governmental organizations using grants or other sources of federal funds.

Today's water acquisition movement is, in many ways, similar to the early days of the now well-established land trust movement – well positioned for growth with an idea and approach to solving environmental problems well suited to the times.

### I.2 What is an Environmental Water Transaction?

Simply put, environmental water transactions acquire water for the environment in willing seller-willing buyer settings.

For the purposes of this report, environmental water is water that has been moved from some existing use, such as irrigated agriculture, municipal and industrial supply, or hydropower generation, to a use that primarily benefits the environment. Typically the environmental use is maintaining or improving flows in a stream for the benefit of fish and wildlife. However, it may also be an off-stream use such as water for a wildlife refuge that needs additional water to create or improve wetlands for waterfowl.

While new appropriations or reservations of water for environmental purposes are important, that approach to obtaining environmental water is beyond the scope of this report. Transactional approaches are useful when a new appropriation or reservation will not provide adequate water because the water needed is already appropriated or otherwise not available. Legal restrictions may also make transactional approaches necessary; for instance, in California a private party may not appropriate water for in-stream use, but may obtain an existing water right and convert it to environmental use.

An environmental water transaction requires some form of exchange between willing participants; however, money does not always change hands, as the water may be donated. For donations, the considerations and procedures described here are essentially the same as a purchase.





### 1.3 Prior Appropriation and Environmental Water Transactions

Rights to water in the streams and rivers of the western states are based upon the prior appropriation doctrine. Under this doctrine, water users do not own the water itself, but rather a right to the benefits of the use of water. Allocation of water when it is scarce is through seniority – “first in time is first in right.” A person who puts water to use has a right superior to those who subsequently use water. In times of shortage, the senior right holder may require junior right holders to cease using water if necessary to provide the senior right its full measure of water.

While western mining camps of the mid-nineteenth century created the prior appropriation doctrine for water rights, using the mining notions of staking and working a claim, it has been refined in the ensuing century and a half. Most states now have detailed and complex schemes for creating and administering surface water rights based on the prior appropriation doctrine. These state law systems control how water rights are created and the rules under which they may be used.

The prior appropriation doctrine and its various state implementations create certain difficulties for environmental water transactions. Consider the fundamental concepts of prior appropriation – diversion of water and application to beneficial use. Diversion typically requires removing water from a stream, forestalling any legal use in a stream for fish. Environmental use – keeping wild fish wet, providing wetlands for waterfowl and similar uses – is often not considered beneficial. Certain environmental uses, particularly allowing water to reach the sea through biologically productive estuaries, is considered antithetical to beneficial use. Embedded in concept of beneficial use is a prohibition against “waste,” taking more water than is needed to accomplish a beneficial use. Some of the transactions discussed later involve improving the efficiency of a water use and devoting the conserved water to environmental use; however under the concept of “waste,” conserved water may not be available to the original right holder, but may instead devolve to the next senior rights holder. Water rights that are not used for a period of time (typically five to ten years) are not being put to beneficial use and therefore may be legally forfeited or abandoned, unfortunately, many environmental uses would be considered non-use.

While most environmental water transactions involve rights created under the prior appropriation doctrine, other water rights exist and may affect the transaction. Most important are rights to groundwater. While groundwater rights are legally integrated with surface water right in a few states and locations, in most places they are not, even when use of one affects the other.

Western state water law systems are still in the process of adjusting to environmental water use, much less environmental water transactions. As a result, the practice of environmental water transactions is in part the art of carefully using the openings now present and setting the stage for the amendment of laws and regulations that will allow more extensive and less complicated transactions in the future.

#### 1.4 Water for Fish and Wildlife

For decades, westerners concerned about the condition of aquatic resources have struggled with the legacy of the region's water development. After a century and a half of water policy and practice designed to promote water use by cities, farms and mines, most water has been claimed, leaving inadequate water for the West's fish and wildlife.

State and federal agencies, along with environmental advocates and progressive water managers, are using a wide variety of tools to obtain water for the environment. Legislation, regulation and litigation attract the most attention, in part because they can be controversial where they affect private property rights in water. In recent years, litigation using the Endangered Species Act (ESA) has attracted enormous attention, putting the western problems of water use and fish in places like the Klamath River in Oregon and the Rio Grande in New Mexico in the national media.

All the western states now have some form of instream water rights or environmental water reservation. While those systems allow new rights to be established, in much of the West, essentially all available water was claimed decades ago. New water rights for the environment typically have such junior priorities that they are ineffective in the places where water is most needed. The problem, then, is to change the operations of existing water projects to improve their environmental performance, and in some cases move water from existing diversionary use to instream and environmental use. Environmental water transactions among willing parties are one of the many parts of overall solutions to these problems.

Beginning in the late 1980's, interest in market-based approaches to increasing water supplies for the environment resulted in a number of changes in law and policy. Oregon and Washington created trust water right systems, allowing state agencies to acquire existing water rights through donation or purchase. California went so far as to allow anyone to convert existing water rights to environmental use. In states such as Nevada and Arizona, water rights for environmental uses were recognized within the existing water administration systems without legislative action. Congress passed laws in the early and mid-1990's directing two federal agencies, the Bureau of Reclamation (Reclamation) and the Fish & Wildlife Service (FWS) to acquire water and water rights for fish and wildlife in California, Nevada and Washington.

The pace of activity in environmental water acquisitions is now growing rapidly. In the mid-1990's, the federal government began buying water and water rights for salmon and steelhead ESA compliance in several states, including Idaho, California, Nevada and Washington. The first non-governmental organization (NGO) water trust started in Oregon in 1993. Over the last five years, several new water acquisition programs began or increased activity. Endangered species requirements resulted in major efforts in the Columbia River and Snake River basins by NGO's and state agencies with funding from the Bonneville Power Authority through its Columbia Basin Water Transactions Program (administered by the National Fish and Wildlife Foundation). In Oregon, Reclamation began buying water in the Klamath River basin after a well-publicized ESA crisis in 2001. The federal and state partnership to improve California's enormous public water projects (CALFED) began buying water in 2001 as well. New water trusts have formed in Montana and Colorado, with additional private trusts in formative stages elsewhere.

## 1.5 Land Acquisition is the Model – But Water is Different

Land trusts provide a model for market-based conservation. More than 1200 local land trusts protect more than 6.2 million acres in the United States, with an additional 500,000 acres added every year. They operate at every scale, from the smallest local preserve to the global reach of The Nature Conservancy. Land trusts may set their own priorities, or work closely with state and local governments and federal agencies, using private and public funding and tax breaks to implement those priorities.

Environmental land acquisition and preservation is a good model in many respects, but environmental water acquisition requires some different approaches and solutions. Practitioners of environmental water acquisition often look enviously at the legal and transactional structures used for acquiring land for the environment. Land acquisition systems and processes are well established, and can be much less complex. Most land deals are ultimately affairs among the parties directly involved; unless they are parties to the transactions, government agencies and neighbors are usually not intimately involved with the deal. Water is different.

One difference between water and land rights is that while landowners own dirt, water rights holders usually own only the benefits of water use, not the water itself. Any water not consumed producing the benefit is returned to the system, available for use by other water users who may have rights to that return flow. This fundamental difference between land and water results in enormous differences in the complexity of water transactions.

To obtain use of a piece of land, there are essentially three ways to get it: buy it, lease it, or put an easement on it. For water, the essential transactional tool for land trusts, the conservation easement, is rarely used. However, there are in addition to lease and purchase a variety of other methods in common use, including building new storage, switching sources of supply, and conservation and efficiency.

Finding out who owns a piece of land requires a title search and a survey. Once the property is defined, land rights do not usually change in size or nature. In contrast, water rights are defined not just by paper records in a state office, but also by how they have been used and the effect of that use on other water rights. Most states have several different types of water right, depending on the legal basis for the right or its use. In some places, comprehensive adjudications have been completed, sorting out the priorities and quantifying the rights to water. In only a few states have most water rights been adjudicated; for most states, adjudication is the exception rather than the rule. Where adjudication has not been completed, the equivalent of the title search and survey requires careful and usually expensive legal, historical and hydrological analysis, with an unavoidable large residual of uncertainty. For any water right, even adjudicated rights, non-use for a specified period in most states (typically five years) results in forfeiture of the right, making documentation of continuous use critical.

A zoning office provides at least the outline of how a land right can be used, or a land use changed. Rarely can the use of water be changed as a matter of right, as land use can be

changed within a zoning entitlement. While rezoning a property or obtaining a variance can be complicated and expensive, a decision-making body may do so even if neighboring property rights holders suffer injury. By contrast, change to a water right is typically under a “no-injury” standard, so any aggrieved water user is entitled to halt or force alteration to a proposed change of use. Change is allowed, but the “no-injury” standard makes obtaining permission to change a water use much more difficult and complex.

Interest of neighbors and community in a western water transaction may go far beyond the “no-injury” to water rights standard. Most water purchased for environmental use is from farming and ranching. Water, not land, is usually the limiting factor for western farming and ranching – in Colorado the joke is that in buying a farm, you pay for the water and the seller throws in the land and farmhouse for free. Water put to work in irrigation drives local economies and the lifestyles of the community. If water moves from irrigation to environmental use, the fear is that the communities will wither and die. This leads to deep suspicion of environmental water transactions, and resistance on the part of many water rights holders to selling for environmental use.

## 1.6 Water Transaction Approaches

Three major types of environmental water transaction effort are now active in the West:

- **Private Water Trusts** The water trust movement began with formation of the Oregon Water Trust in 1993. Today, significant NGO environmental water acquisition programs are active in Oregon, Washington, Montana, and Colorado, with efforts in formative stages elsewhere. Many water trusts start with annual leases, and move toward longer-term and permanent acquisitions. Effective water trusts develop good relationships with local farmers and ranchers, and help communities solve shared problems.
- **ESA Driven Federal and State Agency Acquisitions** Most of the governmental environmental acquisition efforts in the West are driven by the Endangered Species Act (ESA). At the federal level, the Bureau of Reclamation and the Bonneville Power Administration are the most active agencies. States and local governments are most active in California (through the massive CALFED program for improving major water projects), Nevada (where a Tribe, two cities and a county are buying water rights in a litigation settlement) and Washington (for salmon and steelhead recovery). To date most agency ESA-driven acquisitions have been of annual leases, with only a small number of outright sales of water rights.
- **Wildlife Management Areas** Wildlife management areas and refuges, especially those established for waterfowl, need assured supplies of water to function. State wildlife management agencies have long been buying water for this use. Since the early 1990’s significant federal efforts in Nevada and California have been active.

## Chapter 2

### Framework for Environmental Water Transactions

#### 2.1 Introduction

While every state has its own legal and administrative system for water rights, there is a common framework for environmental water transactions. That framework provides only a general approach -- organizations and people interested in conducting environmental water transactions will have to obtain expert advice from local water and real estate lawyers, water engineers and hydrologists, and biologists to effectively engage in these transactions.

In a few states, extensive documentation is available that will guide development of transactional approaches and strategies. In California, the Trust for Public Land published the *Water Acquisition Handbook: A Guide to Acquiring Water for the Environment in California*<sup>1</sup>, an excellent overview of issues in that state, many of which are applicable elsewhere as well. A number of publications and resources are available in Washington; both from the Washington Department of Ecology Water Acquisition Program and Washington Water Trust. In particular, the Department of Ecology has excellent guides to its strategy and for determining the amount of water transferable to trust use.<sup>2</sup> A useful overview of water acquisitions is Clay Landry's *Saving Our Streams through Water Markets*, a handbook published by the Property and Environmental Research Center.<sup>3</sup>

#### 2.2 Preliminary Steps – Objectives and Approach

Long before a specific transaction commences, preliminary planning greatly affects the chances of success. The most important part of preliminary planning is clearly defining the goals as well as the operating principles of the effort.

Identifying suitable areas for potential projects is a threshold step. For organizations working only in a specific watershed, the general location may already be a given. However, many organizations will select priority watersheds or stream reaches as a preliminary matter. In some places, the priorities have already been set. For instance the Washington Water Trust (Appendix H.3.4) uses the priorities set by the state Department of Ecology based on salmon and steelhead restoration needs. In contrast, the Colorado Water Trust (CWT) surveyed the priorities of a number of federal, state and conservation organizations for increased streamflow or other water quantity needs, and from these created its own set of priority watersheds and reaches. (Appendix B.3)

For environmental transactions, the environmental benefit is, of course, an important selection criterion for both the general area and specific projects. Evaluating the potential

<sup>1</sup> [http://www.tpl.org/tier3\\_cd.cfm?content\\_item\\_id=11521&folder\\_id=266](http://www.tpl.org/tier3_cd.cfm?content_item_id=11521&folder_id=266)

<sup>2</sup> <http://www.ecy.wa.gov/pubs/92088.pdf> <http://www.ecy.wa.gov/pubs/0311005.pdf>

<sup>3</sup> [http://www.perc.org/publications/guidespractical/save\\_streams.php?s=2](http://www.perc.org/publications/guidespractical/save_streams.php?s=2)

benefit requires a thorough and careful understanding of the problem to be solved, its causes, and the potential types of transaction appropriate. The Oregon Water Trust (OWT) (Appendix F.3.2) focuses its efforts on restoring historically significant anadromous fisheries in a small set of priority watersheds. In choosing projects within those watersheds, OWT's analysis of streamflows and habitat conditions includes:

- Delineating fish use and distribution for each segment;
- Documenting the current and historical ecological value of the waterway for fish;
- Evaluating current habitat and water quality conditions;
- Describing the current water availability situation;
- Summarizing the relationship of the water right to other water rights in the stream segment; and
- Evaluating and summarizing the potential benefits of acquired water on fish habitat and water quality conditions.

Considerations other than potential environmental benefit may be of great importance as well. Most of the NGO water trust organizations take cooperative approaches that depend on close working relationships with water users and state agencies. Choosing projects that enhance, or at least do not harm, those relationships may be a priority. Projects and transactional approaches that maintain agricultural productivity – not permanently fallowing agricultural land – is often a priority for that reason.

The Colorado Water Trust has laid out an explicit set of criteria for selecting projects. While it encompasses issues that are of particular importance to Colorado, such as interstate allocation, the overall list is a good example of priorities that organizations using cooperative approaches might use. CWT's pursues projects that:

- Benefit "water short", ecologically significant, water dependent natural environments;
- Complement rather than duplicate or compete with other established conservation programs;
- Comply with Colorado water law, including water development under interstate compacts and equitable apportionments;
- Have credible records of actual consumptive use ... and no other factors that invite hotly contested change cases;
- Minimize harm to agricultural productivity; and
- Constitute the minimum interest necessary to accomplish the objective.

This list would vary from state to state, and from organization to organization. In Oregon and Texas, for instance, water rights that do not have a history of use ("paper rights") are of greater value than in Colorado, where actual consumptive use is critical. Water acquisition efforts that do not place as high a premium on cooperation might have different criteria. In Nevada, the Pyramid Lake Piute Tribe is buying water rights with the explicit and public objective of ending the use of Truckee River water for irrigated agriculture on the Bureau of Reclamation's Newlands Project. For the Tribe, minimizing harm to agricultural productivity is not a priority. (Appendix E.3.I.1)

### 2.3 Cultivating Willing Sellers

In most of the West, water rights holders are reluctant to sell water for environmental use. That reluctance ranges from concern about what the neighbors would think, to implacable antipathy to the concept. Overcoming that reluctance is a major challenge for most environmental water purchasers.

Annual leases are the most commonly used way to overcome community resistance. By limiting the transaction to a single year, the water-rights owner gains financially through the rent payment, and leaves open the option of farming, selling the right in later years, or continuing to lease the water for environmental purposes. Annual leases are especially useful to water rights owners because they eliminate the possibility of forfeiture, while not requiring the expense and work of alternative, usually agricultural, use. In many parts of the West, there is a perception that water rights will be much more valuable in the future, as growing western cities reach the limit of their water supplies. “Parking” unused water rights in environmental leases allows at least the possibility of cashing in on that potential increase in value.

Purchasers of water through annual leases benefit as well by avoiding the controversy and conflict permanent and long-term acquisitions entail. Because annual leases benefit water rights holders but do not permanently dedicate water for environmental use, there is much less resistance to the approach. Private water trusts typically use annual leases as a way to develop relationships with water rights owners and as bridge supplies while other more permanent arrangements are developed. Government agencies often rely exclusively on annual leases because they generate less controversy.

An effective environmental water acquisition program often requires developing a reputation and network of relationships within a community that lead sellers to trust the buyer, especially where multiple transactions are to be accomplished. Developing these relationships takes time and effort. The metaphor of sitting around the farm or ranch drinking coffee as a way to develop a business relationship is more than a metaphor – it works. For large deals, it may be the only way to accomplish the transaction. Staff from Nevada’s Division of Wildlife spent 15 years developing a relationship with a rancher whose property and water are now a state Wildlife Management Area. (Appendix E.3.2) For repeated deals in a community, developing personal relationships and a good reputation are very important. On the Truckee River in Nevada, the Pyramid Lake Piute Tribe and several local government agencies contract with Great Basin Land & Water, a small non-profit whose staff has decades of experience and a reputation for doing conservation land and water deals in the area, to serve as an intermediary. (Appendix E.3.1.1)

Marketing techniques may be useful, but the potential for controversy requires care in their use. For example, when the Fish and Wildlife Service used radio advertisements to increase awareness of their efforts to buy water on the Carson River in Nevada, the response was strongly negative. However, gaining the support of the local newspaper editor resulted in positive news stories and editorials, which built community acceptance.

Water banks are a way to shift the process of finding willing sellers from retail (one-on-one) to wholesale. As discussed in Chapter 4, water banks can be used to create a market



place for buyers and sellers for any purpose, or as a means for a single buyer to formalize its process.

## 2.4 Due Diligence

While negotiation and crafting a deal among the parties is important, the complexity of water rights makes the most important part of the process due diligence – investigating the water rights involved and their suitability for the proposed new use. Details of the due diligence required vary significantly from state to state, and even from basin-to-basin, depending on the local legal, hydrological, socio-economic and biological conditions, and should be determined in consultation with an experienced water lawyer and water engineer. However, at a minimum, the due diligence checklist should include:

- **Threshold questions.**
  - What problem is being addressed?
  - What water quantity, quality and timing are needed to address the problem?
  - Will the proposed transaction provide the water needed?
  - Is entering into a transaction with these parties, on the proposed terms, legal and appropriate.\*
- **Water rights title and validity.** Questions about whether the water rights are valid, and whether the seller can deliver title to water sold must be asked. Freshly adjudicated water rights typically have the fewest title and validity issues, making them most attractive for acquisition.
  - Do title records demonstrate the ownership of the rights?
  - Were the rights created following the appropriate procedures? Are there outstanding contingencies?
  - Have the rights been lost or diminished through forfeiture, abandonment or prescription?
- **“Wet” water.** Perfectly valid water rights may not usually be entitled to divert water if they are junior or subject to limitations. The investigation should determine the conditions under which the right is entitled to water.
  - What is the priority of the right?
  - Given the priority and local hydrology, what water is likely to be delivered?
  - Are there factors that may limit exercise of the right, such as federal reserved rights, interstate obligations, regulatory constraints, public trust issues, water quality limitations, water district procedures or other outstanding issues?

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\* In 2003, the Washington Post ran a series of critical stories on The Nature Conservancy, focusing in part on transactions raising ethical and legal problems. Some transactions may not be in an organization’s best interest, even if legal. <http://www.washingtonpost.com/wp-dyn/nation/specials/natureconservancy/>

- **Use in the new application.** Can the water be used for the intended place and purpose?
  - What restrictions apply to the water right? Can it be transferred to the proposed new uses?
  - If change of point of diversion, manner or place of use is required, what process is followed, and what conditions are likely to be imposed?
  - What quantity and timing of water may be put into the new use? This is where the issues of historical use, consumptive use, return flows and injury arise.
  - If conveyance to the new use is needed, is capacity available? What are the hydrological, legal or economic ramifications of conveyance?
  
- **Third party impacts and political considerations.** If the right is transferred to a new application, who will benefit and who may protest? This evaluation may not be limited to “injury” in the water rights sense, if political, community, economic or other considerations are important. Talking with local water officials, neighbors and other community members is often useful.
  - What third parties will be affected by this transaction and what will their position be in the legal, political and public settings?
  - Given that environmental water transactions are controversial, are you prepared to defend the transaction if your opponents publicize its details in the worst possible light?
  - Are there ways to structure the transaction, or work with third parties before or after the transaction, to decrease the likelihood of negative reaction that poses unacceptable risks?
  
- **Money and finances.**
  - Is the price right?
  - Can the financing be arranged? Do the financing terms present acceptable risks to the organization?
  - What are the post-closing obligations, and will the money needed to meet those obligations be available?
  
- **Regulatory.**
  - Who will be affected by the transaction and what will his position be in the water rights change process?
  - If this transaction implicates outstanding legal or policy issues, is this the right set of facts, politics, parties, and financing to seek a decision on those issues?
  - Does the state have an environmental impact assessment process? If so, what will be the scope of the assessment? Are there ways to structure the transaction to avoid potential problems in that inquiry?
  - What third party approvals are needed? In addition to the state process, are other approvals needed, for instance from a water district? What conditions may affect the cost or utility of the right?

- **After the transaction closes – monitoring and enforcement.**
  - What are the post-transaction legal obligations?
  - What monitoring and measurement is needed?

## 2.5 The “Deal”

Every water transaction has a set of issues that must be resolved – price and quantity are at the beginning of the list, with the potential for many other terms, limited only by the imagination of the participants. While there are many ways of setting the terms and conditions of a water transaction, most of the organizations surveyed for this report used one of the following approaches:

- **Negotiation.** Terms and conditions may be negotiated directly among the parties, or by their representatives. For complex or non-standardized transactions, direct negotiation is the usual approach.
- **Appraisal.** Government entities, especially federal agencies, usually follow procurement processes that set out a standard set of terms, with price determined through independent appraisal, which can be accepted or rejected but not modified. (See Appendix E.3.1.2) In addition to using an expert to set the price, this approach removes the stress of negotiation from the relationship among the parties. Non-governmental entities also may take advantage of these benefits by offering standard terms plus an appraisal.
- **Standard Offer.** Even the price issue is sometimes removed when the purchaser issues a standard offer, including a set price. Some water banks use this approach, for instance the Bureau of Reclamation’s Klamath Water Bank in 2002 and 2003, and the Deschutes Resource Conservancy’s water bank. (Appendix F.3.1 and F.3.3)
- **Auction.** Environmental buyers obtaining water from multiple sources are beginning to use a form of auction to set price. Reclamation’s Klamath Water Bank and the Deschutes Resource Conservancy are both using a discriminatory, sealed-bid system where sellers submit their water for purchase at a set price. The buyer accepts the lowest offers, up to a confidential reserve price or until the required amount of water is obtained. (Appendix F.3.1 and F.3.3)

## 2.6 State Law Processes

Environmental water transactions are subject to a variety of possible state law processes, ranging from comprehensive impact review under state environmental laws, to real property recordation systems. The most typical is the state water rights change process discussed in Chapter 5.

## 2.7 After the Transaction - Enforcement and Monitoring

Buying water is only the start of putting water to environmental use. Making sure that water dedicated to environmental use is applied to that end and not diverted for irrigation or other use is an ongoing and critical part of any environmental water project. Further, demonstrating that a transaction project has environmental benefit is often needed, for instance as proof of beneficial use in the water rights system or as a part of the financing and funding agreements.

Defending environmental water rights can be an overriding concern, especially if it involves significant actions that are expensive and politically controversial. A common approach for non-governmental organizations is to select acquisition projects where enforcement concerns are minimized. Where there is an existing enforcement system in place, for instance a ditch rider, water master or water commissioner who is supportive of the environmental goal, incorporating the new water use may reduce the need for defense. Another way to minimize enforcement is to select projects where there are no or few other water users in the protected reach, for instance in small tributaries or in larger tributaries where there are no users between the project and confluence with a mainstem river. Most mainstem acquisitions to date have been in thoroughly controlled rivers, such as the Sacramento, San Joaquin, Klamath and Snake rivers, where water management and accounting systems are in place.

Monitoring of environmental water use, especially instream flows, is an issue of both hydrology and biology. Existing United State Geological Survey and state stream gauging systems have limited coverage, and rarely include the streams and tributaries where environmental water acquisitions occur. To adequately document water use and defend water rights, additional stream monitoring may be needed. In Montana, where monitoring is a condition of environmental water use, Trout Unlimited is working with a professional hydrologist to set up legally defensible stream flow measurement protocols that can be used by trained volunteers. As these protocols are developed, other organizations working on smaller rivers and tributaries may consider adopting them. Biological monitoring may be needed to demonstrate environmental improvement due to changed water management.

## Chapter 3

### Match the Solution to the Problem

#### 3.1 Introduction

As with carpentry, using the right tool is the key to achieving the desired result in a water acquisition. The old adage “if the only tool you have is a hammer, everything looks like a nail” is an apt reminder that with the variety of transactional tools available, no one approach is best in all situations.

Outright acquisition of an entire water right is usually considered the gold standard for environmental transactions; however, the entire right may not be needed, and may have untoward community or political repercussions. Environmental conditions can easily be made worse by using a good technique, such as improving efficiency or switching to another supply source, in the wrong setting.

Practitioners in this field are still discovering how to best use the specific tools, leading to one of the themes of this report -- tailor the tools used to the problem and the legal, hydrological, socioeconomic and biological conditions.

#### 3.2 Identify the Problem and Understand Its Characteristics

It may be an obvious first step, but characterizing the problem is not always easy. Developing an effective transactional solution usually requires a careful understanding of the problem, from physical, biological and social/legal/economic perspectives. The objective of this careful understanding is recasting the issue in biological, hydrological, or other terms, allowing a focused transactional approach to be applied.

Each project will have a site-specific set of problem characteristics. For example, low stream flow is by far the most common of the problems encountered. But why is the low flow a problem? Is it because fish need additional water at a specific time, for instance to allow passage to spawning beds upstream? Or is it a dissolved oxygen/temperature problem? Is increased water recreation the objective? If so at what times – summer weekends or year round? Is the cause of the flow problem timing, over-appropriation or illegal diversion? By contrast, a wildlife refuge’s water needs will have a very different set of characteristics. At what times of year does the refuge need water? How many wetlands acres are needed to support anticipated bird populations? What water quality is needed?

Most water problems involve a mix of quantity, quality and timing issues. Narrowing the problem definition to a specific focus may reduce the intervention needed, and may also avoid unwanted third party impacts. It also allows effective use of the variety of transaction techniques discussed in the next chapter.

### 3.3 Identify the Characteristics of the Solution

From the narrowed problem definition, the characteristics of the solutions can be crafted. Most transactional approaches use only a small set of elements:

- Convert consumptive use to environmental use;
- Increase efficiency in delivery of water;
- Alter the timing of water availability;
- Shift to a new source of supply; or
- Change the location of water.

Understanding the way a transaction may use these elements is useful in matching the solution to the problem.

Whether a problem requires converting consumptive use to environmental use, and whether a proposed solution accomplishes that, is a threshold question. When water is removed from the local system, usually through evaporation or incorporation into plant tissues, it is used consumptively. Techniques that reduce consumptive use make water available that would otherwise be lost to the local system. The usual example is simply ceasing irrigation – the water that would have evaporated can then be used for other purposes. Some efficiency improvements, switching from flood irrigation to a drip system for instance, may also reduce evaporation and reduce consumptive use. In hydrologic and legal systems where essentially all water is consumptively used or legally claimed and accounted for, such as Colorado's, reducing consumptive use may be the typical approach.

Increasing efficiency may not reduce consumptive use, but rather simply reduce the amount of water needed to deliver a water user's consumptive use. For instance, lining a leaky dirt ditch allows less water to be diverted from a river to supply the farm at the end of the ditch. Efficiency improvements are very useful where the problem is more of timing or location than the absolute annual quantity available.

Many transactions affect the timing of water availability and use; whether change is positive or negative depends on the setting. Agreements not to divert at certain critical times may leave the total water use essentially unchanged, but provide environmental water during for an important few days or weeks. However, an agreement not to irrigate for a summer may have no effect on spring flows needed for a spawning run, unless there is also some ability to store and manage that water. Sometimes the effect of a solution on the timing of water supplied can be surprising. In the leaky ditch example, lining the ditch may solve the biological problem of low flows at the time of diversion. But, lining the ditch may reduce groundwater recharge during the summer, which in turn reduces groundwater contributions to the river during the winter. The result could be shifting the low flow condition from summer to winter.

Source shifting may also result in complicated and unintended consequences. The most common techniques involve shifting from surface to groundwater diversion, from natural flow to stored water, or from tributary to mainstem diversions. Each such shift has its own set of issues, because the net effect is to eliminate water use in one system, and increase use

of water from another system. In appropriate physical and legal settings, this approach can be very useful. However, in other settings source shifting may create more environmental and water administration problems than it solves. In particular, switching from surface supply to groundwater presents special complications because many state legal systems do not limit groundwater use and do not reflect physical and hydrologic interconnections.

Physically changing the location of water – conveying it – has its own set of concerns. In almost every situation where water is conveyed from place to place, water is lost to evaporation, leaks, recharge of groundwater or other conveyance losses. Further, taking water from one location to another almost always has impacts on the source location.

### **3.4 Match the Transactional Technique to the Problem**

Matching the transaction technique to the problem is rarely an exact science. It involves trade-offs, judgment and deciding which risks to take. Simply buying water rights may be the first approach considered, but buying water or water rights is usually expensive and may disrupt the existing network of relationships and dependencies.

While there are currently no guidelines about how to match techniques and problems, a few observations may be useful.

#### **3.4.1 Mirror the Problem**

Selecting transaction techniques that have characteristics mirroring the causes of the problem may be useful. For instance, if irrigation diversions are a root cause of a problem, then techniques that reduce irrigation diversions may have characteristics that are the most useful. This approach accounts, in part, for the frequent use of irrigation efficiency techniques discussed in the Appendices.

When the techniques used do not mirror the causes of the problem, the solutions become more complicated. For instance, a typical western irrigation project involves storing spring runoff for use during the summer. Reducing irrigation use during the summer does nothing directly to solve winter low flow conditions or address the impacts of reduced spring flows. However, reducing irrigation, coupled with changes to the way the reservoir is operated might. This is a more complicated arrangement requiring agreements with the entity controlling releases from the reservoir.

#### **3.4.2 Minimize Third Party Impacts**

Given the adversarial and often litigious nature of western water rights, as well as the general legal requirement of non-injury to other water rights, minimizing third party impacts is a fundamental concern. For environmental water transactions, both the type of transaction used, and how that transaction is applied may be part of minimizing third party impacts.

Minimizing the intervention tends to reduce third party impacts. If ceasing irrigation for part of a season or only in dry years solves the problem, third party impacts and opposition are likely to be less than permanently and completely converting irrigation right to instream flows. Keeping agricultural land in production can minimize third party impacts in several ways: it avoids the issue of the fate of the fallowed land, and attendant problems of dust and noxious weeds; it minimizes economic impact to the community; and it minimizes political opposition.

Limiting the river reach protected by an instream flow right also reduces third party impacts and opposition. Most commonly, the applicant for an instream right defines a limited protected reach below the original point of diversion – the longer that protected reach, the greater potential environmental benefit, and the greater chance of injury and protest. While consumptive use from an irrigation right converted to instream flows could, in theory, be protected all the way to a state line or the ocean, less aggressive claims are typically used. In defining the protected reach the project proponent has to strike a balance between environmental benefits on the one hand, and potential injury and protest on the other, often by limiting the protected reach.

### **3.4.3 Match the Term as Well as the Technique**

Typically greatest mismatch between the technique and the problem is in using short-term approaches, especially annual leases, for long-term environmental water needs. Short term, often annual, lease transactions can be very useful. They may help overcome political objections to long-term solutions. Short-term approaches are very appropriate to respond to droughts or other crises, and as bridges while permanent solutions are put into place. They may also be useful as low-risk introduction to environmental water transactions with reluctant sellers. However, there is a risk that short-term approaches may hinder implementation of longer-term solutions if the short term solution becomes institutionalized.



## Chapter 4

### The Water Acquisition Toolkit

#### 4.1 Introduction

To a water dealmaker, the transactional tools used in land deals look appealingly easy. If you want a piece of land: buy it, trade for it, lease it, or put an easement on it. While the deals themselves, and especially the financing, can become complex, the building blocks of land transactions are intuitive.

In the developing realm of water transactions more types of building blocks are available, resulting in more types of transactions, and many complicated combinations. Purchases and leases are commonly used, while easements are not. Additional tools unavailable to dealers in dirt are used. For instance, while we cannot make new water, its use can be stretched through efficiency or storage. While land purchased for environmental use is often locked away from use, environmental water may be needed only for a few weeks or months, allowing sharing of the resource. The source of water may be switched, from upstream to downstream, from surface to groundwater, or from natural flow to stored water.

Most water acquisition tools fit into a small number of categories, with a large number of variations and combinations depending on the objective and setting. Environmental water deals tend to be for:

- Complete rights
- Partial rights, sliced in time or quantity;
- Water from a different source;
- “New” water developed by more intensively using existing supplies; and
- Large blocks of water developed by increasing the numbers of participants.

With these building blocks, an increasingly large set of transactional tools can be built. This chapter lays out the basic tools of water acquisitions, and describes how they are used to achieve conservation outcomes.

#### 4.2 Acquisitions of an Entire Right

In environmental land transactions, simply buying land is the most common technique used. In water, the analog is to buy the water right, completely changing the ownership and use. While common for land, legal obstacles to buying water for environmental purposes and the reluctance of many water users to sell for this purpose make it rare. Within this category, there are two approaches:

- **Buying Severed Water Rights.** Buying water rights, without appurtenant land, and converting them through the state law process to environmental use is the simplest technique in concept and the usually most complex in practice.

- **Buying Land with Appurtenant Water Rights.** Sellers of water used for irrigation are often willing to sell the package of land and water, but not the water alone. So buyers of water rights may have to buy both land and water together. They are then faced with the task of putting the dry land to use, or selling it without water rights.

Western water law developed with a basic premise that water rights are connected to a particular use, usually on a specific parcel of land – the water right is appurtenant to, or connected with the land rights. This notion of intimate connection between land and water is culturally and economically ingrained in most agricultural water users. They know that without water, their land is worth much less, perhaps nothing. With water the most important limiting factor for irrigated agriculture, producers who want to see this economy and lifestyle continued are often reluctant to sell water rights for environmental use, seeing every such transaction as the loss of a farm. Opposition to environmental water transactions is often most heated when they involve entire rights, with or without land.

In a handful of places around the West systematic efforts to buy water rights are underway with slightly different approaches.

Where the land is useful to the purchaser, buying both land and water is appropriate. On the Yakima River in Washington the Bureau of Reclamation is buying farms and ranches, using the water to enhance flows for salmon and steelhead. (Appendix H.3.3) With its century-long history of promoting irrigated agriculture, Reclamation is acutely sensitive to the politics of taking agricultural land out of production. Its approach is to buy land next to rivers and streams, using the land for wetlands restoration, and the water for instream flows. It avoids buying land within irrigation districts or uplands properties. In Nevada (Appendix F.3.2) and elsewhere, states buy farms and ranches for wildlife refuges where both land and water is needed.

Where the land is not needed, water buyers often have to buy both land and water, then dispose of the land, increasing financial risks and capital requirements. In Nevada, two water rights acquisition programs are active in Reclamation's Newlands Project, buying both land and water and disposing of the land. (Appendix E.3.1) Both find sellers generally unwilling to sell water without the land – for one of the efforts, two thirds of the transactions involve both land and water. This puts the financial risk of selling the dry land property on the buyer, increasing the importance of getting the purchase price correct.

### 4.3 Slicing a Right - Partial Right Acquisitions

Far more common than outright purchase of a water right is acquiring part of a water right. Typically the right acquired is for a certain time – a temporal slice in the form of a lease. Of course, the acquisition may be of a partial quantity – a quantity slice. In the family of right slices, creativity is the only limit on the number of ways to cut up a water right, depending on the environmental goal and setting. Some of the more common approaches are:

- **Long-term leases.** Where water users do not want to use their water right for its original purpose, but are unwilling or unable to relinquish their right permanently, leases of longer than a year are used. In Montana (Appendix D.3.1) private ownership of environmental rights is not legal, but 10-year leases, with one renewal, are. Water rights owners often like leases because they can provide an income, while avoiding potential loss of the right through forfeiture (“use-it-or-lose-it”) laws, and leaving open the possibility of lucrative sale of the water to cities or other future water users.
- **Annual leases.** Typically, annual leases pay a producer to forego water use for an entire irrigation season and switch to crops that use less water, rotate crops, or let land go fallow for the length of the lease agreement. They are the most common instruments used today. Private water trusts use them as a low risk way to introduce water users to environmental water transaction and set up conditions for longer term arrangements. State and federal agencies needing water for ESA compliance are also active participants in short-term leases. Where it needs to acquire water to meet requirements of the Endangered Species Act, the Bureau of Reclamation preferentially uses annual water purchases in places such as Oregon’s Klamath River (Appendix F.3.1) and Idaho’s Snake River. (Appendix C.2)
- **Split-season leases.** A split season lease allows an irrigator to use the water during a portion of the growing season, and then leave the water instream during the rest of the season. This transaction works particularly well when an irrigator is growing a crop with multiple harvests, such as alfalfa or pasture, when the water is needed instream for only a short portion of the growing season, such as late summer or fall. The irrigator receives the revenue from his first harvests and is paid not to use his water at the end of the season. Split season leases are commonly used in Oregon and Washington. (Appendix F.3.2, H.3.4)
- **Diversion reduction agreements.** Slicing the right more finely, when the conservation objective can be achieved with only a few days or weeks of water, agreements can specify shorter times. In Montana, when water is needed on the Blackfoot River for migrating bull trout, agreements specify ceasing irrigation diversion for the few days when water is needed. (Appendix D.3.3)
- **Dry year lease or other arrangement.** Dry (or wet) year leases or similar arrangements allow water users to shift the risks of precipitation. Typically, a dry year lease allows an irrigator to use water during wet years, with the water remaining

instream during dry years. Risk can be shifted either way, however. In Colorado, the City of Boulder dedicated a right to instream flow, except in unusually dry years when it can use the water to meet the municipal water needs. (Appendix B.3) California's Environmental Water Account has trouble meeting environmental water obligations in wet years, when the state's plumbing system capacity is fully used, so it is exploring wet year options. (Appendix A.3.2.2)

The most important use for partial right acquisitions is in tailoring the transactional solution to the problem being solved. If water is short for a few months, or even a few days, there is no need to acquire the entire right when a shorter diversion reduction could solve the problem. Similarly, if the environmental problem can be solved by using water only in wet or dry years, a partial right acquisition provides a superior solution.

Term arrangements are very useful as bridges while permanent solutions to problems are in process. For instance, annual leasing is an excellent way to provide environmental benefits while a permanent fix is being undertaken. An example of this is on Washington's Teanaway River, where several years of annual leasing prevented water rights from being forfeited, provided farmers with an income, and left water in the river for ESA-listed fish, while efficiency and conservation improvements were being constructed. (Appendix H.3.3)

Annual leases are very popular with some water rights holders because they provide a stream of income, avoid the risk of forfeiture, and retain maximum flexibility to use water in other ways later. However, they come at the cost of needing annual funding for the environmental purpose, and risk of the water no longer being available. California's federal and state water projects spent about \$60 million per year on annual leases over the last three years, most for supplies to meet endangered species and wetlands needs. (Appendix A.3.2.) Whether indefinite expenditures of that magnitude for annual leasing can be sustained is an open and troubling question.

#### 4.4 Source Switching

In some cases, using alternative water sources, instead of decreasing diversion, can solve environmental problems. Switching the source of supply is a useful approach when alternatives are available and the setting favorable. Examples include:

- **Switching from surface to ground water.** Shifting diversions from surface streams to pumped groundwater is attractive for the obvious reason that fish do not live underground. In many circumstances, groundwater pumping can be an excellent solution to a low streamflow problem. Reclamation's water acquisition program on the Klamath River is systematically using this approach (Appendix F.3.1). Impacts on groundwater supplies can be a severe problem, especially where groundwater and surface water are closely coupled hydrologically.
- **Point of diversion change – tributary to mainstem.** Where a small tributary has critical habitat and low flows, but a nearby mainstem river does not have flow problems, switching the diversion from the tributary to the mainstem can be effective. It can allow the tributary to support the critical environmental needs with

little impact to the mainstem, reducing overall environmental impact without reducing water use. Frequently, tributary to mainstem source switching is part of a larger efficiency improvement program, which reduces the quantity of water diverted.

- **Point of diversion change – downstream.** Moving a point of diversion downstream allows more water to flow from the old point of diversion to the new point. Again, this is often done in conjunction with efficiency improvements to reduce the diversion quantity, and improvements to the diversion system, such as installing effective fish screens. Land trusts and other organizations working in states where instream flow rights are difficult to obtain or unavailable also use this technique. If a senior water right can be moved downstream to a new water use, flow can be maintained in the intervening reach.

Source switching does have real risks – the demand on the new source may have important consequences for the environment or other water users. The Klamath is an example. After the water and fish crisis of 2001 a large number of water users switched to groundwater supplies from surface supplies. Some did so to improve the reliability of their water supply, others made the switch in order to sell their surface water to Reclamation as part of its environmental acquisition program. Groundwater levels in the area are dropping as a consequence of this new use pattern. (Appendix F.3.1)

#### 4.5 Creating “New” Water – Expanding the Use of Existing Water

Squeezing more benefits out of existing supplies, and using some of the “new” water for the environment is a very popular win-win approach to providing water in environmental water transactions. However, there is no real “new” water – every drop of water in the West has some existing use and user. In some cases the “new” water is developed at the expense of the environment, in others it is at the expense of other water users. The techniques of creating “new” water are an exercise in balancing the benefits of the new supply with the impacts on existing users of that water.

- **Conservation and efficiency.** Improvements in irrigation methods, and especially conveyance facilities, can result in a lowered water demand for farming the same number of acres. Lining leaky ditches and converting from flood irrigation to sprinklers can reduce the need to divert water from streams by half or more. When coupled with switching water sources, and habitat restoration on the newly rewatered stream reaches, the result can be spectacular conservation improvements. Montana, due to its favorable implementation of a 2002 Farm Bill water conservation program, is a leader in these efforts. (Appendix D.3.2)
- **Changes to project operations and storage use.** Multi-purpose water projects usually operate by trading off the benefits of various uses – water supply, flood control, hydropower generation, recreation and the environment. For many projects, the environment was a minor consideration when the rules were originally set. Changing the trade-offs, commonly called “reoperating” the project, is a potential source of environmental supply. For large projects, advocacy approaches

rather than transaction approaches are typically used to seek reoperation. However transactional approaches are beginning to be considered. In Montana, Trout Unlimited recently brokered a deal to trade investments in maintaining a dam for guaranteed minimum flows downstream of its reservoir. (Appendix D.3.4) A California program (Appendix A3.2.3) is considering changing operations of a Reclamation dam to supply flood flows needed to improve spawning habitat.

- **“New” storage.** Across the West, as new dams and water projects are being proposed, there is usually a portion of supply promised, or implied, for the environment. These “dams for the environment” are an increasingly prominent part of the western water discussion. How they fit into transactional approaches is yet to be determined; however, they represent both a significant opportunity and potential problem. In California, a number of new projects are proposed as a part of the CALFED process; unfortunately, transactional approaches that result in permanent environmental water supplies appear to be stalled in favor of supplies from these new projects.

“New” supplies, especially from conservation and efficiency projects, are very popular because they appear to allow winners without losers. However, appearances can be misleading. With irrigation conservation and efficiency projects, care must be taken to distinguish between reducing conveyance losses and reducing consumptive uses. Water that leaks out of ditches or is applied to fields in excess of plant needs infiltrates into the groundwater system or flows back into streams where it is available for use by others. Groundwater often serves as the source of streams and wetlands, especially during dry times of year. Reducing the conveyance loss or field return flows may also reduce environmental flows. Some irrigation efficiency measures, especially sprinklers, may actually increase the evaporation of water, resulting in greater, not less, consumptive use. When a leaky ditch and flood system is replaced with an efficient pump and sprinkler system, the increased consumptive use needs to be weighed against the benefits of decreased diversion.

New storage projects continue the trend of reducing high flows, usually the spring floods, in favor of storage for use later in the year. The problem is that an increasing body of science suggests that high flows are essential to geomorphic processes upon which many organisms rely. Whether a specific new project is likely to result in a net environmental improvement is a question that can be answered only after a detailed project proposal is carefully examined.

#### 4.6 Going to Scale – Water Banks, Districts and Group Acquisitions

Most of the techniques discussed in this chapter apply to individual transactions. In some cases, these approaches can be expanded to apply to multiple transactions:

- **Water Banks** The term “water bank” is used for a number of different arrangements. A new report, *Analysis of Water Banks in the Western States*,<sup>4</sup> provides a

<sup>4</sup> <http://www.ecy.wa.gov/programs/wr/instream-flows/wtrbank.html>

comprehensive survey of the structure and functions of water banks. In some cases, they are used for environmental water transactions.

- Multi-user water banks have many different buyers and sellers; the “bank” serves as a clearinghouse for transactions. Several states and many water districts operate this type of water bank to connect water users. In rare instances, an environmental water buyer enters these banks to buy water – since 1993, Reclamation has used the Idaho Water Bank to buy up to 427,000 acre-feet per year to meet ESA requirements for Snake River salmon. (Appendix C.2)
  - Single-buyer water banks are structured to help a buyer reach many sellers efficiently. The “bank” formalizes the transaction structure, and avoids some of the transaction costs of many one-on-one negotiations. Examples include the federal Klamath Water Bank, where Reclamation is buying water to meet ESA requirements, and the private Deschutes Water Exchange. (Appendix F.3.1, F.3.3). Commonly a standard offer is used – the Deschutes Water Exchange offers \$7 per acre-foot for an annual lease. Other approaches may be more economical – the Klamath Water Bank switched to an auction for its bank, and cut the per acre-foot price it pays for annual water from \$75 in 2003 to \$59 in 2004.
- **District or Ditch Agreements** Water districts and ditch associations create ready-made groups of water users that are being used to create variations on transactions with individual water users. (Appendix F.3.2, F.3.3, D.3.3)

#### 4.7 Hydropower

Hydropower projects present opportunities for environmental water transactions that use some of the techniques mentioned above in novel settings. Many smaller hydropower projects divert water from a river and run it through a canal or pipe for some distance, before dropping the water through a generator where it rejoins the river. The depleted reach, known as the “bypassed reach,” can be short, or miles long. The diversion may leave most water in the river or take it all. Where there are significantly depleted flows in a bypassed reach, transactions may be feasible. In the Yakima watershed, Reclamation recently bought an old hydropower plant to decommission it and rewater its bypassed reach. (Appendix H.3.3)

## Chapter 5

### Variations on a Theme: State Water Law Systems

#### 5.1 Introduction

Some form of environmental water transaction is possible in every western state; however, the underlying water rights systems are quite variable, with different rules for, and degrees of receptivity to, environmental transactions. In a very few states, environmental transactions are treated as if they were transactions between non-environmental water users. In most states, however, environmental transactions are subject to special limitations or procedures. This chapter presents a brief survey of some of the most important state law approaches to environmental water transactions.

#### 5.2 Holding an Environmental Right

Most states allow acquiring water rights for environmental purposes in some form, but impose limitations on who can hold such a right. To effectively use environmental water transactions, those limitations have to be understood and in some instances, finessed.

The most common approach is limiting the holder of environmental rights to a state agency. Under these systems, third parties may acquire water rights, but then typically turn them over to the state agency. Developing a good working relationship with the recipient agency is very important when it has the authority to not accept a donated water right. Colorado recently turned away a right donated for instream use after deciding that irrigation use of the right was preferable. In Oregon and Washington, non-profit organizations that acquire water rights for instream flows coordinate with state agencies to focus on transactions in watersheds with high priority needs.

Transferring a right to a state agency may not always be necessary, even where only the state may hold an environmental right. Water rights can sometimes be used for other purposes and provide environmental benefit as well. Moving the location of use for a senior right downstream increases flows in the intervening reach, without having to characterize the use as environmental. In these cases, state law procedure for changing the location and possibly the type of use would be followed, but dedication of the right for environmental use would not be needed. Land trusts often use irrigation water in ways that supports environmental values, for instance returning flows to streams to support riparian habitat, again providing environmental benefit without the need for a formal environmental dedication.

Where there is little concern about defending or enforcing the right, and where forfeiture is not an issue, going through the state law change and dedication process may not be needed. For instance if there are no downstream water users in the reach that needs augmented flow, an agreement to simply cease diversion for a few days or weeks may provide environmental benefit without any formal process. In states where water accounting is stringent and the water right is defined by recent historical use, this may not be appropriate.



Where a state agency must hold the right, there is often concern about how the state will defend or otherwise use the right. In Washington, state law allows conditions to be placed on a right donated to the state; for instance the donation could contain a clause requiring the right be returned to the donor if the state determines it is no longer needed for a specific use. The Colorado Water Conservation Board uses a similar approach by entering into a donation agreement setting out mutually agreeable terms and conditions.

Private parties can hold environmental rights in only a few states. Montana allows instream flow leases for up to 20 years, and leasing of water conserved through efficiency improvements for up to 30 years. Nevada, Texas and Arizona law appears to allow both direct appropriation of water and changing existing rights to environmental uses. California authorizes converting existing rights to private environmental rights, but does not permit private appropriation of water for environmental use. Most unusually, California's riparian rights may be converted to environmental use, a rare instance where riparian rights can be used away from the riparian property.

Idaho, in general, does not permit converting existing water rights to environmental use. Even the state is limited to appropriating new junior water rights for environmental purposes where water is available. Idaho's legislature created exceptions allowing the Bureau of Reclamation to purchase water in the state Water Bank, and established an instream flow right on the Lemhi River with the intention that the water for that right be obtained in a local water bank. It may be possible to extend the Lemhi approach of leasing water to meet existing instream flow rights in other places as well; however, this approach is not yet established, and appears to run counter to the legal requirement that water be available before the state can appropriate environmental water rights.

### **5.3 Quantifying a Right Converted to Environmental Use**

In a state change of water use proceeding, quantifying how much of the water right can be changed to the new use is a significant and frequently complicated problem. The basic rule in the prior appropriation system is that a change in a water right may not injure another water right. Each state has a slightly different approach to applying that rule. In most states, that approach is already well established in the context of transfers from one water user to another; environmental transactions simply use the same approach.

A water right can be quantified in several different ways. The greatest quantity is the amount specified in the water right decree, certificate or permit; this is usually known as the paper right. Historic use is the amount actually diverted or pumped during a certain period, and is often less than the paper right, but cannot be legally greater than the paper right. Of the amount of water actually diverted, a portion is evaporated or transpired by plants; this consumptive use is lost to the local system. The remainder of the historic use recharges the groundwater or flows back to a surface stream, again becoming available for other water users; this is called return flow.

One of three fundamental approaches is usually followed in quantifying the transferable portion of the right. The approach yielding the greatest quantity of transferable water starts

with the entire paper right and subtracts any amounts needed to prevent injury to another water rights holder. If the process begins with legal historic use, and then subtracts water needed to prevent injury to other water users, the result is usually smaller. An approach based on consumptive use yields the smallest quantity.

Because water in excess of consumptive use is returned to the local system and is therefore available to other water users, approaches that allow transfer of more than consumptive use run the risk of injury to other water users. If essentially all water is used and all water users assert their rights, then any of the three basic approaches should result in the same quantity available for transfer. Any other result may have the effect of expanding the transferred right in the new use at the expense of other water users, groundwater supplies or environmental use.

Most western states quantify transferable water starting with historic use and subtracting return flows used by other users; the remainder is available for transfer. Oregon and Texas are unusual in that they start with the paper right rather than historic use, and then consider injury. Temporary transfers in California and most transfers in Colorado are limited to consumptive use. Washington is unusual in that it has developed a written protocol for quantifying environmental rights, with the amount that can be claimed varying by month within a year, and with the distance downstream.

Developing the information needed to quantify the right can be difficult and expensive. If consumptive use is the measure, a water engineer or hydrologist is usually needed to calculate the transferable quantity using data about historical use, crop patterns, and hydrology. Documenting historic use is often difficult, and may involve crop records, air photos and other research. The paper rights systems require the least documentation.

#### **5.4 “Salvage” or Conserved Water**

Related to quantification of transferable rights is the treatment of conserved or “salvaged” water. Some states allow a water user to retain rights to water obtained by improving efficiency, such as lining ditches or switching to a drip irrigation system, subject to the no-injury rule. In these states, investing in efficiency can be an excellent way to obtain environmental water supplies.

In Montana, conserved water can be claimed and can be used as a source of environmental water. Oregon law allows a water user to retain rights to most water conserved, but requires that a quarter of the water be dedicated to instream flows. In Washington, if public funds are used to pay for the conservation measures, a proportionate amount of conserved water is usually used for environmental trust purposes.

Most conservation actions reduce return flows, rather than reduce consumptive use. As a consequence, they may injure other water users who depend on those return flows. Because states vary considerably in their scrutiny of salvage water claims, some may be allowing injury to other water users when permitting such claims.

## 5.5 The Protected Reach

In the prior appropriation system, a specific use for water and place of use is usually required, as is a point of diversion. In some states, this requirement has been eased for instream or environmental rights. In other states, a way has to be found to meet these requirements for the environmental right.

For some environmental purposes, such as supplying a wildlife refuge, the point of diversion and place of use may be obvious. In Nevada, for water rights purchased for use on Stillwater National Wildlife Refuge and surrounding wildlife management areas, the state allows the entire wildlife management complex to be designated as the place of use. Because the water is conveyed through an irrigation system, the point of diversion is clear as well.

For instream flows where there is a specific environmental purpose, such as providing fish passage through a defined low flow reach, the diversion and place of use may be well defined. Most states will allow the beginning of the critical reach to be designated as the point of diversion. If state law allows, the entire specified reach can be defined as the place of use. However, states like Nevada, which do not have statutory systems for environmental rights, have been reluctant to allow an entire reach to be designated as the place of use, because doing so does not neatly fit within existing appropriation requirements. Nevada does, however, allow a specific point to be designated as the place of use, creating a protected reach between the point of “diversion” and the place of use. Nevada requires measurement at both points to help define the right.

Where the objective is to improve instream flows as far downstream as is possible, defining a place of use may be a problem. If the state permits it, the reach could extend to a saline water body (usually a terminal lake or the ocean), or the state line. In most cases, however, longer protected reaches increase the likelihood of protests, so protected reaches are often shortened to forestall opposition.

## Chapter 6

### The Six Lessons of Buying Water

#### 6.1 Introduction

In surveying water transactions around the West, common themes arise. Some of those issues are discussed in other parts of this report. However, six are so common and so fundamental to the success of transactional approaches that they warrant highlighting in this chapter.

#### 6.2 Have Patience

At some point in every interview conducted for this study the issue of patience arose:

- Patience in identifying the best places to work;
- Patience with potential sellers while they decide whether to sell or lease;
- Patience with sorting out the technical, legal and biological issues; and
- Patience with state agencies.

Environmental water transactions are inescapably complex. Water rights are by their very nature embedded in a web of hydrological and legal relationships, with those relationships often poorly defined. Water use is also entangled in a complicated web of social, economic and community relationships. Market and regulatory mechanisms for completing transactions are, with a few exceptions, neither streamlined nor efficient. The result of all this complication is that water transactions, environmental or otherwise, take far more time and money than seems reasonable, hence the need for patience.

That is not to say that patience is enough – pushing, nudging, cajoling, and persuading, along with patience, are often necessary. A third party participant who is willing to use legal action can be quite helpful as well.

The range of patience required varies, but for permanent or long-term transactions, the scale is often years rather than months. In Nevada's Newlands Project, where combined land and water rights transactions are well established, it is common for several years to pass between initial contact and deal closing. Staff from Nevada's Department of Wildlife spent 20 years periodically drinking coffee at the kitchen table before a stock grower was willing to sell his ranch and water to the state for a wildlife management area. In California, CALFED's Environmental Water Program has been carefully working through a comprehensive set of issues, politics and processes since 2001 without having yet closed a deal. On the other hand, annual leases and other shorter-term arrangements can be completed in a matter of weeks or months.

Closing the transaction is only one step in the water transaction process. Completing the regulatory process for changing the right to an environmental use may take additional months or even years depending on the state system, complexity, protests and backlog.

### **6.3 Do the Right Deals – Conduct Due Diligence and Be Prepared to Walk Away**

Lessons learned from failures and problems are often better remembered than those learned from successes. In the interviews conducted for this report, the causes of problem transactions were often things that could have been discovered through more diligent investigation prior to deal closing. In other cases, the potential problems were well known and proper judgment regarding when to walk away was needed.

The point of due diligence is not to avoid or eliminate risk – that is unattainable and often undesirable in water transactions. Rather the point is to reduce surprises, prepare for problems, and to make sure that assumed risks are worth taking.

Legal risk is almost always present. Presenting a water right to a regulatory agency involves a risk of the agency declaring the right invalid. Typically, water rights holders are reluctant to enter transactions that might place their rights in jeopardy. In California (Appendix A.3.1), one of the few completed applications for changing a water right to instream flow was denied with a decision that cast doubt on the continued validity of the rights involved. In states where an administrative water rights change process is used, the decision may be appealed administratively by protesters or in litigation. As a market participant in a state with initial administrative review said, “You should expect to get sued; the trick is to make sure that getting sued is worth it.” That is one function of due diligence – making sure the risk is worth taking.

Another point of due diligence is to carefully understand just how a water right can be applied to a new use. In Nevada (Appendix E.3.2) the Division of Wildlife bought a 5000 acre-foot water right intending to move its use to a Wildlife Management Area. However, the conveyance system for moving the water to its new use was a losing reach of a stream. After reducing the right to avoid injury to third parties and conveying the water through the losing reach, only about 200 acre-feet per year actually reached the destination. Whether those 200 acre-feet are worth the money and effort involved is a decision best reached before the transaction is completed, rather than after.

Should the due diligence reveal that the transaction will not result in adequate benefits, or uncovers issues, politics or problems that cannot be reduced to an acceptable level of risk, the project proponents need the courage to walk away. Due diligence and judgment are needed to avoid triggering significant litigation based on less than compelling facts or spending resources with inadequate return.

#### 6.4 Measure Success With Results, Not “Bucks and Acre-feet”

In the land trust world, it has long been easy to measure success through “bucks and acres” – the dollars raised and the land bought. For water trusts or other environmental water acquisition efforts, “bucks and acre-feet” are also one possible way to measure results, but just as with land trusts, other measures may be better.

Typically, the measure of success should reflect the objective of the transaction. If the objective of a transaction is biological, the measure of success should be biological as well. A transaction designed to provide winter flows should be evaluated by the degree to which that goal is accomplished, not the dollars spent or acre-feet involved.

A numeric goal for acre-feet obtained can drive an organization toward a specific type of transaction that may not maximize environmental improvement. In 1994, Congress required the Bureau of Reclamation to provide 110,000 acre-feet per year for fish and wildlife in the Yakima River basin by 2002, without setting biological or other standards. To meet that requirement, in 2003 Reclamation bought and retired a small hydroelectric power plant on a tributary of the Yakima, paying \$6.5 million for the water rights and additional sums for land and facilities. The acquisition resulted in the power plant ceasing its practice of diverting large quantities of water from a seven-mile stretch of the river’s mainstem, greatly improving steelhead and salmon habitat in the formerly bypassed reach. However, because the rights were for power generation, a non-consumptive use, benefits did not extend downstream of the formerly bypassed reach. Buying the hydropower rights was probably the fastest and cheapest way to meet the congressional requirement and provide a fish and wildlife benefit. At the same time the purchase was consistent with Reclamation’s objective of minimizing the impact of acquisitions on the use of water for irrigation in the Yakima Basin. Given Reclamation’s sensitivity to environmental water acquisitions, this transaction was an elegant solution to the problem of acquiring 110,000 acre-feet per year without political fallout. Whether it delivered the greatest ecological impact possible from the money spent was almost beside the point – it resolved Reclamation’s political need to respond to Congress’ numeric directive.

#### 6.5 Plan to Monitor and Defend the Environmental Water Use

Effectively monitoring and defending environmental water rights is always a work in progress. For some of the organizations involved in transactions, the monitoring and defense work is proving to be more complex than anticipated.

The simplest cases involve water for off-stream use such as wildlife refuges in California or Nevada, where water is delivered through existing water projects. There, the water can be measured just as it would be for any other diversionary use. Proving that the water was used beneficially is a matter of documenting application of the water to wildlife ponds and wetlands. Defending the right is in every respect the same as for other diversionary uses.

Instream flow monitoring and defense is a more complicated task. The first problem is in measuring flows in streams. While a variety of techniques are in use, they typically require

either expensive permanent stream gauging stations, or labor and expertise for manual measurements. In Montana, Trout Unlimited is working to create a set of protocols that can be used by trained volunteers to measure stream flows at various points on streams with instream flow rights. This is a promising method, but if paid staff is needed to do the work, the carrying costs of the acquired water rights increase. Either way, the need to monitor on a permanent basis should be considered as part of due diligence.

Monitoring the biological effects of additional flows, as may be required to prove beneficial use, is a second problem. Some states may require fish counts or other biological monitoring for this purpose. Even if not strictly required as a water right condition, biological monitoring to establish beneficial use may be useful in defending the instream right.

Defending the right against infringement requires both physical and legal vigilance. Water use upstream has to be monitored to make sure that neither junior nor senior rights holders are exceeding their legal entitlements. The water rights system also has to be monitored and, where needed, protests filed in order to defend the right from changes to existing water rights.

In planning a water rights acquisition project, the costs and resources needed to monitor and defend the acquired rights need to be fully considered.

## **6.6 Build Effective Relationships**

Like water rights themselves, water rights holders exist in a complicated web of relationships. A common theme among the organizations interviewed was the need to form effective working relationships with other water users and agencies.

The threshold relationship is with potential sellers of water or water rights. Organizations buying water and water rights must develop relationships and establish credibility with sellers so that rights owners will be willing to do business.

Oregon's Deschutes Resources Conservancy is going beyond simply developing relationships with water users. In its proposed water bank, it is setting up a market mechanism that is intended to facilitate transactions among water users, as well as for environmental use. It also sees developing relationships with water districts as a way of institutionalizing and increasing the scale of its current efforts with individual water users.

Developing working relationships with the agencies that will ultimately hold a water right is essential as well. In states where an agency must hold any environmental right, positive and trusting relationships are needed to minimize the chance of a state turning down an offered right, as happened to the Conservation Fund in Colorado. If a state agency ultimately decides whether a water right may be put into environmental use, insight into its processes and decisions is critical. Professionally maintained relationships are the best way to gain that knowledge.

## 6.7 Prepare for Expensive Transactions

Water deals are expensive. In addition to the direct cost of the water or water rights, substantial costs are usually incurred for the legal, technical and engineering expertise needed to complete changes of use within the state law system.

Buying water rights, even in a declining agricultural setting is expensive. In 1996, settlement of Clean Water Act litigation on the Truckee River in Nevada created a fund of \$24 million, for buying 24,000 acre-feet of water. By early 2004, with about a third of the money spent (\$7.4 million), only 15% of the water target (3,805 acre-feet) had been purchased with the average net price near double the anticipate \$1000 per acre-foot. (Appendix E.3.1.1)

Obtaining water by investing in conservation and efficiency can be just as expensive. On Washington's Teanaway River, a federal investment of about \$3.5 million resulted in increasing flows on several river miles. One way of viewing the transaction is that because the point of diversion was moved several miles downstream, about 4,000 acre-feet of diversion did not occur in that reach – resulting in a cost of about \$875 per acre-foot. (Appendix H.3.3) Because conservation and efficiency investments do not usually result in decreased consumptive use, the water obtained can only be used for environmental purposes in the limited distance between the point of diversion and the former point of return flow. By contrast, buying water rights usually results in retired consumptive use, which, in theory, contributes to environmental benefits to the state line or the sea.

Buying water on an annual basis can be expensive as well. Over the last 3 years, California's CALFED purchased about 880,000 acre-feet of water for \$136 million, or about \$154.50 per acre-foot. (Appendix A.3.2.2)

Water deals also often require specialized legal, engineering and technical support. In Colorado, where specialized support is the rule, a Colorado Water Trust transaction for a \$130,000 water right is requiring \$70,000 worth of donated legal and hydrologic expertise.

In contrast to many of the land trusts in the West, most of the water acquisition efforts surveyed are funded primarily by governmental money. The federal government, through the Bureau of Reclamations and the Fish and Wildlife Service, is the largest single purchaser of environmental water. In addition, the National Fish and Wildlife Foundation funds water acquisition efforts by governmental and non-governmental organizations throughout the Pacific Northwest using money from the federal Bonneville Power Administration. The Deschutes Resource Conservancy in Oregon not only uses funding from federal programs, but has also obtained line-item federal appropriations. State, local government or tribal-led efforts in California (CALFED), Nevada and Washington also use public funds. The Colorado Water Trust is relatively unusual because it relies almost entirely on private funds. If transactions are to become a major part of solutions to environmental water problems, additional secure funding mechanisms will be needed from both public and private sources.



A major outstanding issue for water acquisition efforts is tax treatment of water rights donations to qualified charitable organizations or governmental entities under the Internal Revenue Service Code. There appears to be no impediment to claiming a tax deduction for donation of an entire appropriative right; a number of donations of this type have been made and while there may be issues of valuation, the tax-deductibility of such a donation appears to have not been questioned. A significant tool for land trusts is a donation of a partial interest in land in the form of a permanent conservation easement. How conservation easements on water rights would be structured is a topic ripe for further work. To date, most environmental water acquisitions have been leases; when donated, a lease of a water right is not eligible for a tax deduction.

## Chapter 7

### Conclusion

In just the last decade, environmental water transactions have gained a prominent role as an important tool in protecting and restoring water-dependent ecosystems in a way that minimizes disruption and controversy within the water rights systems of the West. In important and substantial ways, organizations in western states are beginning to realize the potential value of environmental water transactions to western ecosystems and western people.

While environmental water transactions are still in early stages of their development, the progress made in applying them is remarkable. When federal legislation authorized their use in California, Nevada and Washington in the early 1990's, Congress was acting on the promise of the technique rather than its demonstrated performance. Now when proposals to apply it are made, there can be better assessment of whether it is the right tool for the proposed task. In this report, some examples of tremendous successes have been highlighted, such as supplying water to wildlife refuges in California and Nevada, averting ESA crises in California and the Pacific Northwest, and restoring fish habitat in Montana. At the same time, the report notes the need for careful analysis of consequences for other water rights holders, the environment and third parties.

It is with the hope that environmental water transactions will soon become routine, with attendant benefits for both western ecosystems and westerners that this report concludes.

## Appendix A

### California: Private Instream Rights and Public Mainstem Leases

#### A. 1 Introduction

When California and water are mentioned in a sentence, words often found in proximity are “complex,” “contentious” and “expensive.” When considering environmental water transactions in California, all of those words are appropriate.

The overwhelming majority of environmental water transactions in California have been part of the (complex, contentious and expensive) efforts to improve the performance of the two major water projects in the state, the federal [Central Valley Project](#)<sup>5</sup> and the [California State Water Project](#).<sup>6</sup> Apart from those efforts, there has been no systematic effort to complete water transactions for the environment.

California is one of the rare western states that allow privately held environmental water rights. Existing valid water rights may be converted to instream use under the state Water Code. However, despite existence of this authority for more than a decade, relatively little use of the law has been made. Currently, several individual transactions are in various stages of completion.

#### A. 2 State Law Procedures and Issues

In 1991 California recognized the promise and potential of private dedication of water to the environment through legislation that explicitly authorized converting existing rights to environmental use. [State Water Code section 1707](#)<sup>7</sup> allows a party to dedicate -- temporarily, on a long term, or permanently -- water for environmental use, after following the appropriate transfer or change in use procedure. Water dedicated under section 1707 may be designated as being part of, or in addition to, any flow established by government requirements. California has long used water right permit conditions to set and protect environmental flows; section 1707 is designed to work with that permit condition system.

The procedures used in California to transfer and change the use of water to instream use, are not streamlined. In part, this is because they have not yet been extensively used, and in part because they pose novel issues in addition to those present for transfer from diversionary use to diversionary use.

The Trust for Public Land prepared a very useful guide on private instream flow transfers in its [Water Acquisition Handbook](#).<sup>8</sup> Other good sources of information about the

<sup>5</sup> <http://www.usbr.gov/dataweb/html/cvp.html>

<sup>6</sup> <http://wwwowe.water.ca.gov/swp/>

<sup>7</sup> <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=wat&group=01001-02000&file=1700-1707>

<sup>8</sup> [http://www.tpl.org/tier3\\_cd.cfm?content\\_item\\_id=11521&folder\\_id=266](http://www.tpl.org/tier3_cd.cfm?content_item_id=11521&folder_id=266)

California transfer process include a [Draft Guide to Water Transfers](#),<sup>9</sup> the Department of Water Resources [Water Transfer Office](#)<sup>10</sup> and the State Water Resources Control Board's [Water Transfers Program](#).<sup>11</sup> A report to the SWRCB on [Water Transfer Issues in California](#)<sup>12</sup> contains a discussion of some of the issues presented by section 1707 instream flow dedications. A recent (March 2004) report prepared to assess options for establishing a water trust on the Scott River presents an excellent summary of the law and potential application to a private water trust.

California has [general transfer or change requirements](#)<sup>13</sup> as well as different procedures and requirements for [temporary transfers of less than one year](#)<sup>14</sup> and [transfers longer than a year](#).<sup>15</sup> Dedication to instream flow may be accomplished in the course of a transfer, and has its own requirements.

Changes in water rights, for environmental purposes or otherwise, are complicated in California by rights derived from a variety of sources -- Spanish law, riparianism, prescription, federal reservation, and appropriations both before and after the 1914 creation of a permit system. Further, groundwater rights are very rarely integrated with surface rights, even during adjudications of basins where groundwater and surface water are hydrologically interconnected. For an overview, see a [summary of California water law](#).<sup>16</sup>

In brief, temporary transfer, long-term transfer and change to environmental use all have common standards -- not injuring valid water rights and not unreasonably affecting fish, wildlife and other instream uses. For each change, the proponent bears the burden of demonstrating validity of the right, non-injury to other valid water rights, and affect on fish, wildlife, recreation or other instream use. To present that evidence, applicants will likely require extensive information about historic use, hydrology, and environmental issues, using the usual troop of lawyers, engineers and other consultants. For a long term transfer or environmental change the amount and quality of information required will be higher, because of the greater possibility of injury. In addition the applicant will need to consult with a variety of state and federal environmental agencies about the effects of the transfer.

Temporary (less than one year) transfers of post-1914 appropriative water rights are limited to consumptive use or storage, reducing the chance of injury to other water users. The SWRCB does not have authority to condition these transfers in the general public interest, although other water users must not be injured and the change may not unreasonably affect instream beneficial use, fish or wildlife. Temporary transfers are not subject to the [California Environmental Quality Act](#)<sup>17</sup> (CEQA). This is important because CEQA differs from the federal National Environment Policy Act because it imposes substantive as well as

<sup>9</sup> <http://www.waterrights.ca.gov/watertransferguide.pdf>

<sup>10</sup> <http://www.wto.water.ca.gov/>

<sup>11</sup> <http://www.waterrights.ca.gov/watertransfer/default.htm>

<sup>12</sup> <http://www.waterrights.ca.gov/watertransfer/Final%20Report%20-%20Water%20Transfer%20Group.pdf>

<sup>13</sup> <http://www.leginfo.ca.gov/cgi-bin/waisgate?WAISdocID=41522711613+0+0+0&WAISection=retrieve>

<sup>14</sup> <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=wat&group=01001-02000&file=1725-1732>

<sup>15</sup> <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=wat&group=01001-02000&file=1735-1737>

<sup>16</sup> [http://ceres.ca.gov/env\\_law/water\\_law/](http://ceres.ca.gov/env_law/water_law/)

<sup>17</sup> <http://ceres.ca.gov/ceqa/>

sometimes-lengthy procedural requirements. Upon initiation of a temporary change application, notice is given to other water rights holders, who may protest, and the SWRCB initiates investigation. Within 35 days of beginning investigation, the SWRCB must issue a decision. Hearings are not required unless requested by the petitioner, usually because of denial or protest. However, decisions on transfers subject to protest or with complex hydrological issues are sometimes delayed.

Long-term transfers (permanent or for terms greater than one year) of post-1914 rights are not subject to the expedited time lines. CEQA compliance is required, which may, depending on the factual situation, be brief or lengthy. The SWRCB has implicit authority to consider public interest issues, including third-party effects unrelated to water rights. For instance, the SWRCB could consider the economic or social effect on a community of fallowing significant irrigated acreage. If protests cannot be resolved, SWRCB holds a hearing. The whole process may take years. Of interest is that other water users may not be “substantially” injured, a slightly lower standard than non-injury used for temporary transfers.

For a western state, a very unusual feature of California environmental water law is section 1707’s authority for converting existing rights to privately held environmental rights. While the statute envisions private rights being held to benefit and enhance fish and wildlife habitat, to date that has not been its main use.

A primary reason for the existence of section 1707 is the experience of the California State Emergency Water Bank in 1991. In that drought year, the Department of Water Resources paid riparian rights holders not to irrigate, and used their water to meet regulatory requirements for outflow from the Sacramento and San Joaquin Rivers into San Francisco Bay. However, using riparian water for this purpose was of questionable legality, and DWR could not defend the water from other water users. DWR needed a mechanism that legitimized buying water from cheaper sources (in this case riparian water users) to meet regulatory requirements, allowing more expensive water from the State Water Project to be delivered to water contractors.

In section 1707, the legislature recognized an opportunity to increase economic efficiency in meeting regulatory requirements by buying cheaper water and dedicating that water to instream use. The primary means to protect instream flows in California is through water right permit conditions. Many water users, not just state agencies, have minimum flow requirements as part of their water rights or regulatory flow requirements arising from water quality, endangered species or other regulation. Most of the text of 1707 is devoted to regulatory issues and sets out the default condition that 1707 water is applied to meeting regulatory requirements including permit conditions. However, it also allows a petitioner to specify that 1707 water be in addition to regulatory requirements, explicitly allowing water to be dedicated to preserve and enhance the environment. To date, section 1707 dedications have been most often used in conjunction with regulatory requirements.

A surprising feature of section 1707 is that it explicitly allows dedication of appropriative, riparian, or other rights. This is one of the few permitted uses of riparian rights beyond application to riparian land and represents a rare expansion of riparian rights.

SWRCB staff<sup>18</sup> anticipates most section 1707 transfer issues to be similar to those presented by other transfers – validity of the right, quantification of the transferable right (with its component parts of historic use, consumptive use, conserved water, return flows, injury to other water users), and effect on the environment. Because section 1707 has an explicit public interest component, the SWRCB may consider the public interest even in a temporary transfer not otherwise subject to a public interest test.

Section 1707 transfers do present some issues of particular interest to the SWRCB. “Paper water,” water not historically used, is a significant concern. California has a 5-year non-use forfeiture statute. Water users may attempt to use a 1707 dedication to avoid loss of water already subject to forfeiture, or to put to use water not historically used. The SWRCB has [denied a 1707 dedication based in part on concerns about “paper water.”](#)<sup>19</sup> Water users may also use the environmental use dedication as an intermediate step in attempting to use their water in ways not otherwise permitted. An example might be a riparian user dedicating rights to instream use and then at a later date converting that that instream right to a use not permitted for a riparian right.

The issues of quantification and protected reach have been decided on a case-by-case basis. Dedication of a right to instream use may not result in an increase in water used and may not “unreasonably affect” any other water user. Unlike temporary transfers, which are limited to consumptive use, a long-term instream dedication could, if accomplished without unreasonably affecting another water user, include conveyance losses or return flows. California Water Code [section 1011](#)<sup>20</sup> exempts from forfeiture properly documented conserved water, allowing the water rights holder to transfer it to another use. SWRCB staff indicates that conveyance losses or return flows could be included in a dedication to the point where they would otherwise return to a stream, and perhaps further depending on the situation. In theory, dedication of the consumptive use could extend to the ocean or a saline sink. Practical limits on enforcement and measurement might make such a claim unwieldy. If the protected reach included mainstem rivers, a flurry of protests would no doubt complicate the process.

Proponents of section 1707 dedications sometimes comment about the problems of getting agencies to agree on their collective approach.<sup>21</sup> Changing ownership and use of a water right, whether for environmental or other use, requires consultation with a variety of state, local and federal agencies through the SWRCB process and in CEQA. Each of the main state agencies involved (SWRCB, Department of Water Resources and the Department of Fish and Game) has its own particular major concern in section 1707 dedication (injury, overall water use, and the environment respectively). To a large extent, the issues of coordination may simply be the complex, contentious and expensive way water business is done in California.

<sup>18</sup> Sawyer, Andy. Assistant Chief Counsel, State Water Resources Control Board. Personal communication. June 2004.

<sup>19</sup> <http://www.waterrights.ca.gov/hearings/WaterRightOrders/WRO2003-01.pdf>

<sup>20</sup> <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=wat&group=00001-01000&file=1000-1017>

<sup>21</sup> Holland, Elise. Attorney, Trust for Public Land. Personal communication. March 2004.

### A. 3 Environmental Water Transactions – California

Environmental water transaction in California fall into two main categories: a handful of section 1707 dedications and a large number of transactions involving huge amounts of water related to the major state and federal water projects.

#### A.3.1 Section 1707 Dedications

Only a handful of section 1707 dedication have been completed. More are in various stages of the process.

The [Resource Renewal Institute](#)<sup>22</sup> (RRI) is one of the few conservation organizations to have completed a section 1707 dedication. On Butte Creek, RRI acquired a 1942 adjudicated right of 1.5 c.f.s. year round, with up to 3.5 c.f.s. during the irrigation season. Butte Creek is a Sacramento River tributary, on which considerable work has been accomplished to protect and enhance spring Chinook and steelhead runs. RRI went to Butte County Superior Court, which had jurisdiction over the adjudicated right, and in 1998 succeeded in using section 1707 to convert the water right to instream flows. Throughout its work, RRI consulted with federal agencies involved with the fishery restoration, and had purchased the right with the understanding that the water would be sold to a federal agency as part of the salmon restoration project. However, when the Bureau of Reclamation prepared to enter a long-term water lease with RRI, politics entered the picture. Congressman Doug Ose (R-CA 3rd) (who does not represent the area) [blocked the purchase](#)<sup>23</sup> by inserting language in an [appropriations bill](#)<sup>24</sup> that prohibited purchase of water already dedicated to instream flows. RRI reports that it has lost more than \$200,000 on the effort, and as of mid-2004 had not found a buyer for the water right. The result was a successful use of section 1707, yet politics left the organization doing the work in financial distress.

A section 1707 dedication allows the entity releasing water to meet regulatory goals or requirements while retaining ownership and beneficial use, thus avoiding any potential claim of forfeiture through non-use or prescription, and retaining at least the possibility of future economic use of the water. Section 1707 has been used for this purpose, for example on the [Bear River](#)<sup>25</sup> and in [pending applications](#)<sup>26</sup>.

A failed attempt to use section 1707 highlights the need to have a well documented, valid right to start with. On the North Fork Tule River, a landowner applied for temporary transfer of 1015 acre-feet of water from a pre-1914 right to instream use. The SWRCB ultimately denied the transfer, citing the requirement that temporary transfers involve only consumptive use, and noting that the water right owner did not have a diversion structure and could not demonstrate that the water would be used in the absence of a transfer. While the physical situation and history, both of water use and related litigation, was complicated,

<sup>22</sup> <http://www.rri.org/projects/water.html>

<sup>23</sup> <http://www2.chicoer.com/articles/2002/11/02/news/news5.txt>

<sup>24</sup> <http://thomas.loc.gov/cgi-bin/query/z?c108:H.R2754.ENR>

<sup>25</sup> <http://www.waterrights.ca.gov/hearings/WaterRightOrders/WRO2000-10.pdf>

<sup>26</sup> <http://www.swrcb.ca.gov/agendas/2004/march/0330-11.doc>

there was at least a question as to whether the right had been forfeited. The [SWRCB Order](#)<sup>27</sup> raised the issue of “paper water rights.”

Exploratory work for establishing a water trust that could use section 1707 is underway on the Scott River, a tributary to the Klamath River in northernmost California.<sup>28</sup> The Scott River is very unusual in that almost all water rights are adjudicated, including both surface and ground water. In most of California, groundwater right priority is not integrated with surface rights; for the Scott, this makes the system both more representative of physical reality and more complicated. The current approach is to set up a “water bank” that would buy water, not water rights, from willing sellers for use at critical times of the year for salmon spawning and rearing. Recently, (March 2004) a California water law firm prepared a report assessing options for a water trust.<sup>29</sup>

### A.3.2 CALFED and CVPIA Federal and State Water Acquisition

A very large set of environmental water transaction programs is taking place in California under the umbrella of coordinated water management agreements among the various federal and state agencies. To date, most of the water acquisition has been for ESA compliance on the mainstems of major rivers. A second acquisition focus is providing water for federal and state wildlife refuges. Tributary efforts are underway, but are moving much more slowly. While water is being acquired for a number of uses, three distinct environmentally-related water acquisition programs are most important:

- Department of Interior’s [Water Acquisition Program](#)<sup>30</sup> (WAP) acquires water for National Wildlife Refuges and other wetland management areas that need additional and assured supplies, and for anadromous fish recovery efforts, to date mostly on mainstem rivers.
- CALFED’s [Environmental Water Account](#)<sup>31</sup> (EWA) works in the Sacramento- San Joaquin Delta, replacing water that agricultural as well as municipal and industrial users are unable to take because of endangered fish protection.
- CALFED’s [Environmental Water Program](#)<sup>32</sup> (EWP) works upstream of the Delta in tributaries, providing instream flows for anadromous fishery protection and restoration.

At the core of California’s plumbing system are the Sacramento and San Joaquin Rivers, which drain the western slope of the Sierra Nevada, form mighty rivers in the Central Valley, join in the Delta and flow to the sea through San Francisco Bay. Major water projects, the Bureau of Reclamation’s Central Valley Project (CVP) and the State Water

<sup>27</sup> <http://www.waterrights.ca.gov/hearings/WaterRightOrders/WRO2003-01.pdf>

<sup>28</sup> Sommarstrom, Sari. Scott River Watershed Council. Personal communication. May 2004.

<sup>29</sup> Ellison, Schneider & Harris LLP. Assessment of Scott River Water Trust Options, 2004.

<sup>30</sup> <http://www.usbr.gov/mp/cvpia/wap/>

<sup>31</sup> <http://calwater.ca.gov/Programs/EnvironmentalWaterAccount/EnvironmentalWaterAccount.shtml>

<sup>32</sup> <http://calfedewp.org/>



Project (SWP), take much of the water of the two rivers and make it available for agricultural and municipal use.

The two water projects are designed to address a mismatch in the sources and uses of water. Far more water is available than is used in the northern half of the Central Valley in the Sacramento River drainage; while in the southern half, the San Joaquin River drainage, more water is used than naturally available. The projects take water from the confluence of the two rivers, the San Francisco Bay–Delta, and send it south through two enormous Delta pumping plants to the San Joaquin Valley and Southern California.

These two water projects and the economic development they collectively fostered significantly altered California’s natural environment. Once–enormous runs of anadromous salmon and steelhead in the two major rivers and their tributaries are dwindling or extinguished, creating significant Endangered Species Act issues, especially for water managers using the Delta pumping plants. Reduced outflows through the Delta allow saline water to intrude from San Francisco Bay creating water quality issues under state law and the Clean Water Act.

In 1992, Congress passed the [Central Valley Project Improvement Act](#) <sup>33</sup>(P.L. 102–575) (CVPIA), which attempted comprehensive reform of the federal project. CVPIA made fish and wildlife protection, enhancement, and restoration priorities equal to water supply and power generation. However, CVP water had long been contracted, leaving little to support the new purposes. [CVPIA](#) <sup>34</sup> called for dedication of a portion of the CVP yield (800,000 acre–feet) to fish and wildlife, while also recognizing that additional water would need to be acquired through a variety of means, including purchase of water, retirement of agricultural land, and conservation.

A variety of California interests recognized that comprehensive solutions to the state’s water problems required better integration of the SWP with the CVP. A comprehensive planning effort, which came to be known as [CALFED](#), <sup>35</sup> culminated in a plan in 2000, the [CALFED Record of Decision](#), <sup>36</sup> which sets out a roadmap for balancing the needs of the environment and agriculture along with municipal and industrial water use.

In both CALFED and the CVPIA, water acquisitions play an important role in meeting environmental goals without raising the policy and political problems of regulatory action, particularly under the Endangered Species Act

### **A.3.2.1 Water Acquisition Program – Department of the Interior**

WAP is Interior’s mechanism to obtain water for two CVPIA–specified purposes: providing water needed in wildlife refuges primarily for waterfowl and doubling the anadromous fish population. Interior’s Bureau of Reclamation is the lead agency for water acquisitions. The

<sup>33</sup> <http://www.usbr.gov/mp/cvpia/>

<sup>34</sup> <http://www.usbr.gov/mp/cvpia/title34/3406>

<sup>35</sup> <http://calwater.ca.gov/>

<sup>36</sup> <http://calwater.ca.gov/Archives/GeneralArchive/RecordOfDecision2000.shtml>

[Wildlife Refuge Program](#)<sup>37</sup> component supplies water to federal and state wildlife areas (primarily National Wildlife Refuges and California Wildlife Areas) in order to meet their optimum water supply needs (known as Level 4 supplies). WAP also buys water to support the [Anadromous Fish Program](#),<sup>38</sup> which is led by the US Fish and Wildlife Service.

**Approach** WAP is the longest running of California's major water acquisition programs, beginning in 1994 after passage of the 1992 CVPIA. For both the refuge and fish recovery efforts, Reclamation typically buys water rather than water rights, although it has made limited use of other approaches, including buying water rights and paying for foregone hydropower production in order to re-water a bypassed reach.<sup>39</sup>

Initially, Reclamation approached water districts and offered to buy water under one-year contracts. However, as the program became better known and accepted, Reclamation formed relationships with repeat sellers of large quantities of water. Reclamation's obligation to comply with federal environmental review laws, particularly NEPA and ESA, increase transaction costs and make one-off deals expensive and more difficult. Reclamation therefore had strong incentive to identify water suppliers with large blocks of water likely to be available in multiple years; they then complete multi-year environmental reviews that cover multiple one-year contracts, reducing transaction costs. For the refuge program, the first such environmental review covered a 5-year period. Reclamation is now working on a 10-year review for the next period. For the fish recovery program most water acquired is for a long-term regulatory compliance (ESA and water quality) and fishery recovery effort on the San Joaquin River, where suppliers of water are deeply involved in the recovery effort.

For water beyond what the regular sellers supply Reclamation uses one-year purchases, often brought to them from commercial water brokers.

Most water is purchased from suppliers within the CVP system, eliminating the need to comply with state law governing water transfers. Where out-of-CVP sources are used, state law temporary transfer procedures are followed.

**Accomplishments** - Since beginning operations in 1994, WAP has acquired almost 1.5 million acre-feet at a cost of over \$94 million.

Interior Water Acquisition Program							
Water Year	Water Acquisitions (Acre-Feet)			Total	Price (\$/Acre-foot)		Annual Total
	Refuge Lease	Fishery Lease	Permanent Rights		Lease	Purchase	
2003	46,427	79,026		125,453	\$60-\$130		\$14,060,688
2002	85,390	68,105		153,495	\$60-\$120		\$15,659,910
2001	63,005	109,785		172,790	\$60-\$150		\$15,180,064
2000	67,748	108,880		176,628	\$60-\$125		\$12,265,880

<sup>37</sup> <http://www.usbr.gov/mp/cvpia/wap/docs/level4-wildlife.pdf>

<sup>38</sup> <http://www.usbr.gov/mp/cvpia/wap/docs/AFRP.pdf>

<sup>39</sup> Mayer, Dan. Water Acquisitions Program, US Bureau of Reclamation. Personal communication. May 2004.

1999	43,618	224,498		268,116	\$25-\$65		\$13,920,223
1998	0	80,000	6,300	86,300	\$15-\$30	\$700	\$4,163,308
1997	69,800	155,983		225,783	\$60-\$130		\$8,595,050
1996	36,395	16,161		52,556	\$60-\$120		\$2,324,885
1995	88,009	0		88,009	\$60-\$130		\$3,211,124
1994	29,415	76,441		105,856	\$60-\$120		\$4,862,603
Total	529,807	918,879		1,454,986			\$94,243,735

Source: [WAP Transactions 1994-2003](#)<sup>40</sup>

WAP succeeded in meeting CVPIA water supply goals for most refuges north of the Delta, and is meeting roughly 60% of the need for those south of the Delta. Improved habitat for waterfowl is a huge success for the California ecosystem restoration efforts of the last decade, one due directly to environmental water acquisitions. Due to WAP, in the winter of 2004 the [Kern National Wildlife Refuge](#)<sup>41</sup> flooded all of its 6,500 wetlands acres for the first time in its existence, greatly increasing bird populations. Wetlands in Central Valley refuges have reportedly [increased by 12,000 acres](#),<sup>42</sup> with attendant increases in both bird populations and visitor attendance.

Full water supply requirements are not yet being met for all refuges. The 6,300 acre-foot water rights acquisition covers full supply needs north of the Delta for the refuges that have access to conveyance canals. But there are some refuges that are not connected to the state's plumbing system. Refuge needs south of the Delta are 103,000AF; however, the program currently can supply only about 60,000 to 80,000AF, due to financial constraints rather than lack of willing sellers.

Fishery water acquisitions are made when called for by the Fish & Wildlife Service anadromous fish recovery program. Currently, most of the WAP water purchased is for a large [CALFED adaptive management program](#)<sup>43</sup> to manage water quality and meet ESA-driven goals for salmon smolt survival in the San Joaquin River just upstream of the Delta. While the program has acquired large amounts of water (approaching a million acre-feet over 10 years) the direct impact of those acquisitions is difficult to measure, and the overall goal of doubling anadromous fish populations has not been met.

For more information about WAP and its relationship to the other CVPIA and CALFED water programs see [Technical Review of Use of Environmental Water](#).<sup>44</sup>

For sample contracts used, see [Water Supply Contracts](#).<sup>45</sup>

**Lessons Learned** – The overarching lesson from WAP is that buying water on an annual basis is an expensive proposition--\$94 million to date. At \$120 per acre-foot (a current

<sup>40</sup> <http://www.usbr.gov/mp/cvpia/wap/docs/WYWEBSUM.pdf>

<sup>41</sup> [http://sacramento.fws.gov/ea/news\\_releases/2004%20News%20Releases/Kern\\_refuge\\_NR.htm](http://sacramento.fws.gov/ea/news_releases/2004%20News%20Releases/Kern_refuge_NR.htm)

<sup>42</sup> <http://www.usbr.gov/mp/cvpia/docs/CVPIA-10YrProgress-Draft.pdf>

<sup>43</sup> [http://cdec.water.ca.gov/snow/meeting/CCSS\\_2003\\_Meeting/Vernalis\\_Adaptive\\_Management\\_Program.pdf](http://cdec.water.ca.gov/snow/meeting/CCSS_2003_Meeting/Vernalis_Adaptive_Management_Program.pdf)

<sup>44</sup> [http://science.calwater.ca.gov/pdf/ewa/oct15/Roger\\_Guinee.pdf](http://science.calwater.ca.gov/pdf/ewa/oct15/Roger_Guinee.pdf)

<sup>45</sup> <http://www.usbr.gov/mp/cvpia/refuge/drafts/index.html>

typical price), the 103,000 acre-feet demand for refuges south of the Delta alone implies an annual cost of \$12.36 million. Adding purchases for fishery flow could easily double that amount.

Price is a significant issue for WAP. Dependence on a small set of refuge water sources may have caused prices paid to be higher than on the spot market, especially in years when more water is available. Typically, purchases from other sources are cheaper on an acre-foot basis. In 2002, for instance, WAP bought water from its main refuge supplier at \$120 per AF and from other sources as cheaply as \$30 per AF. WAP also buys its fishery program water from a sole source – the small set of agencies involved in the San Joaquin River project. Contributing to the price problem is that water is needed south of the Delta for both refuges and the San Joaquin River program – this is where the supplies are most limited and the prices higher. WAP buys most water south of the Delta, avoiding the regulatory and capacity issues of bringing Sacramento River water through the Delta via the Delta pumping plants, but also not taking advantage of the generally lower prices north of the Delta.

Overcoming transaction costs and delays caused in part by environmental review led to forming relationships with a handful of water suppliers that can provide the bulk of acquisition needs. Refuge supply environmental review documents covering multiple years – 5 years now and a 10-year review underway – reduce annual transaction costs. WAP is working to increase its reliance on long-term relationships to minimize transaction costs and maximize the chances of obtaining water even in dry years. Another intended benefit of these longer-term arrangements is that they are more likely to fit with the program strategy, rather than being reactive.

WAP is exploring other alternatives to annual water purchases. From 1996 to 2001, WAP paid a hydropower project owner to leave water in stream, foregoing power generation. WAP is in the first phase of a study looking at pumping groundwater for some refuges, especially those not connected to conveyance systems. For its large-volume refuge supplier, the 10-year environmental review will look at long-term supplies derived from fallowing agricultural land.

WAP is very sensitive to the political consequences of buying water for the environment. It avoids outbidding agriculture for water by encouraging potential sellers to offer water within districts and to local farmers before selling to WAP. Permanent acquisition of water rights is not a strategy vigorously pursued, in part because transactions are complicated by the annual federal appropriations cycle and in part because of political issues.

### **A.3.2.2 Environmental Water Account - CALFED**

CALFED's [Environmental Water Account](http://calwater.ca.gov/Newsroom/FactSheets/FactSheet_EWAWhitePaper_1-22-03.pdf)<sup>46</sup> is the solution devised by the federal and state governments to the problem of restricting water exports from the Delta in order to comply with the Endangered Species Act and water quality regulation. With ESA-listed fish migrating through the Delta, the enormous pumping plants that ship water south are

<sup>46</sup> [http://calwater.ca.gov/Newsroom/FactSheets/FactSheet\\_EWAWhitePaper\\_1-22-03.pdf](http://calwater.ca.gov/Newsroom/FactSheets/FactSheet_EWAWhitePaper_1-22-03.pdf)

limited in the times and amounts that they can pump without jeopardizing fish. Because the federal and state water project users south of the Delta depend on those pumping plants, limiting pumping creates serious water supply, economic and political problems.

The fisheries managers working with the EWA are authorized to direct operations for the CVP and SWP so long as the changes incur no uncompensated costs to the Projects' water users. A pool of water, acquired by purchase, banking, transfer or trade, available to compensate water users injured by environmental requirements is therefore essential to making the EWA work. When fishery managers decide that the pumps must be limited to protect and recover endangered fish, EWA water is used to compensate water users for their losses. As a result, fish benefit while water users maintain certainty and reliability in supplies.

In function, the EWA provides water to users in order to make up for water lost due to regulatory requirements and fish recovery efforts. In this, it acts more like an insurer or a compensation fund, rather than a mechanism to provide direct environmental benefit.

**Approach** – Water for the EWA is obtained in two ways – willing seller purchases and changes in project operations.<sup>47</sup> Only acquisitions are discussed below.

Purchases are conducted in the same way as for WAP – annual contracts, frequently from repeat major suppliers. While some major suppliers have independent supplies, many purchases are from within the water state and federal water projects. In part because the accounting is easier when spending the state money that supplies the bulk of the funding, most purchases are not from the federal project. Environmental review has been done on an annual basis; however, in 2004 an environmental document was being prepared that will extend to 2007. The document will be on a project level for transactions with past suppliers. Transactions with new suppliers will require a project-level environmental review.

EWA will only buy water that has been previously put to consumptive use, not new or unused rights. Competition for this water is typically agriculture, municipal and industrial users. The EWA works to avoid competition with WAP or other environmental buyers.

Purchases within the SWP and CVP are not required to comply with state law transfer procedures. However, when out-of-project water is purchased, application is made to the State Water Resources Control Board for temporary transfer.

**Accomplishments** While substantial quantities of water have been purchased or otherwise made available for fisheries through the EWA, the most important accomplishments are in diffusing disputes over ESA issues and in encouraging the many federal and state agencies to work together.

Since the CALFED agreement was reached in 2000, a relative truce has settled over California's perpetual water wars. Battles continue to be waged, but they are largely in

<sup>47</sup> Rust, Tim. Environmental Water Account, US Bureau of Reclamation. Personal communication. May 2004.

Congress over the shape of federal legislation to implement CALFED's agreements. In the Delta, five state and federal agencies (Fish & Wildlife Service, Bureau of Reclamation, NOAA, Department of Fish and Game, and Department of Water Resources) are working together effectively and cooperatively. In the long history of California water politics, that is a real accomplishment.

EWA provides fishery managers with greater flexibility in directing operations of the Delta pumps, as well as some protection from litigation and political attacks by water users. It also provides water users with greater reliability in their water supplies and some assurance that losses due to environmental needs are compensated.

While different sources report slightly different numbers, in the last three years EWA purchased about 880,000 acre-feet of water at a cost of about \$136 million. These figures imply an average cost of about \$155 per acre-foot. [CALFED Annual Report - 2003](#)<sup>48</sup> The cost of water purchased was high in 2001, the first year of operations, at about \$170 per acre-foot due to tight timelines and limited opportunities for negotiation. In the second and third years, average cost was about \$117 and \$130 per acre-foot respectively. A detailed [annual analysis of the EWA and its accomplishments](#)<sup>49</sup> is published by The Bay Institute

**Lessons Learned** – As with the WAP, buying water on an annual basis from a limited pool of major suppliers proved to be very expensive - \$136 million for 880,000 acre-feet over three years.

Flexibility is extremely important in cost-effective operations for the EWA. EWA managers have found that buying north-of-Delta water and conveying it through the Delta is much cheaper than buying south-of-Delta water, especially in dry years. However, the 2000 agreement on operation of the EWA contained in the [CALFED ROD EWA Agreement](#)<sup>50</sup> prescribed that most water purchased be from south-of-Delta sources.

Because EWA functions in part as an insurance program, the economics of EWA can be paradoxical. Water users south of the Delta are affected by curtailment of the Delta pumps to a much greater extent in wet years than dry years. In order to supply water to those users, the EWA either must buy water south of the Delta, or buy it north of the Delta and use the pumps to send it south. Water in the south is more expensive – typically \$130 to \$200 per acre-foot compared to \$75-85 for north-of-the-Delta water. However, in wet years, EWA must buy the more expensive southern water because there is no excess pump capacity available to ship northern water south. In addition, curtailing the pumps in wet years is sure to cause injury to water users because they would otherwise be receiving large quantities of water. In dry years, the EWA can buy cheaper northern water for use in the south because the pumps are not running at capacity. However, curtailing pumping has a smaller impact because less water would have been pumped. The result is that the cost of the EWA program is actually greater in wet years. EWA is beginning to work through the implications and opportunities of this situation.

<sup>48</sup> [http://calwater.ca.gov/AboutCalfed/AnnualReport2003/AnnualReport\\_2003.pdf](http://calwater.ca.gov/AboutCalfed/AnnualReport2003/AnnualReport_2003.pdf)

<sup>49</sup> <http://www.bay.org/Pubs/EWA2002.pdf>

<sup>50</sup> <http://calwater.ca.gov/Archives/GeneralArchive/rod/2.pdf>

EWA managers are only beginning to explore options for efficient and effective operations. They are exploring longer-term contracts, with wet/dry year options and exchanges. Because EWA needs are paradoxically greater in wet years, there may be some opportunities for multi-year arrangements that take advantage of the difference in risk and needs from other water users. Other mechanisms, especially groundwater banking and substitution, will be explored. Additional storage south of the Delta would facilitate multi-year and inter-seasonal arrangements. A 2002 report by the Natural Heritage Institute, [Got Water?](#),<sup>51</sup> provides useful suggestions as to how to optimize EWA strategy.

EWA consumes remarkable amounts of money to buy water (roughly \$45 million per year). This demand means that funding sources are extremely important to keep the effort going. Federal reauthorization of CALFED is desired, as is making the EWA a separate budget item.

Electricity costs are significant for the EWA because EWA is in the business of supplying water to south of Delta users. While it receives credit for electricity not consumed when the pumping is curtailed, it also must pay for electricity to pump water south. However, the power costs are not symmetrical. Foregone power is credited at project rates, while consumed power is charged at market rates. The result is a significant electricity bill.

### A.3.2.3 Environmental Water Program - CALFED

In addition to the Delta-related water acquisition needs, CALFED's ROD recognized that water is needed in the tributaries, especially for salmon and steelhead recovery. It called for acquisition of 100,000 acre-feet per year by 2007 for these purposes as part of the overall CALFED ecosystem restoration efforts. The [Environmental Water Program](#)<sup>52</sup> (EWP) is to execute those tributary water acquisitions, as well as providing the scientific basis for using that water and identifying institutional, legal and social issues related to water acquisitions.

**Approach** - Of the three CALFED and CVPIA water acquisition programs, the EWP is taking the most measured approach<sup>53</sup>. Without the well defined goals of WAP (Level 4 refuge supplies) or EWA (Delta fishery recovery at no additional cost to water users), EWP has had to both define the problems it is addressing and establish its approach. Further, its mission, to acquire water in tributaries, is fraught with political sensitivities.

The first years of the EWP were spent producing papers on its mission as well as legal technical and institutional issues. By mid-2003, EWP had its approach set and began work on pilot projects, with an intention to begin acquisitions in 2005.

EWP operates with a set of six core principles:

- Transactions will be voluntary, with willing sellers and buyers;
- Acquisitions will be partnerships between CALFED entities and local regional stakeholders;

<sup>51</sup> [http://www.n-h-i.org/Projects/WaterResources/ewa/EWA\\_CAF\\_Report\\_ver2\\_Final.PDF](http://www.n-h-i.org/Projects/WaterResources/ewa/EWA_CAF_Report_ver2_Final.PDF)

<sup>52</sup> <http://calwater.ca.gov/Programs/EcosystemRestoration/EWP/index.asp>

<sup>53</sup> Ingram, Campbell, Environmental Water Program, CALFED. Personal communication. May 2004



- A scientific approach will be used, with hypothesis testing, monitoring, adaptive management and peer review;
- Acquisitions will consider local and social conditions (third party impacts);
- EWP will coordinate with other water acquisition programs; and
- EWP will adhere to CALFED's commitment to environmental justice.

These principles are put into effect through a multi-step process:

- Prepare concept proposals for each potential project;
- Review proposals and select candidates for full proposals;
- Prepare full proposals, including environmental and social review;
- Select and fund projects;
- Implement projects, including adaptive management and monitoring; and
- Evaluate project results and use review to revise the program.

**Accomplishments** – The most remarkable element of the EWP approach is that it is attempting to be comprehensive. Every element of the complications and problems inherent in environmental water transactions is to be covered. Each project is intended to address scientific, third-party impact, social, economic and justice problems, with results fully documented and assessed. Further, the projects undertaken must be part of the overall CALFED ecosystem restoration effort, and be coordinated with a CALFED, regional and local efforts.

The consequence of this comprehensive, cooperative approach is a slow start. The hope is that with this careful approach, EWP will have lasting success.

Major accomplishments include:

- Creating a set of reports and documents that are useful not only for water acquisition efforts in California, but outside as well. The most significant of these are:
  - A major report on *Restoring Ecosystems Through Geomorphic High Flow Prescriptions*;<sup>54</sup>
  - *Lessons Learned from Water Purchase Programs of the Past*;<sup>55</sup>
  - *Introduction to Water Rights and Transfers*;<sup>56</sup>
  - *A Preliminary Analysis of Water Transfer Types*<sup>57</sup> with descriptions of advantages and disadvantages of each type
- Selecting five priority watersheds for EWP projects, in coordination with overall CALFED ecosystem restoration efforts.
- Completing a draft concept proposal for a project at one of those places. This proposal, for *Clear Creek*,<sup>58</sup> focuses on the need for periodic high flows to create

<sup>54</sup> [http://calwater.ca.gov/Programs/EcosystemRestoration/EWP/pdf/high\\_flow/text.pdf](http://calwater.ca.gov/Programs/EcosystemRestoration/EWP/pdf/high_flow/text.pdf)

<sup>55</sup> [http://calwater.ca.gov/Programs/EcosystemRestoration/EWP/pdf/briefing\\_papers/BP-3.pdf](http://calwater.ca.gov/Programs/EcosystemRestoration/EWP/pdf/briefing_papers/BP-3.pdf)

<sup>56</sup> [http://calwater.ca.gov/Programs/EcosystemRestoration/EWP/pdf/briefing\\_papers/BP-5.pdf](http://calwater.ca.gov/Programs/EcosystemRestoration/EWP/pdf/briefing_papers/BP-5.pdf)

<sup>57</sup> [http://calwater.ca.gov/Programs/EcosystemRestoration/EWP/pdf/briefing\\_papers/BP-8.pdf](http://calwater.ca.gov/Programs/EcosystemRestoration/EWP/pdf/briefing_papers/BP-8.pdf)

<sup>58</sup> [http://www.calwater.ca.gov/Programs/EcosystemRestoration/EWP/pdf/ClearCreek\\_Main.pdf](http://www.calwater.ca.gov/Programs/EcosystemRestoration/EWP/pdf/ClearCreek_Main.pdf)



appropriate habitat through geomorphic processes including gravel redistribution, scour, mobilizing fine-grained sediment, and vegetation clearing. It will be released for evaluation by an independent scientific review panel as well as other agencies and the public in mid-2004. The project calls for controlled mid-range high flows, obtained by either managing natural flood events, or by periodically shutting down power generation at a Bureau of Reclamation powerhouse.

**Lessons Learned** EWP staff considers “patience” to be the most important lesson learned.

Learning from the Butte Creek example, EWP is working to develop relationships with all interested stakeholders in the projects it is considering. Because EWP relies on both state and federal funds, opponents to any of its projects can take advantage of the political process to block progress. While EWP does not anticipate having no opposition to its projects, it intends to create processes that will afford it defensible positions on projects it pursues.

Given its approach of inclusiveness and thorough review, EWP will look for projects other than outright purchase of water rights. It will look for opportunities that create wider benefit, such as water use efficiencies, groundwater substitution, power plant operation changes, and flexible leases. While it does not have explicit authority to buy land and water rights together, sensitivity to the issues of permanent agricultural land retirement would cause it to avoid that approach.

#### A. 4 Summary

Despite the availability of one of the better legal systems for encouraging private environmental water acquisitions, private and public efforts to use the section 1707 process are still in the very early stages. Private efforts to use the process are in early stages of development, with state-level water trusts not yet operating. Public agency use of section 1707 has also been remarkably limited, even for its intended use in protecting water rights used to meet environmental requirements.

Efforts to acquire water in tributaries for environmental purposes are proceeding very slowly. While this is the sole mission of the EWP, it is proceeding patiently, cautiously and carefully while taking the most comprehensive and collaborative approach of any such effort in the West. Not only is it working very hard to develop community support and work collaboratively with other agencies, it is also creating a scientific basis for its work. Attempting to address technical, social, economic and scientific issues simultaneously is an ambitious goal.

California is an anomaly in water acquisitions. In almost every other western state, water acquisition efforts are starting on tributaries; in California, the activity is on mainstem rivers. In large part this is because the Delta, and specifically the Delta pumps of the SWP and CVP, is where ESA problems are most acute for water managers and where large amounts of public funding has become available for environmental water transactions. This focus has proven that it is expensive to buy sufficient water to address mainstem problems. State and federal agencies spent an annual average of about \$60 million over the last three

years buying water for environmental purposes with roughly 90% of that spent on mainstem issues.

In starting with the Delta, the biggest, most complex, and most expensive problem, water managers have not had time to develop efficient methods for their acquisitions. Constrained by both the large quantities of water they are buying and the complex environmental review processes, both WAP and EWA rely on a small number of suppliers and annual contracts. While they are considering more cost-effective ways of acquiring water, the constraints make reducing costs by taking advantage of California's water markets difficult. The timing, cost and capacity constraints of getting cheaper water from north of the Delta south also make reducing costs difficult. WAP decided to simply pay the higher cost of water south of the Delta, while EWA is working out ways to cut costs by using northern water.

California's water acquisition efforts appear not to be using investment in conservation and efficiency as a source of water for instream or environmental use. It is worth noting that since 2001, CALFED has spent roughly \$600 million on improving water use efficiency. Yet water derived from investing in conservation and efficiency does not appear in any of the environmental water program accounts. For the other Pacific Coast states, a required return on investment of public funds in water efficiency is dedicated to environmental uses. Reclamation and CALFED managers appear to have decided to not take that approach.

The most troubling aspect of the California programs is the short-term nature of the approaches taken to date. With the exception of a small acquisition for Sacramento wildlife refuges, California relies on annual water purchases for WAP and EWA, at tremendous financial cost. The strategy for creating permanent water supplies for environmental water needs is unclear, as it apparently does not rely on either permanent acquisitions or conservation and efficiency. The logical remaining source of supply is building new water projects, with a portion of the supply developed being dedicated to the environment.

## Appendix B

### Colorado: Established Water Markets, Nascent Water Trust

#### B.1 Introduction

In water law, Colorado has a reputation for doing things a bit differently than other states – for instance its water court system requires the use of more lawyers and water engineers than any other state. With instream flows, Colorado maintains its reputation, requiring very careful scrutiny of water rights used to protect the environment. This approach creates additional costs and hurdles for environmental water transactions, but results in rights that are well defined, secure and defensible.

While Colorado has a reputation for skepticism about using water for the environment, it recognized instream flows for environmental protection in 1973. That legislation established environmental protection as a beneficial use and authorized a state water agency, the [Colorado Water Conservation Board](#)<sup>59</sup> (CWCB), to appropriate and protect flows within the existing water rights system without a diversion. As of December 2002, [CWCB instream flow rights](#)<sup>60</sup> encompassed 1,390 stream segments, 8,236 river miles, and 476 lakes.

Colorado's cities have been most active in donating water rights for instream flows, but donations have also been offered by individuals, The Nature Conservancy and, most recently, the newly formed [Colorado Water Trust](#)<sup>61</sup> (CWT).

#### B.2 State Law Procedures and Issues

Colorado's first instream flow law in 1973 gave exclusive authority to the Colorado Water Conservation Board (CWCB), a state agency, to make new appropriations for instream flows in the minimum amount necessary to maintain the environment to a reasonable degree. While this original program did not permit an environmental water acquisition strategy, in 1986, the state expanded the program to allow the CWCB to convert existing, senior, water rights acquired by purchase or donation to instream use.

In 2002, [Trout Unlimited's Colorado Water Project](#)<sup>62</sup> (TU) issued a report [A Dry Legacy: The Challenge for Colorado's Rivers](#)<sup>63</sup> which showed the severe limitations of the state's instream flow protection efforts both as a result of the program's structure and the general limits of Colorado's water rights system. The report's controversial support of legislation permitting private ownership led to a compromise that expanded CWCB authority by explicitly allowing CWCB to buy or accept donations of water reasonably necessary to *improve* the

<sup>59</sup> <http://cwcb.state.co.us/isf/programs/instream.htm>

<sup>60</sup> [http://cwcb.state.co.us/isf/programs/Annual\\_Program\\_Status.pdf](http://cwcb.state.co.us/isf/programs/Annual_Program_Status.pdf)

<sup>61</sup> <http://www.coloradowatertrust.org/>

<sup>62</sup> <http://www.cotrout.org/ColoradoWaterProject.htm>

<sup>63</sup> <http://www.cotrout.org/DryLegacy/A%20Dry%20Legacy%20The%20Challenge%20for%20Colorado's%20Rivers.pdf>

environment, rather than simply maintain the status quo. CWCB still only had authority to appropriate water to maintain the status quo, but could improve it through acquisitions of senior rights. CWCB subsequently adopted a set of [rules governing instream flow acquisitions](#).<sup>64</sup>

The process of donating water rights to CWCB<sup>65</sup> begins with informal preliminary discussions between the donor and the CWCB staff. Those discussions take two different tracks. First, the CWCB staff assesses the water right for suitability: Is the right valid? Are there issues of injury to other water rights (senior and junior) that may be affected by the change to instream use? Is there biological benefit to acquiring the right? Will changing the use to instream flows affect Colorado's ability to maximize the use of water it is entitled to under interstate compacts and agreement? Answering these questions typically requires preparing reports on engineering and hydrology, biological issues, and water rights issues (such as historical use, consumptive use, return flow, and impacts on other water users). CWCB also consults with the appropriate agencies over the need for, and effect of, a change in use. The second track is negotiation of an agreement between the donor and the CWCB over the terms and conditions of the donation as well as management of the right after changing its use to instream flow. While both parties must agree to those terms, there is latitude for the donor to insist on monitoring and enforcement requirements.

In some cases CWCB will also enter into lease agreements to protect instream flows. Of the current five leases, three are for 99 years; the others are also intended to be long term.

Once the CWCB staff and the donor or lessor reach agreement, the proposal is presented to the CWCB. This starts a public notice period, and triggers a requirement for the CWCB to issue a decision on the flow within 120 days. If CWCB agrees to accept the donation, it then files a change of use application with Colorado's water court. In water court, the focus of inquiry is injury to other water users, senior and junior, who relied on the pattern of use, including ground water recharge and surface return flows, existing at the time of their appropriations. If other water users do not oppose the change of use, a decree for the change of use may be issued in as little as three or four months. With active opposition, however, the process may take years.

Once decreed, the CWCB is faced with a daunting task in defending its 1,400 instream rights. Defending its rights from junior appropriators is a problem, because most instream rights are not effectively monitored. While Colorado has a network of 600 stream gages with satellite telemetry, most are not positioned to monitor instream rights. CWCB typically relies on information from the public, other state agencies and water users to determine if its rights are being injured. In roughly six cases a year, the CWCB places a formal call on junior appropriators; in most cases where it is aware of infringement on its rights, it uses informal communication to attempt to resolve the problem. CWCB also files statements of opposition to changes in existing rights that may affect its instream rights. Typically, CWCB attempts to negotiate terms and conditions that accommodate the changes while also reasonably protecting the instream flow right; monitoring of stream flows is a commonly requested condition. In 2002, it filed 44 statements of opposition to

<sup>64</sup> [http://cwcb.state.co.us/isf/Rules/Adopted\\_Rules.pdf](http://cwcb.state.co.us/isf/Rules/Adopted_Rules.pdf)

<sup>65</sup> Janicki, Anne. Colorado Water Conservation Board. Personal Communication. June 2004.

proposed changes in water rights that could affect its instream flow rights. CWCB does not oppose applications for new water rights junior to its rights, relying instead on Colorado's priority system to ensure fulfillment of the instream rights.

In the instream flow system, the Colorado approach is consistent with the general Colorado attitude of scrupulous water accounting, with heavy reliance on experts and lawyers. However, with the CWCB concern about maximizing use of Colorado's water, availability of water for use downstream, and effects on interstate water use agreements, the requirements for instream flow rights exceed the legal requirements for water transactions between diversionary users. When political considerations are added as well, as is inevitable with a discretionary decision by an appointed body, the bar is higher for instream flow protection than out of stream use. Added to these issues is the fact that Colorado has appropriated no money for acquisitions; therefore any additions of senior water rights must be donated.

### **B.3 Environmental Water Transactions - Colorado**

Until the formation of the CWT, environmental water transactions occurred largely as an adjunct to other efforts. Formed in 2002, CWT only recently received (May 2004) preliminary CWCB consideration of its first transaction. Examples of the non-CWT transactions give some indication of the issues presented in Colorado, and some background for CWT's approach.

The Nature Conservancy accepted a donated, large conditional (not yet perfected by being put to beneficial use) water right in the 1980's from a mining company, and in turn conveyed it to the CWCB. CWCB accepted the conditional right and in 1992 obtained a decree converting it into a year-round, 300 c.f.s. instream flow on an almost 29 mile reach of the Gunnison River. However, the large size of the right (217,334 acre-feet per year) on a river that is viewed as at least a potential source of trans-Continental Divide water for Colorado's rapidly growing Front Range caused instant political turmoil. While the Gunnison River instream right continues to exist, the Colorado legislature in 1994 prohibited turning conditional rights into instream rights.

The City of Boulder acquired senior rights on Boulder Creek with the intent of using the water for municipal and industrial purposes, but only in dry years. Boulder Creek runs through the heart of the city in a greenway, forming an attractive recreation amenity, including a whitewater-kayaking course. CWCB accepted a donation of the water rights for instream flow use, and allowed Boulder the right to draw on those rights for water supplies in very dry years, in part defined by years where Boulder imposes mandatory conservation on its citizens. The CWCB also agreed to allow Boulder to enforce the instream flow through town, which Boulder has done on a few occasions.

The Conservation Fund's [Aspen Village Project](http://www.aspenproject.org) <sup>66</sup> is a useful study of the perils of the Colorado process; after years of effort and the expenditure of hundreds of thousands of dollars, the CWCB rejected the Conservation Fund (CF) donation. In 1994, CF obtained

<sup>66</sup> [http://cwcb.state.co.us/isf/V2IS2\\_TCF.htm](http://cwcb.state.co.us/isf/V2IS2_TCF.htm)

an approximately 900-acre ranch ripe for development near the Snowmass ski resort. Working with local organizations and Pitkin County, CF received approval to develop 34 acres into 150 mobile home sites, providing rare affordable housing, and 13 acres into playfields and community space. The remaining 850 acres were sold as a single-home ranch subject to a conservation easement, after having subdivision into 14 single-family home lots reversed. In 1998, CF conveyed the ranch's 16.38 c.f.s senior irrigation rights to CWCB to provide "wet" water for existing instream flow rights on two creeks. The market value of the water was reported to be more than [\\$1 million](#)<sup>67</sup>. CF also worked to perfect junior conditional rights to provide irrigation water for the ranch. As CWCB prepared its change of use application, an engineering analysis found that return flows from irrigation would benefit winter flows on one of the creeks already subject to an instream flow right by recharging groundwater, and that the donated right would do little to add to meeting the instream flow rights on the two creeks. Therefore, CWCB decided that it would prefer to have the right put back into historic irrigation, despite the fact that junior rights had already been perfected by this time. The donation agreement called for return of the right to CF, which had by this time already sold the ranch. Ultimately [CWCB returned the water right to CF in 2003](#)<sup>68</sup>.

With these environmental water transactions as a backdrop, CWT adopted a patient and careful approach.<sup>69</sup> It started by recruiting a board of influential people acceptable to the Colorado water establishment, including managers of major water districts (Denver Water, Northern Colorado Water Conservancy District, and Dolores Water Conservancy District) as well as farmers, ranchers, water lawyers, engineers, and non-advocacy conservationists. It collected conservation information and objectives about priority stream segments from every level of government and local and state conservation organizations. [CWT set its own priorities](#)<sup>70</sup> of working collaboratively on projects that were doable, practical, politically feasible, and had demonstrable environmental benefit. With these criteria in hand, it set about tracking down deals.

The transaction on which CWT has made most progress involves acquisition of a right on Boulder Creek and dedication of that right to instream flow downstream for about 12 miles, to a reservoir. CWT intends to sell the water to a user below the reservoir in order to recover costs of the transaction. In May 2004, the [CWT Boulder Creek proposal](#)<sup>71</sup> was presented to the CWCB for initial consideration, with final action later in the year. This CWT transaction demonstrates how expensive water rights work can be. It involves water rights worth about \$130,000 (for 8.5 c.f.s./87 acre-feet, roughly \$1500 per acre-foot). The market value of the donated legal and technical consulting work needed to complete the transaction is at least \$70,000.

Rather than dealing with the complex Colorado instream flow system directly, a number of Colorado organizations are taking other approaches to instream flow. CWT is working on a dry year lease that will not require going through the instream right conversion process because there are no downstream users who could claim injury. Another CWT transaction

<sup>67</sup> [http://www.hcn.org/servlets/hcn.Article?article\\_id=3964](http://www.hcn.org/servlets/hcn.Article?article_id=3964)

<sup>68</sup> [http://cwcb.state.co.us/agendas/Nov\\_03/18.pdf](http://cwcb.state.co.us/agendas/Nov_03/18.pdf)

<sup>69</sup> Carney, John. Executive Director, Colorado Water Trust. Personal communication. May 2004.

<sup>70</sup> <http://www.coloradowatertrust.org/guidelines.html>

<sup>71</sup> [http://cwcb.state.co.us/agendas/May\\_04/12.pdf](http://cwcb.state.co.us/agendas/May_04/12.pdf)

in preliminary stages would use public funds to line conveyance ditches and upgrade a diversion to permit fish passage. While Colorado law does not permit claiming ownership of return flows salvaged through efficiency measures, an existing instream flow right would benefit from the additional flows. The result will be a benefit for the irrigator because water will flow more often to the end of the system, and the fishery will benefit from fish passage and increased instream flow. Conservation organizations and land trusts purchasing land with appurtenant water rights sometimes look for ways to use water for the environment by moving points of diversion downstream, changing use, or timing the exercise of their water rights with environmental benefit in mind. Because these acts are within the existing water rights system and involve traditional uses, they are not recognized as environmental water transactions, but serve a related function.

A very controversial set of efforts by Colorado cities to establish [Recreational In-Channel Diversions](#)<sup>72</sup>, more popularly known as “boat chutes,” that appropriate water for whitewater kayaking or other flow-dependent recreation is another way to establish non-CWCB instream flows, albeit for recreational rather than environmental use.

#### **B.4 Summary**

The overarching lesson of the small number of environmental water transactions going through the CWCB instream flow process is that success will require meticulous work on hydrology, the biological need for the water, and the lack of injury to other water rights or the state’s ability to ensure maximum utilization of its compact water entitlements. Further, projects will require remarkable amounts of time, money, patience and political capital.

Policy appears to matter. While injury to other water rights, junior and senior, is the primary concern, adding water where CWCB does not believe that it is needed will not be allowed. For the Conservation Fund example, one of the engineer’s key findings was that existing instream flow rights (established at the minimum level needed to protect, not enhance, the environment) were “generally fully satisfied” except in dry years. Rejecting the donated right, in part because it is above the minimum level, is consistent with Colorado’s stated policy of using every drop to which it is legally entitled before the water crosses the state line. A change to the law in 2002 allowing enhancement of the environment might have permitted the Conservation Fund donation, had the change been accomplished earlier. The conclusion is that while every change to a water right is scrutinized in Colorado, environmental water use will be subject to particularly intense scrutiny.

Assuming that environmental rights are defended and enforced once established, rights are more secure because of the Colorado water system. Unlike many western states, Colorado water rights are essentially fully adjudicated. Information about water rights and use is easy to find and rely upon compared to most states. It is comparatively easy to know about new appropriations or changes to existing rights that may affect an instream right.

<sup>72</sup> [http://cwcb.state.co.us/isf/programs/RICD\\_main.htm](http://cwcb.state.co.us/isf/programs/RICD_main.htm)



## Appendix C

### Idaho: Environmental Use Added to Water Banks

#### C.1 Introduction

Idaho has a long history of using market mechanisms to meet demand for water. As early as 1932, water districts in eastern Idaho formed an irrigation rental pool, which functioned as a water bank. In 1979, the State Legislature formalized water leasing.

Idaho now has a state water bank and five local basin rental pools. The state water bank can operate anywhere in the state, and can complete transactions with either water stored in reservoirs or natural river flow. The rental pools are operated by local water districts and accept only stored water. Water rights holders benefit from offering their water through the water bank and rental pools because water enrolled in these systems is not subject to forfeiture, even if transactions with the water are not completed.

These market mechanisms have not, however, been widely applied to environmental water needs. Under [Idaho's minimum flow law](#)<sup>73</sup> only unappropriated water can be dedicated to instream flow protection; conversion of water from existing uses is not generally allowed. In addition, only the state Department of Water Resources may initiate a minimum streamflow application in a process that gives the state legislature an opportunity to disapprove any dedication. This combination of requirements has not encouraged private or public water environmental water transactions.

In limited circumstances, however, the state's water banks are being used to provide environmental water. A July 2004 report, [Analysis of Water Banks in the Western States](#)<sup>74</sup>, prepared by the Washington Department of Ecology and WestWater Research, presents a detailed view of the Idaho water banks and their use for environmental water acquisitions. In general, leasing water for instream use has been considered to be contrary to state law. There are, however, two specific statutory exceptions. [Idaho Code 42-1763B](#)<sup>75</sup> allows leasing of up to 427,000 acre-feet annually by the Bureau of Reclamation to meet an ESA requirement to provide water for Snake River salmon. [Idaho Code 41-1765A](#)<sup>76</sup> permits leasing of water to meet an instream flow right established on the Lemhi River, again to resolve a specific ESA salmon problem.

<sup>73</sup> <http://www3.state.id.us/cgi-bin/newidst?sctid=420150003.K>

<sup>74</sup> <http://www.ecy.wa.gov/pubs/0411011.pdf>

<sup>75</sup> <http://www3.state.id.us/cgi-bin/newidst?sctid=420170063B.K>

<sup>76</sup> <http://www3.state.id.us/cgi-bin/newidst?sctid=420170065A.K>



## C.2 Snake River Salmon and Idaho's Water Banks

In 1992, a biological opinion under the Endangered Species Act required the Bureau of Reclamation to provide 427,000 acre-feet of water every year in the Snake River to benefit salmon. While that requirement was based on an assessment of the unallocated storage space available in Reclamation projects on the Snake River and tributaries, Reclamation quickly found that it could not reliably meet the flow target without acquiring water. Reclamation had about 98,000 acre-feet of its own unallocated storage and acquired about 78,000 acre-feet of storage owned by others to meet the requirement. Reclamation also looked outside its projects and purchased water rights to about 17,650 acre-feet of natural flow rights in Oregon, one of the larger water rights acquisitions for environmental purposes. These acquisitions left Reclamation with the need to lease about 233,000 acre-feet per year to meet its ESA obligations.

Reclamation obtains most of its water from three rental pools. These pools are run by local entities under their own operating rules, leaving Reclamation at a disadvantage in two respects. The first is that water leased for out of basin use, such as Reclamation's salmon use, is considered "last to fill" for the next year. This means that if a water rights holder leases to Reclamation, in the next year that water right is last in priority for stored water, putting the water rights holder at a disadvantage in water short years and creating a disincentive for leases to Reclamation. The second is that the irrigation districts can set an arbitrary higher price for water leased to Reclamation, which some do. For example, in the Snake River Rental Pool through 2003, irrigation buyers paid \$3 per acre-foot while Reclamation paid \$10.50; in 2004, the price was \$9.66 for irrigation use and \$14.55 for Reclamation.<sup>77</sup>

With the rental pool arrangement, the irrigation districts operating the rental pools offer the water to Reclamation, eliminating any need for direct contact between Reclamation and the water rights holders. If water rights holders enter water into the pools, Reclamation obtains the water it seeks. If not, Reclamation looks elsewhere, or comes up short. In the last several years drought prevented Reclamation from obtaining all of the 427,000 acre-feet of water it sought.

## C.3 Lemhi Water Bank

At one time, the Lemhi River, a tributary to the Salmon River, which in turn is tributary to the Snake River, was among the most productive salmon spawning streams in the Columbia Basin. Located in central eastern Idaho, the Lemhi valley is a long, flat corridor, leading to excellent spawning habitat mostly on public lands in its upper tributaries. However, in 1909 a dam across the mouth of the Lemhi almost extirpated anadromous fish in the river. With removal of the dam in 1959, fish runs started to return. When concern about salmon survival became more acute in the 1980's the Lemhi Model Watershed Project formed, and began work on improving habitat and removing barriers to fish passage.

<sup>77</sup> Rigby, Rich. Bureau of Reclamation. Personal communication. August 2004.

However, a short reach near the confluence of the Lemhi with the Salmon River remained a problem due to dewatering in dry years. Located just below two large diversions that take most of the water in the river, the reach gains water and by a mile or so downstream sufficient flows for passage are present. In dry years, however, that reach blocks fish passage.

In 2001, the National Marine Fisheries Service found three dead salmon in the dewatered reach and initiated enforcement action against senior water users under the ESA for “take” of the fish. Cutting off delivery of water to these users would have made the water available to the holders of more junior rights, located upstream. This could result in less, not more, water entering the critical reach, and additional enforcement action. Furor over this situation led to a series of negotiations resulting in the [Idaho Legislature establishing an instream flow right on the Lemhi River](#)<sup>78</sup> with the understanding that water to fill the junior right would be provided through a water bank. Legislation also allowed establishment of a rental pool that could trade natural flow rights to fulfill the instream right.

The instream right is for 25 c.f.s., with an additional 10 c.f.s subordinated to other rights. The physical situation allows delivery of the 25 c.f.s to the two major diversions just above the dewatered reach; if they do not divert the water, it passes through the critical reach, fulfilling the instream flow right. Downstream, other water rights holders can divert that water, but by then it has fulfilled its purpose.

The local irrigation district, Water District 74, operates the Lemhi Water Bank. Using funds provided by the Bureau of Reclamation as part of its ESA salmon obligations, the Water Bank decided on a standard offer approach. It set the price after a brief survey of other water acquisition efforts in the West, and settled on \$220 per acre, or about \$146 per acre-foot.

Since creation of the Lemhi Water Bank in 2001, there have been no further fish kills, or enforcement actions. The instream flow right has been fulfilled though rental of over 1,000 acre-feet of water each year. Community support for the program has been high and the system appears to be working.

R. J. Smith, a board member of Water District 74 who was involved with establishing the Lemhi Water Bank, reports that irrigators and the community are satisfied with its operations.<sup>79</sup> The Bureau of Reclamation has informed them that funding for the bank will terminate in 2005. With the dewatered reach still a potential ESA problem, the Water District and Water Bank are looking for alternative funding and additional solutions. They are considering switching some diversions from the Lemhi River to the nearby Salmon River and entering dry year leases or conservation easements. The one reservation Mr. Smith expressed with the Lemhi Water Bank is that money from leasing water does not have the same economic effect on the local economy as growing crops. Irrigators do not necessarily spend the money the same way – buying fertilizer and fuel from local sources. While the money may keep the producer whole, it does not keep the community whole.

<sup>78</sup> <http://www3.state.id.us/cgi-bin/newidst?sctid=420150006.K>

<sup>79</sup> Smith, R.J. Board Member, Water District 74. Personal communication. June 2004.

A brief [economic analysis of the value of water to irrigators on the Lemhi](#)<sup>80</sup> performed for the Columbia Basin Water Transactions Program suggests that a reasonable range of values for water is from \$45 to \$92 per acre; the water's value to the Bonneville Power Administration for salmon recovery may be as high as \$183. These values suggest that the arbitrary price set for water was high, and that an auction or other market-based system might result in significant cost savings.

#### C.4 Conclusions

Although Idaho has a system that does not encourage environmental water transactions, the legislatively created experiments on the Snake and Lemhi Rivers have been effective in meeting their environmental goals through an approach that is politically acceptable. Idaho now has the opportunity to extend and expand these experiments. The Snake River legislative authorization must be renewed to continue the program. Reclamation and some state officials signaled their interest in extending the authorization in a recent settlement of Nez Perce Tribe's water rights claims, which calls for continuation of the Reclamation leasing program. Staff in the Idaho Attorney General's office has expressed interest in using rental pools to fulfill other instream water rights, using the Lemhi River model.

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<sup>80</sup> <http://www.cbwtp.org/library/WaterAcquisitionLemhiRiver.htm>

## Appendix D

### Montana: Long-term Private Water Leasing

#### D.1 Introduction

Almost ten years ago, the Montana legislature took a step toward resolving flow-caused fishery problems in the state by passing legislation that allowed private leasing of water rights for instream use. While that effort was viewed skeptically by many at first, it proved to be so useful for both water users and in resolving flow issues that in 1999 it was extended to allow up to 30-year lease terms for water conserved as a result of investment in efficiency improvements. Now, Montana is one of the centers of innovation in environmental water transactions, particularly in dedicating water derived from improving irrigation system efficiency, thanks in part to the 30-year leasing law and favorable implementation of Federal Farm Bill programs.

Several entities are actively engaged in leasing water, in particular [Montana Fish Wildlife and Parks](#)<sup>81</sup> (FWP), [Trout Unlimited](#)<sup>82</sup> (TU) and the [Montana Water Trust](#)<sup>83</sup> (MWT). Private land owners have converted their water rights to instream flow as well.

#### D.2 State Law Procedures and Issues

[Montana's instream flow protection](#)<sup>84</sup> law permits water rights to be converted to instream use for a specified term, but not permanently. This law limits terms to 10 years for direct conversion of diversionary use to instream use, with one renewal, for a maximum of 20 years. However, up to 30 years is allowed when water converted to instream use results from efficiency savings. The longer term was adopted because the useful economic life of irrigation equipment (pipes, sprinkler systems etc.) often exceeds the 10-year lease term; a longer term encourages outside investment by those wishing to lease the saved water for instream use. In the nine years since the laws were passed, about 20 conversions or leases have been completed. About half of those were by water owners choosing to convert some or all of their water rights to instream flow. The other half were leases of water rights for conversion to instream flow.

State water law procedures are followed to convert water to instream use. Applications for change to instream use require: proof of an existing valid right, historic use and consumptive use data, sufficient and credible evidence that other water users will not be adversely affected by the change, description of the fishery benefit, designation of the protected reach, and a plan for measurement and monitoring. When the reviewing agency, the Department of Natural Resources and Conservation (DNRC), determines the

<sup>81</sup> <http://www.fwp.state.mt.us/habitat/waterleases.asp>

<sup>82</sup> [http://www.tu.org/conservation/www\\_mt.asp](http://www.tu.org/conservation/www_mt.asp)

<sup>83</sup> <http://www.montanawatertrust.org/about.html>

<sup>84</sup> <http://cbwtp.org/library/MTInstreamFlowProtection.htm>

application is complete, it issues public notice. There is opportunity for other water users to protest, and a hearing. Reaching a decision typically takes from four months to two years.

Quantification of the instream flow requires extensive data and in some cases hydrologic analysis. The test is non-injury to other water users. The quantity of water leased is not limited to consumptive use, as much as the entire historic diversion can be claimed. However, depending on hydrology and the presence of other water users, generally, the more water claimed above historic consumptive use, the greater the likelihood of a protest. Because Montana water law changed in 1973, evidence of historic use both before and after that date is needed in the application.

State law requires that instream flow leases and conversions include a monitoring plan. TU, in coordination with MWT, is working to establish credible and economically feasible monitoring protocols. An active TU volunteer, who formerly headed the USGS stream gauging program in Montana, is working to set out scientifically defensible monitoring protocols that can be executed by volunteers. Because the law requires that instream flow conversions benefit fisheries, the biological as well as hydrological basis of the transactions is important.

While there is some variation in approach among regional offices of DNRC, the decisions have been fairly consistent. Regulations standardizing policies and processes for instream conversions are due out from DNRC late in 2004.

### **D.3 Environmental Water Transactions in Montana**

The three major players in instream flow transaction in Montana all use the same tools, and take similar approaches with each transaction type. They do, however differ in the types of projects they undertake.

The state agency, Montana FWP, and TU integrate their transactions into ongoing large-scale restoration efforts. For TU, priority instream flow work is connected with habitat restoration projects undertaken by both its professional staff and its active volunteer chapters.<sup>85</sup> It examines the priority fisheries problems for flow issues related to diversions, and looks for people involved who might be receptive to a transactional approach.

MWT is primarily working in smaller tributaries that have been designated as dewatered by FWP, especially in the Bitterroot basin and the upper and middle Clark Fork<sup>86</sup>. MWT focuses on ecologically significant water transactions where flow is a limiting factor for target species and, where possible, they work on the flow portion of larger habitat restoration efforts undertaken by others. While TU has been active in transactional

<sup>85</sup> Bradshaw, Stan. Attorney, Montana Water Project, Trout Unlimited. Personal communication. May 2004.

<sup>86</sup> Ferguson, John. Executive Director, Montana Water Trust. Personal communication. May 2004.

approaches since the late 1990's, MWT's efforts are more recent, with some transactions in 2003 and full operations in 2004.

FWP, TU and MWT are using five different approaches in acquiring water for instream flow purposes:

- Leasing
- Irrigation Efficiency Improvements
- Diversion Reduction Agreements
- Storage Release Agreement
- Permanent Acquisition

### D.3.1 Leasing

Leasing water rights and converting the leased water to instream flow is the hallmark of the Montana environmental water transaction efforts. This arrangement is most commonly used for irrigation rights no longer needed because owners are changing land use due to conservation ethics, retirement or development. In these circumstances, current law allows the lease for a period of up to 10 years, with one renewal.

The largest lease transaction was completed in 2001 on the Sun Ranch, in the Madison basin. The Sun Ranch's owners, Roger and Cynthia Lang, purchased the 18,000-acre property and began conservation work in a number of areas. They donated a [lease of 220 c.f.s.](#)<sup>87</sup> to TU on three tributaries to the Madison in order to improve westslope cutthroat habitat. In 2002, they deeded a [conservation easement on 6,830 acres to The Nature Conservancy](#).<sup>88</sup> In addition, they established a private fish hatchery for westslope cutthroats, enrolled their cattle operation in a Conservation Beef program, are working with neighboring ranches on noxious weed issues, and encouraged wolf research on their property. These water rights owners used the lease as part of an overall effort to improve stewardship of their land.

A lease MWT completed was not with the typical agricultural producer, but rather with a developer. The developer decided that the former irrigation right was not needed, but that enhancing the fishery on the creek would provide benefit to purchasers of the subdivided property. MWT accepted the donated lease, and obtained an option to purchase the water right.

In 1996, Montana FWP obtained a 10-year lease on [Pearson Creek](#),<sup>89</sup> tributary to the Blackfoot River. The increased flows, together with the donation of a conservation easement on the lower three miles of the creek and extensive restoration work, reconnected the creek to the Blackfoot. In 1998, the first fluvial westslope cutthroat trout migrated from the mainstem into the creek, establishing a new population.

<sup>87</sup> [http://www.outdoorrelease.com/news\\_releases/news\\_detail.asp?ID=153&comp=46](http://www.outdoorrelease.com/news_releases/news_detail.asp?ID=153&comp=46)

<sup>88</sup> <http://www.conservationbeef.org/SunRanchpress.htm>

<sup>89</sup> <http://montanapartners.fws.gov/mt5c10.htm>

TU and MWT both see great promise in part-year or conditional water right leases and are preparing these types of transactions. These types of agreements could be for a split season, typically cutting off late summer irrigation when flows in streams tend to be lowest. Or they could be dry year agreements, allowing irrigation in normal or wet years when additional flows are not needed for fisheries, but devoting some or all of a water right to fisheries in drought years or when specific low flow levels occur. A benefit of these arrangements is that they permit economic use of the water when it is not needed for fisheries, lowering agricultural producer resistance to the devoting water to environmental benefit. The organizations anticipate that DNRC will approve these more complex lease agreements, but have not presented them for approval.

### D.3.2 Irrigation Efficiency Improvement

Improving conveyance and irrigation efficiency, with conserved water being dedicated to environmental use, is among the most important and innovative work being done in Montana. Because irrigation systems are often antiquated, modest investments in converting unlined gravity ditches to much smaller pump and pipe systems can greatly reduce diversions. Sprinkler systems may reduce the need to divert water during critical flow periods. This work is progressing rapidly in large part because of the way a 2002 federal Farm Bill program is being developed in Montana.

The Farm Bill included a new surface and ground water conservation program in the Environmental Quality Incentives Program (EQIP)--a voluntary program that provides assistance to farmers and ranchers who face threats to their resources. While the Farm Bill sets federal priorities (non-point source pollution, air emissions, soil erosion and recovery for at-risk species), state offices of the federal implementing agency, the Natural Resources Conservation Service, have great latitude in setting priorities and implementing the programs. EQIP can fund water conservation projects up to \$450,000 with a typical 50/50 cost share.

The [Montana office of the NRCS](http://www.mt.nrcs.usda.gov/),<sup>90</sup> working with TU, MWT, FWP and agricultural producers, chose to incorporate leasing of water conserved through investment in efficiency in its [priority ranking system](ftp://ftp-fc.sc.egov.usda.gov/MT/programs/eqip/04gswrank.pdf).<sup>91</sup> The result is that farmers and ranchers who choose to lease or convert conserved water for fishery flows get a priority boost that currently assures that otherwise reasonable projects receive funding. The term of the dedication to instream flows depends on the economic life of the projects – usually it is from 10 years to the 30-year maximum for leases of water derived from efficiency improvements. Projects typically include reducing conveyance losses by improving ditches or pipelines, and increasing application efficiency through sprinkler irrigation. Matching funds may come from the irrigator, often in an in-kind contribution of backhoe work or other labor, the state, TU or MWT and other sources. NRCS will also provide an incentive payment of \$7,500 for leasing water for instream flows, with the funds typically used to compensate the leasing entity for the work necessary to formally change the water use to instream flows.

<sup>90</sup> <http://www.mt.nrcs.usda.gov/>

<sup>91</sup> <ftp://ftp-fc.sc.egov.usda.gov/MT/programs/eqip/04gswrank.pdf>

NRCS and other efficiency programs are not necessarily environmentally beneficial. Reducing conveyance losses may reduce groundwater recharge or return flows into streams. Farmers conserving water may increase the number of acres they irrigate or use sprinklers that sometimes increase evapotranspiration losses. While Montana water law allows a water user to retain use of conserved water, it does not permit increasing consumptive use or injuring other water users. NRCS leaves to the irrigator the obligation to comply with state water law, and issues of injury to other water users and the environment. However, in locations with favorable hydrology and water use patterns, carefully designed efficiency improvements can provide flow benefits.

Examples of efficiency projects include:

- [Poorman Creek](#)<sup>92</sup> where a diversion of up to 18 c.f.s. near the confluence with the Blackfoot River often left the creek dry, cutting off access to bull trout spawning habitat. Replacing the diversion dam and ditch with a pump and pipe system reduced the draw to three c.f.s., with the remaining water left instream pursuant to a 15-year agreement. In addition, cattle were removed from the creek, further improving habitat.
- [Weaver Ranch](#)<sup>93</sup> on the [North Fork of the Blackfoot River](#),<sup>94</sup> where replacing a gravity ditch diverting from a losing reach to a pump and pipe system diverting from a gaining reach resulted in reducing diversion from 15–18 c.f.s. to two c.f.s., with conserved water placed under a 30-year instream flow lease.
- [Rock Creek](#)<sup>95</sup> where as part of a restoration project a pump, pipe and sprinkler system replaced a leaky gravity ditch and flood system, reducing diversion from four c.f.s. to one c.f.s. The water improves flows in a five-mile reach where a broad, shallow creek was narrowed to improve fish passage.
- North Fork of Fridley Creek, a tributary of the Yellowstone River, where an irrigation ditch that captured the entire flow of the creek and cut off passage is being modified to allow Yellowstone cutthroat to enter the creek for spawning.

### D.3.3 Diversion Reduction Agreements

Diversion reduction agreements call for reduced draw on watercourse at a specified time or upon triggering events. In some cases they may be for split-seasons, calling for a halt to irrigation in the late summer low-flow period. They are particularly useful in emergency drought response because if they are in place for a single season, the state change in use procedure may be avoided. They are also useful in establishing relationships with irrigators, because the request is much less threatening than a long-term lease. MWT and TU completed two in 2003 and have three in place for 2004.

<sup>92</sup> <http://montanapartners.fws.gov/mt5c34.htm>

<sup>93</sup> <http://www.missoulain.com/articles/2004/04/29/news/local/znews01.txt>

<sup>94</sup> <http://montanapartners.fws.gov/mt5c18.htm>

<sup>95</sup> <http://montanapartners.fws.gov/mt5c20.htm>



If used only for a short time, these agreements avoid the potential problems of abandonment. If they are multi-year, then completing a change in use procedure may be needed. However, while the DNRC appears receptive to these arrangements, it has not yet processed a multi-year split-season lease or arrangement contingent upon triggering events (such as low flow).

TU's experience on the North Fork of the Blackfoot River is an example of the surgical precision possible with these agreements--in this case a single week. ESA-listed bull trout migrate from the main stem Blackfoot River into tributaries such as the North Fork to spawn, returning in early fall. In September 2001, large bull trout became trapped in pools on the North Fork when a combination of drought and diversion reduced flows to the point that their migration passage was blocked. Employees of the Department of Fish Wildlife and Parks trapped and hauled the fish back to deeper water. In 2003, water users on five multi-user ditches agreed to temporarily shut down diversion if needed to allow fish to pass. Just before the agreement was triggered in September 2003, flow at the bottom of the critical reach was only ten c.f.s., with the ditches taking 20 c.f.s. Two days later, flow at the bottom of the reach was 25 c.f.s., despite inflow into the reach having dropped by five or six c.f.s. Tracking radio tagged bull trout as they migrated through the reach demonstrated that the arrangement worked. Stopping only a week's diversion at the end of the irrigation season achieved real conservation benefits while minimizing the cost to the irrigators.

[NRCS's fluvial arctic grayling program](#)<sup>96</sup> pays for emergency action to help protect the candidate ESA fish in the Big Hole River. Irrigators are paid between \$40 and \$60 per acre not to irrigate, with the payment depending on when during the irrigation season the water is turned off. In addition, ranchers can be paid to fence their riparian areas to keep cattle out of rivers and are given substantial payments (up to \$5,000) for installing out-of-stream water facilities. [USFWS Partners in Wildlife](#)<sup>97</sup> is also working with ranchers on these stock watering and riparian area protection efforts.

#### D.3.4 Storage Release Agreement

MWT is experimenting with an unusual agreement with the owner of a private reservoir. On a trial basis, the reservoir owner has agreed to release three c.f.s. for nine months and 1.5 c.f.s. for the remaining three months of the year into a usually dewatered stream and not to divert the water downstream, creating new habitat for bull trout and westslope cutthroat trout. In return, MWT will pay the water owner the net value of his crop, roughly \$30,000. If the trial proves successful and satisfactory, MWT will seek a long-term agreement and complete the DNRC process.

Environmental use of existing storage capacity in exchange for investment in dam and reservoir repair and improvements is another approach. In July 2004, [TU brokered a](#)

<sup>96</sup> <http://montanapartners.fws.gov/mt5c20.htm>

<sup>97</sup> <http://montanapartners.fws.gov/mt3c6a.htm>

[deal](#)<sup>98</sup> with FWP and DNRC involving a \$400,000 investment in maintenance and improvement of a state dam on the Bitterroot River in exchange for instream use of 10,000 acre-feet of annual yield from the reservoir. The deal makes permanent a series of temporary arrangements that have rewatered a reach of the river chronically dried by diversions in the 1970's and 80's. A critical feature of the project is a water commissioner hired to ensure that irrigation diversions are limited to their legal entitlements, and are not diverting any of the fish flows.

### D.3.5 Permanent Acquisition

While state law permits any person or organization to acquire permanent water rights, only term dedication of water to instream flows is allowed. Organizations working on flows in the state are exploring the possibility of legislation allowing permanent instream dedication when the leasing laws are considered for renewal in 2005. In the meantime, MWT has acquired permanent water rights through donation and purchase, and is converting them to term instream flow use. MWT is in the early stages of working with land trusts and other conservationists to convert to instream use water rights associated with land dedicated to conservation through easements, donation or purchase.

## D.4 Summary

Leasing water rights for instream use is working well in Montana, and becoming institutionalized. The concept was quite controversial when first passed by the state legislature, and was opposed by most agricultural interests. Yet when extending the terms for leases involving conserved water was considered, every major agricultural association in the state supported the proposal. In 2005, the existing leasing program is up for renewal; the legislature is expected to seriously consider going beyond leasing and allow permanent dedications of water to instream use.

All organizations involved with environmental water acquisitions in Montana stress the importance of developing good working relationships with water users. These relationships take time, and are built on both interests and experience. While some water users want to achieve the environmental benefits of improved stream habitats, many more are also interested in finding a use for their water rights that protects them from relinquishment and in increasing the efficiency of their irrigation systems. Conservation organizations are finding these interests sufficient to begin working relationships. The process takes time and patience.

Montana projects show the importance and opportunities of applying the correct transaction technique to a specific problem. On the Blackfoot, interrupting diversion for only a week achieved the flow needed to provide fish passage for ESA-listed bull trout. This close matching of problem and solution requires a thorough understanding of the biology and hydrology, as well as the water use. Intensive due diligence is often needed to create solutions that work effectively for both the target organism and the water users. For

<sup>98</sup> <http://www.missoulian.com/articles/2004/07/09/news/local/news04.txt>

integrated restoration projects, this due diligence is a natural part of the project – the data and analysis of the problem are already being done. This may mean that environmental water transactions are more likely to be successful when they are a part of a larger restoration project rather than isolated transactions.

Montana is achieving particular success with dedicating water derived from conservation and efficiency projects to instream flows. The State NRCS office's decision to use instream flow leasing as a bonus in setting EQIP funding priorities is creating very good conservation opportunities for the organizations that work on instream flows in Montana. Projects completed to date show just how promising this approach can be.

Conservation and efficiency work is not, however appropriate in every case. It does not necessarily reduce consumptive use of water. In fact, in some cases, switching to sprinklers can increase consumptive use. Further, increasing efficiency may injure fish and wildlife dependent on conveyance losses and return flows. The effects of reducing groundwater recharge are a particular concern. The conservation opportunities using efficiencies therefore have to be carefully evaluated and selected to achieve specific objectives.

Montana organizations are working to create systematic approaches to some of the issues of private instream flows. The state DNRC is now working on regulations and guidance for quantifying instream flow conversions and other issues in the regulatory processes. TU and MWT are working on approaches to both the technical and manpower problems of meeting Montana's requirement that instream flows be monitored. If the state is to develop an extensive network of private instream flows, workable monitoring protocols are needed.

## Appendix E

### Nevada: Remaking Reclamation's Newlands Project through Permanent Water Rights Acquisitions

#### E.1 Introduction

Nevada is not only the driest western state; it is one of the fastest growing. This combination exacerbates already existing conflicts between environmental water use and diversionary water use, just as it does in other western states. But Nevada is taking an unusual approach to resolving some of the conflicts – acquisition of permanent water rights for environmental use.

Water for the environment and recreation is a critical issue in Nevada. As a result of water projects and other development, Nevada's water-dependent species are in sharp decline. According to the state biodiversity inventory, of the 104 native fish species and subspecies, 11 are extinct or extirpated, 23 are federally listed under the Endangered Species Act and 56% are considered sensitive. More than half (56%) of Nevada's wetlands are gone. In western Nevada, where wetlands are particularly critical for migratory waterfowl on Pacific Flyway stopovers, more than 85% are gone. Steep long-term drops in water levels at Pyramid and Walker Lakes in western Nevada are causing fishery declines and water quality problems. As the driest state, water-related recreation is at a premium, whether it is fishing, waterfowl hunting, boating or swimming.

Nevada chose to undertake permanent acquisition of water rights to address these environmental issues. By applying that approach to the Bureau of Reclamation's Newlands Project to resolve both environmental and Native American issues the fundamental purposes, benefits and operations of the Project are changing. Major water acquisition programs are in place on the Truckee River and the Carson River, both part of the Bureau of Reclamation's Newlands Project. In addition, state purchases of water rights for wetlands, wildlife management areas and other needs are proceeding. Through these environmental water acquisitions, the nature of Nevada's environment and water use is being profoundly altered.

#### E.2 State Law Procedures and Issues

While Nevada statutes did not explicitly provide authorization for direct appropriation of environmental water rights or converting existing diversionary water rights to environmental use, the Nevada Supreme Court recognized *in-situ* lake water use as a beneficial use in 1988. In a remarkable decision issued during the "Sagebrush Rebellion," the Supreme Court upheld an appropriation by the United States for fish, wildlife, and recreation in a suit brought by the State against the State Engineer, who had approved the application. (*Nevada v. Morros*, 755 P.2d 263 [Nev.1988].) Since 1998, Nevada has granted a number of new appropriations for environmental use, primarily to state and federal

agencies, and approved converting existing water rights to environmental use. There appears to be no bar to private ownership of instream or environmental rights.

The [Nevada Water Plan](#)<sup>99</sup> and especially the [environmental and instream sections](#)<sup>100</sup> present a very useful overview of Nevada's issues. Because most surface water has been appropriated, addressing instream and *in-situ* use usually requires changing diversionary use to environmental use. With such uses recognized for new appropriations, the Nevada State Engineer also recognizes environmental use as legitimate in change procedures.

Nevada has procedures for expedited temporary (less than one year) and permanent changes in [place of diversion, manner of use or place of use](#).<sup>101</sup> [Temporary changes](#)<sup>102</sup> are to be granted if they are in the public interest and do not impair other water rights. Unless the State Engineer determines that the change may not be in the public interest or may impair water use, there is no requirement of public notice and hearing. While the public interest and impairment of other water rights are paramount in permanent transfers, the State Engineer considers [additional factors, such as irrigation district economics and operations](#).<sup>103</sup> [Notice](#)<sup>104</sup> is given and a hearing may be held. Applications involving interbasin transfers are subject to a variety of measures to protect the interests of the basin of origin. As a general matter, after application and granting of a permit, the water user must file a [proof of completed diversion structure](#)<sup>105</sup> and [proof of application of water to beneficial use](#).<sup>106</sup>

Transfers and changes to environmental use require the same information as for traditional uses – extensive information about historic use, hydrology, water rights, often prepared by lawyers, engineers and other consultants. Nevada water users are generally required to measure their use; the state estimates that 65% to 75% of water use is measured, so use data supporting changes are often available. Nevada does not manage groundwater and surface water together, even when hydrologically connected, except in rare circumstances. Transfers of water are typically limited to consumptive use, in order to prevent injury to other water users, both surface and ground.

The differences in environmental use transfers are in tying the proposed environmental use to fish and wildlife or recreation.<sup>107</sup> The State Engineer requires a careful assessment of the beneficial use of instream flows, and has, especially for new appropriations, substantially reduced some claims. The place of use specified varies for environmental use. The State Engineer has allowed as broad a place of use as the entire Stillwater National Wildlife Refuge. For instream flows, a point of “diversion” is specified at the beginning of

<sup>99</sup> <http://water.nv.gov/Water%20planning/wat-plan/con-main.htm>

<sup>100</sup> <http://water.nv.gov/Water%20planning/wat-plan/pt3-cont.htm>

<sup>101</sup> <http://www.leg.state.nv.us/NRS/NRS533Sec345>

<sup>102</sup> <http://www.leg.state.nv.us/NRS/NRS533Sec345>

<sup>103</sup> <http://www.leg.state.nv.us/NRS/NRS533Sec370>

<sup>104</sup> <http://www.leg.state.nv.us/NRS/NRS533Sec360>

<sup>105</sup> <http://www.leg.state.nv.us/NRS/NRS533Sec390>

<sup>106</sup> <http://www.leg.state.nv.us/NRS/NRS533Sec400>

<sup>107</sup> Joseph-Taylor, Susan, Hearing Officer, Nevada Division of Water Resources. Personal communication. April 2004.

the reach, and a downstream point of use is designated as the end; measurement is typically required at both points, which define the protected reach.

### **E.3 Environmental Water Transactions – Nevada**

Two broad sets of efforts in Nevada comprise most of the environmental water transactions in Nevada – remaking the Bureau of Reclamation’s Newlands Project by converting agricultural water to instream and wetlands use, and the state Department of Wildlife’s acquisitions of water and land for wildlife throughout the state.

#### **E.3.1 Remaking Newlands Project Through Environmental Water Transactions**

Reclamation’s oldest irrigation project, the [Newlands Project](#),<sup>108</sup> is the focus of efforts to acquire permanent water rights for several purposes – instream flows for endangered fish, wetlands maintenance, lake level stabilization, fulfillment of treaty obligations, as well as improving water quality. Major environmental acquisition programs are operating on the Truckee River to improve river fishery habitat as part of a water quality settlement and on the Carson River to provide water for wetlands in the Stillwater Wildlife Management Area. A smaller program is retiring inactive water rights.

That the Newlands Project is the focus of significant and successful environmental water transactions is remarkable given its place in western water history as the very first project authorized under the federal Reclamation laws. The project is named for Nevada’s Senator Francis Newlands, who as a principal author of the Reclamation Act of 1902, established the federal role in developing the West’s water. The Newlands Project reflects both Reclamation’s successes and the attendant problems. In a relatively small Reclamation project, Newlands embodies most of the contentious water problems facing the West:

- Growing urban populations, in Reno, Sparks, and Fallon;
- Deteriorating agricultural economics;
- Tribal treaty and trust obligations, including maintaining a fishery upon which the Pyramid Lake Paiute Tribe historically relied;
- Endangered Species Act issues, complicated by the fact that two ESA listed fish, the cui-ui and the Lahontan cutthroat trout are also central to the Indian fishery;
- A remarkable amount of litigation and administrative action over a wide variety of issues including: interstate water issues; Tribal treaty obligations; and federal law issues including Clean Water Act, NEPA and ESA;
- National caliber natural resources, including Stillwater and Fallon National Wildlife Refuges, dependent on dwindling fresh water supplies; and
- A host of other environmental, economic and social problems, ranging from designation of 50 miles of the Carson River as a Superfund site, to management of the Fallon Naval Air Station, home to the Navy’s Top Gun training program.

<sup>108</sup> <http://www.usbr.gov/dataweb/html/newlands.html>

Two features of the Newlands Project allow an acquisition strategy: irrigators have the ability to sell their water rights; and those rights have been comprehensively adjudicated. Neither feature is typical of Reclamation projects around the west.

Two main rivers feed the Newlands Project. The 140-mile long Truckee River drains the Lake Tahoe Basin and flows into Nevada to its natural terminus at Pyramid Lake. The Carson River south of Lake Tahoe flows over 180 miles to its natural terminus, the Carson Sink.

Water for Newlands is diverted above the two rivers' natural terminuses and applied to agricultural use. [Reclamation reports](#)<sup>109</sup> that in 1992, the project consisted of 73,859 acres, of which 55,182 were irrigated. Two-thirds of the irrigated land was in alfalfa, with 17% in cereal crops. Total value of agricultural production was \$13.3 million, down from \$26.1 million in 1980 (unadjusted for inflation). In 1992, there were 144 full-time farms, with 4,041 small (average 13 acres) part time farms. The local project contractor, the [Truckee-Carson Irrigation District](#)<sup>110</sup> (TCID) now delivers about 215,000 acre-feet of water to about 2,500 water users. Other sources report somewhat different figures.

In 1997, a comprehensive case study on the Newlands Project was prepared for the Western Water Policy Review Commission. That report, [The Truckee - Carson River Basin Study Report](#)<sup>111</sup> provides detailed background, especially on the 1990 water rights settlement, the Truckee-Carson-Pyramid Lake Water Rights Settlement, [P.L. 101-618](#),<sup>112</sup> that created conditions enabling the two environmental acquisition programs discussed here.

The water acquisition programs are only a part of overall changes to project goals and operations brought about by decades of controversy, litigation and P.L. 101-618. The programs described here are important, but are only a portion of the overall efforts underway.

### E.3.1.1 Truckee River Environmental Water Acquisitions

Diversions from the Truckee reduced flows in the lower reach of the river and inflows to Pyramid Lake to a trickle, especially during the summer irrigation season. Wastewater discharges from the Reno/Sparks area exacerbated the problem by returning treated wastewater to the river below the cities. The combination created both Endangered Species Act and Clean Water Act problems.

Two ESA listed fish spawn in the Truckee. [Lahontan cutthroat trout](#)<sup>113</sup> (LCT), classified as threatened under the ESA, are resident in the Truckee River and require flows, temperature and dissolved oxygen throughout the year, a problem during the hot and dry

<sup>109</sup> <http://www.usbr.gov/dataweb/html/newlands.html>

<sup>110</sup> <http://www.tcid.org/history2.htm>

<sup>111</sup> <http://www.bioe.orst.edu/Faculty/selker/Oregon%20Water%20Policy%20and%20Law%20Website/Report%20of%20the%20WWPRAC/TRUCKEE.PDF>

<sup>112</sup> <http://thomas.loc.gov/cgi-bin/bdquery/z?d101:SN03084:TOM:/bss/d101query.html>

<sup>113</sup> <http://nevada.fws.gov/lctrit/FinalTRIT.pdf>



summer irrigation season, when diversions are the greatest. Endangered [cui-ui](#)<sup>114</sup> live in Pyramid Lake and spawn in the Truckee during high spring flows. As Pyramid Lake levels dropped due to diversions from the Truckee, barriers to the spawning migration for both cui-ui and lake-resident Lahontan cutthroat impaired spawning. To create appropriate spawning conditions, periodic high flows are needed on the Truckee to both remove sediment from spawning gravels and clear out algae. Successful recovery of the LCT requires adequate year-round flows in the Truckee and periodic higher flushing flows to maintain suitable habitat. The cui-ui need higher lake levels and barrier removal, high spring spawning flows and suitable spawning habitat.

For both fish, then, the key to recovery is increasing the amount of water reaching Pyramid Lake, and to provide high flows in lower Truckee River to allow spawning; further, for the LCT, year-round flows are needed to allow resident fish to thrive. In the Truckee the issues are both water quantity, keeping the fish and eggs wet, and water quality, particularly temperature and dissolved oxygen.

An essential problem for a water rights acquisition strategy to resolve these Truckee-Pyramid Lake issues was that Reclamation law generally prohibits use of Reclamation water outside of Reclamation districts. Water cannot be purchased from Reclamation users and used for non-Reclamation purposes, such as use outside of the district or for fish and wildlife where those are not purposes of the Reclamation project. Unusual, perhaps unique, features of the Truckee-Carson-Pyramid Lake Water Rights Settlement (P.L. 101-618) resolved those issues. P.L. 101-618 authorized fish and wildlife as a purpose of the Newlands Project (which had been authorized only for irrigation purposes previously). It also authorized willing-seller acquisition of water rights and land to assist in recovery of the Pyramid Lake fisheries, even though the water would be applied outside of the Newlands Project boundaries. These provisions opened the door for water rights acquisition, but did not provide funding to take advantage of the opening.

Money for water rights acquisition came in 1996 from a [settlement in a water quality](#)<sup>115</sup> lawsuit by the Pyramid Lake Paiute Tribe, which had sued the United States, Reno, Sparks and Washoe County over approval and operations of Truckee Meadows Wastewater Reclamation Facility. In the settlement, the federal government and Reno/Sparks/Washoe County (RSWC) committed to investing \$24 million, equally divided between the federal and non-federal entities, in water rights acquisition.

Buying water to dilute wastewater discharges is a very unusual, possibly unique, solution to resolving Clean Water Act-based litigation. It was adopted here in part because the plaintiff, the Pyramid Lake Paiute Tribe, had identified additional water as the best way to meet fishery needs.

**Approach** – Recognizing that they were ill-suited to engage willing sellers, the Pyramid Lake Paiute Tribe<sup>116</sup> and RSWC<sup>117</sup> use an intermediary to engage sellers and take

<sup>114</sup> <http://biology.usgs.gov/s+t/noframe/r250.htm>

<sup>115</sup> <http://www.epa.gov/fedrgstr/EPA-IMPACT/2001/October/Day-26/i26950.htm>

<sup>116</sup> Jackson, John. Director of Water Resources, Pyramid Lake Paiute Tribe. Personal communication. April 2004.

<sup>117</sup> Mahin, Don. Senior Engineer, Washoe County. Personal communication. April 2004.



transactions up to closing. This avoids forcing sellers to endure public agency procurement processes, and separates sellers from the Tribe, which has a long history of litigation with water right owners.

The Pyramid Lake Paiute Tribe and RSWC contract with a small non-profit, Great Basin Land & Water (Great Basin), to find and set up acquisition deals. Great Basin is legally a principal in the transactions, not simply a broker, and functions as a middleman in the transactions. While it has environmental roots (established by Nature Conservancy and Trust for Public Lands staff), it also has well established local connections and reputation resulting from staff with almost 20 years of Nevada land acquisition history.<sup>118</sup>

Great Basin actively solicits water rights holders on the Truckee, both within and outside the Newlands Project. When a likely prospect is identified, Great Basin does due diligence, typically a preliminary title search for land ownership, and a preliminary water rights assessment, and if necessary an engineering assessment.

If the water rights are appropriate for the acquisition program, Great Basin offers to buy an option on either the water rights alone, or if necessary, for both the land and water rights. Typically the option price is nominal – a hundred dollars – but can be greater. The option sets out a procedure, rather than a price. After the option contract is signed, Great Basin contracts with an appraiser to obtain a sales price; usually the appraisal is back within 45 days. The prospective seller has 90 days after the option is signed to accept the appraisal price; failure to accept is deemed rejection. If the appraisal price is accepted, the contract becomes binding on both parties, subject to an environmental review focused on potential contamination of land with toxics or hazardous waste. The transaction is usually closed within 30 days, but may take up to a year. At the closing, Great Basin either assigns the right to buy the property, or takes title to the property and reconveys it to the ultimate owner. That ultimate owner is either the Pyramid Lake Paiute Tribe or RSWC – the two sets of interests take turns in buying the property.

If land and water rights are purchased, the owner turns around and puts the land on the market, stripped of water rights and with covenants that prohibit irrigation with surface water. Once the water rights are in the new owner's hands, they ultimately apply to the state for conversion of purpose to instream wildlife use on the Truckee River.

The Pyramid Lake Paiute Tribe and RSWC report that Great Basin can do transactions more efficiently and effectively than their own staff could. To begin with, Great Basin serves as a useful intermediary, not only between sellers, who may be suspicious of tribal or government agencies, but also between the Pyramid Lake Paiute Tribe and RSWC. Further, Great Basin has proven to be cost effective; instead of dedicating agency staff to developing acquisitions, they pay a modest monthly retainer and an incentive fee of 2% for land plus water and 4% for water-only transactions. Perhaps most importantly, Great Basin staff has personal relationships with potential sellers and a local reputation that neither principal can approach.

<sup>118</sup> Peskin, Arron. Director, Great Basin Land & Water. Personal communication. April 2004.

Relationships and patience are what make the transactions work, according to Aaron Peskin, Director of Great Basin. He has been doing land deals in Nevada since the 1980's, for the Trust for Public Land and others. As a result, if he does not know a potential seller directly, the seller usually knows him by reputation. Great Basin sends an annual letter to all Newlands water rights holders using Truckee River water, offering to buy their water and giving comparable sales. Great Basin talks with potential sellers regularly, and patiently; especially with those contemplating retiring, it may be a couple of years between first approach and signing an option. Having the price set by a third party, the appraiser, helps because the relationship is not affected by significant negotiation.

Most of the 33 transactions to date have been from within the Reclamation project. Of the three that have not been, two are notable:

- The [Mustang Ranch](#),<sup>119</sup> an infamous Nevada brothel, was seized by the federal government for unpaid taxes. The Pyramid Lake Paiute Tribe bought the ranch's 461 acre-feet of water rights.
- The [McCarran Ranch](#),<sup>120</sup> was owned by family of Senator Pat McCarran, who as a US Senator was responsible for the McCarran Amendment which allows the United States to be subject to state court proceedings in adjudicating water rights. When Senator McCarran's daughter died, her trustees sold riparian land to The Nature Conservancy, upland areas for development, and 940 acre-feet of water rights to RSWC.

**Accomplishments** Between mid-1998 and the end of 2003, the program completed 33 transactions, and acquired 4,196 acre-feet of water rights of which 3,805 acre-feet are eligible for transfer to Truckee River instream flows. Ten of the transactions have been water-only, the remainder included both land and water.

<sup>119</sup> <http://www.uswaternews.com/archives/arcrights/3triacq10.html>

<sup>120</sup> <http://www.rgj.com/news/stories/html/2003/11/01/55657.php>

Costs for the program include:

Purchase price	\$9,513,222	
Project expenses	\$ 598,237	(transaction costs and Great Basin fees)
<u>Proceeds - land sale</u>	<u>(\$2,718,765)</u>	(net of transaction costs on resale of land)
Net cost	\$7,392,694	

Average cost of the transferable water rights is \$1,942 per acre-foot. However, the cost has varied widely, from less than \$600 to more than \$3,000 per acre-foot, with the price rising with time. With about one-third of the available money spent (\$7.4 million of \$24 million), and prices rising, the program can be expected to acquire an additional several thousand acre-feet.

Originally, the intent was to use the \$24 million to purchase about 24,000 acre-feet within five years. The time target has not been met, and meeting even half of the quantity target will be exceedingly challenging, given prices to date. The pace of transactions has slowed from a high of 10 transactions in the first year of operations, 1998, to two transactions in 2003.

**Outstanding issues and lessons** Water rights acquisition, while going more slowly and at greater cost than expected, is proceeding reasonably smoothly. The issues faced on the Truckee are less with buying the water, than with the fate of the water after purchase, litigation and other concerns.

The additional water is, as intended, diluting treated wastewater on the Truckee and allowing full use of wastewater treatment plant capacity, while at the same time improving conditions for the fisheries. Water already purchased has helped to address water quality issues for Lahontan cutthroat, and is helping with spring spawning flows for cui-ui, according to the Tribal fishery manager.

There is, however, a problem with timing. Most of the irrigation water is available in the summer. While putting that water in the Truckee during the irrigation season helps resident Lahontan cutthroat survival, it does not improve cui-ui spring spawning flows or provide high flows needed for spawning bed preparation. Further, the amount of water acquired is small compared to the water needed to raise the level of Pyramid Lake.

Little of the water has been through the state law change of use process. For the Newlands project water, under current operating agreements the water stays in the Truckee if not used for agriculture, so the easiest procedure is simply not to use it for irrigation. Only in water-short years is a change of use required to ensure fishery use. Conversion in use for some of the non-Newlands water, for instance McCarran Ranch, has been completed. As of June 2004, the Pyramid Lake Paiute Tribe had a temporary change application pending, under protest, for some of its Newlands water, but the State Engineer had not issued a decision.

Several issues related to the change process may further delay completing the change in use. The Pyramid Lake Paiute Tribe disputes any requirement under Nevada law to pay

operations and maintenance to the irrigation district. Further, Churchill County, which opposes transfers of water out of agriculture, has a dust ordinance that requires a permit, with unspecified fees, for transferring water out of agriculture; neither RSWC nor the Pyramid Lake Tribe has applied for the permit.

Given the long history of very contentious relationships over water between the Pyramid Lake Paiute Tribe and water users in the Newlands Project, continued protests, litigation and public controversy are almost inevitable. Pyramid Lake Paiute Tribe staff quite openly state that their goal is to end the use of Truckee River water by Newlands Project irrigators.<sup>121</sup> This ultimate goal, and the Tribe's effectiveness in litigation to date, encourages TCID and Churchill County to oppose conversion of irrigation water rights to instream use even under a willing seller model.

### **E.3.I.2 Carson River Environmental Water Acquisitions**

Before the advent of mining in the Sierra and agriculture in the Carson Valley, the Carson River flowed into a great swampy remnant of the Ice-Age Lake Lahontan. That wetland, known as the Carson Sink, along with other similar Nevada wetlands, served as major wintering, migration and breeding grounds for a large number of waterfowl. Control and diversion of the waters of the Carson River led to a great reduction in size of the Carson Sink, and to a variety of water quality problems. About 200,000 acres are now protected as the Stillwater Wildlife Management Area, including a smaller Stillwater National Wildlife Refuge and other federally and state operated refuges and managed areas. However, only a small proportion of this land is wetland.

Declining water supplies for the Lahontan Valley wetlands became of great concern – as irrigation grew, the wetlands dwindled. Another Nevada wetlands wildlife refuge, Winnemucca National Wildlife Refuge, established in 1936, depended on flows from the Truckee River via overflow from Pyramid Lake. After it was completely dried due in large part to diversions for the Newlands Project, Winnemucca was delisted as a Wildlife Refuge in 1962.

Water for the Stillwater complex came largely from agricultural return flows, with attendant salinity and toxicity problems. To maintain the functions of the wildlife refuge, an assured water supply was needed. Beginning in the mid 1980's a group of people and organizations grew concerned over the potential demise of Stillwater. As part of that concern, in the late 1980's The Nature Conservancy began efforts to buy water rights for Stillwater. Later transactions by others are a direct result of the pioneering work by TNC, especially its former state director Graham Chilsom and water attorney Robert Wiggington.

The concern led to P.L.101-618, which directed the Secretary of the Interior, working with Nevada and other parties, to acquire and use water rights needed to sustain approximately 25,000 acres of Lahontan Valley wetlands. Initial estimates of the water needed were as high as five acre-feet per acre or 125,000 acre-feet. In 1995 the estimate of water to be

<sup>121</sup> Ringleberg, Eric. Executive Director, Pyramid Lake Fisheries. Personal communication April 2004.

acquired dropped to 108,000 acre-feet, with some additional water derived from operations and other sources. Because this represents 60% of the yield from the Carson Division of the Newlands Project, strong opposition ensued. In late 1996, the Fish and Wildlife Service released a final Environmental Impact Statement and Record of Decision setting an acquisitions target of 75,000 acre-feet of rights, with the remaining 50,000 acre-feet per year coming from reservoir spills, drains, purchases upstream of Newlands, and the military airbase in Fallon. [Litigation over the proposed transfers](#)<sup>122</sup> continued until the fall of 2003.

**Approach** In 1990, with the passage of P.L. 101-618 and the first appropriations for acquisitions, the Fish and Wildlife Service began buying water from the Carson Division of the Newlands Project for use on Stillwater National Wildlife Refuge. P.L. 101-618 authorized buying land and water on a willing seller basis, as well as sale of land after water rights have been transferred. This is a rare authorization for the Fish and Wildlife Service to buy and sell land related to a wildlife refuge outside of the refuge boundaries. As in the Truckee acquisition example, the Fish and Wildlife Service prefers to buy water alone, but will buy water and land together.

Federal procurement standards and processes followed by the federal agencies create certain limitations in approach. The biggest limitation is speed; no transaction goes quickly, most take at least six months, some take years. Federal agencies do not offer to buy property; they only accept offers to sell, but not at a specific price. Price is set through an appraisal instead of negotiation. However, the advantages is that sellers know that the federal agencies have the money and will not back out of the deal, pay in cash, and cover all closing costs.

Briefly, the formal process begins with an offer to sell. FWS staff then investigate the water rights involved to ensure that valid rights can be transferred. However, this analysis is not a formal water rights survey with legal opinion; instead it is a summary that accepts some uncertainty. Because the local FWS staff is very familiar with Newlands water rights, it is allowed to conduct this analysis instead of having the regional office handle the water issues, as is required for all other FWS offices. Then an appraisal is ordered, which typically takes two to three months. About 70% of transactions in which an appraisal is performed close. If sellers reject the appraisal, FWS will sometimes perform additional appraisals. When the appraisal is accepted, closing usually takes three months.

In the early years of the program, before the 1996 EIS, The Nature Conservancy and other land trusts provided important intermediary services and support. Since 1995, FWS has had a real estate specialist on staff working on Nevada acquisitions. That specialist does not focus on, or even mention, use of water for wetlands in transactions, but rather takes a low-key business approach, eschewing any discussion of the wetlands or water politics.<sup>123</sup>

Marketing is limited and targeted. Efforts to advertise the option of selling to the FWS on the radio resulted in negative publicity and bad community feelings, so mass market efforts

<sup>122</sup> <http://www.lasvegassun.com/sunbin/stories/nevada/2003/sep/04/090410244.html>

<sup>123</sup> Grimes, Richard. US Fish and Wildlife Service. Personnel communication. April 2004.

were dropped. Instead, marketing is primarily direct mail to water rights owners in areas targeted for acquisitions, with occasional print advertising. A benefit of FWS acquisition is that it keeps water in the Lahontan Valley and is starting to improve hunting and other recreation-based activities in the area. Other federal actions involving the Newlands Project are seen as benefiting only the Tribes or other areas.

In the 1990's many of the water deals arose when developers working around the Fallon Naval Air Station bought agricultural land for housing and sold water rights. Since the late 1990's most transaction involved both land and water, as sellers retired or left farming. Prices for water only are now typically around \$2,200 per acre, with water rights of usually 3.5 acre-feet per acre, or roughly \$630 per acre-foot. Land and water together usually sells for \$3,000 to \$4,000 per acre. There is limited competition for water rights. Some water is bought for conversion to municipal and industrial use, but most domestic use in the area is from ground water. The environmental water buyers (FWS, Bureau of Indian Affairs and the state) coordinate to avoid competition. However, there continue to be buyers intending to farm. Many farms are not strictly economic propositions – they are supported by outside income and are operated at least in part as lifestyle choices – a situation that likely increases prices.

**Accomplishments** Since 1990, the Lahontan Valley wetlands program has acquired about 34,000 acre-feet of water rights. Of these, FWS purchased 23,600 acre-feet from the Newlands Project, and 4,300 acre-feet from other Carson River sources. The state and the Nevada Waterfowl Association bought 8,800 acre-feet. Other acquisitions include 1,900 by the Bureau of Indian Affairs and a donation of 2,900 acre-feet from the Navy air base. With just less than half of the water acquired in close to 15 years, at the current annual rate of from six to ten small transactions, FWS estimates that another 15 years will be needed to complete the program.

The most important accomplishments are in getting more, better quality water to wetlands. Litigation over the EIS and the change in use stalled delivering water to the wetlands. In 2002, legal impediments allowed delivery of only 7,000 acre-feet. In 2003, after resolution of the EIS suit, 20,000 acre-feet were delivered. Previously much of the water received by the wetlands was irrigation return flow with typical total dissolved solids of 3,000-4,000 parts per million; the acquired water is half as salty. The result was more and better waterfowl habitat, with much improved hunting.

**Outstanding issues and lessons** Environmental water acquisition continues to be contentious in the Carson Division of the Newlands Project. With the federal agencies first calling for 60% and then an EIS calling for 40% of the Carson Division water, the irrigation district, Churchill County, the City of Fallon and water users became strong opponents of the program.

From the beginning of the program in 1990 through 1996, while TCID, neighbors, and Fallon and Churchill Counties often protested change of use in the State Engineer's process, the protests were usually settled. However, since the EIS in 1996, with its ensuing litigation, protests became more heated. FWS used the temporary change procedures to some extent, but protests stopped that process as well. After resolution of the NEPA suit in late 2003, change of use was completed for much of the water acquired.

Groundwater recharge is an unresolved problem.<sup>124</sup> In some areas, groundwater levels are falling; reduced recharge as irrigation ends is a possible contributing cause. With shallow groundwater being heavily used for domestic supplies and by the towns for municipal and industrial supply, the issue is important. Because Nevada usually manages groundwater and surface water as two separate systems, the water rights change process may not adequately address the problems.

On land fallowed when water rights are purchased, dust and noxious weeds are a problem. Within the refuge system, FWS will irrigate to encourage revegetation; however outside the refuge FWS has no legal authority to use the water in this way. FWS staff indicates that if it had authority to revegetate fallowed land and address noxious weed problems, its relationship with the community might improve.

With the resolution of the EIS lawsuit, FWS is now preparing to sell the 5,000 acres of land it acquired. When it does so, it will find out whether the prices it paid, and the appraisals upon which it based those prices, reflected the market.

Interrelationships between the Truckee River restoration efforts and the Lahontan Valley wetlands created problems as well. As use of Truckee River water in the Carson Division was reduced and efficiencies improved, return flows benefiting the Lahontan Valley wetlands declined. From roughly 30,000 acre-feet of drain and return flow water, the wetland supplies dropped to about 5,000 acre-feet several years ago. However, litigation delayed delivery of water acquired from the Carson Division. The result was severe water shortages for the Lahontan Valley wetlands that are only now being remedied as the Carson water becomes available.

### **E.3.2 State Water Acquisitions**

Nevada's Division of Wildlife (DOW) is also in the market for environmental water. Two bond acts for land and water acquisition, one in 1990 for \$13.5 million and one in 2000 for \$26.5 million provided funds. While there were many state needs, providing water for existing and new wildlife management areas was a high priority in this desert state.

Buying water for the Lahontan Valley wetlands is one effort – the state has acquired 8,792 acre-feet in about 25 transactions, most in the early 1990's. DOW staff indicate that the federal acquisition program is willing to pay higher prices for land and water in the Newlands Carson Division than the state, so few transactions are taking place there now. The state was willing to buy both land and water, ultimately disposing of land not needed for wildlife purposes.

In recent years, the focus has been on acquisitions for other wildlife management areas. In some cases, the state will buy entire ranches. Fifteen years spent developing a relationship

<sup>124</sup> Mills, Jamie. Executive Director, Newlands Water Protection Association. Personal communication. April 2004.



with a rancher led to acquisition of a 6,500-acre ranch and 6,000–8,000 acre-feet of water rights that now form the [Steptoe Valley Wildlife Management Area](#).<sup>125</sup> The state is interested in buying water rights for wildlife in other parts of the state.

**Lessons learned** “Patience... and the willingness to say no,” are the most important lessons, according to Doug Hunt, Habitat Bureau Chief, who supervises the land and water acquisitions for the Division of Wildlife.<sup>126</sup>

The major land and water deals take time – fifteen years for the Steptoe WMA and 20+ years for a deal involving 1,680 acre-feet near Battle Mountain.

The time is spent not only in negotiating with the property owner, but also in due diligence. The Division of Wildlife does extensive due diligence on potential transactions, thoroughly investigating historic use as well as any hydrological issues with proposed changes in location or use. These lessons have been learned the hard way. A 5,000 acre-foot acquisition resulted in only 200 acre-feet reaching the target location by the time it went through both the legal and physical processes needed to transfer use and location. Another acquisition triggered several lawsuits, and ultimately went to the state Supreme Court. While lawsuits are to be expected if the location of use is changed, due diligence, and the willingness to say “no” increases the likelihood of winning those suits.

Work after the acquisitions is critical to converting opposition and creating support for further work. DOW reduced opposition to the Steptoe acquisition by entering a 10-year lease for continued use of the ranch and its 25,000 acre grazing allotment, and setting up a community advisory group that included public officials and opinion leaders, some skeptical of the project. The WMA now has wide support in the community, and the advisory group is working on expansion acquisitions

<sup>125</sup> <http://www.ndow.org/hunt/areas/wma.shtm#steptoe>

<sup>126</sup> Hunt, Doug. Habitat Bureau Chief, Nevada Department of Wildlife. Personal communication. June 2004.



#### E.4 Summary

At every level of government, federal, state, county, city and tribal, Nevada is engaged in systematic acquisition of water rights for environmental purposes. The motivations for these efforts mirror those encountered all over the West – obligations to tribes, the Endangered Species Act, resource protection and recreation. The results are markedly different than elsewhere, in large part because efforts are focused on permanent acquisitions rather than leases.

Water rights acquisitions are in the process of fundamentally changing Reclamation's Newlands Project. When the Lahontan Valley wetlands efforts are completed, 40% of Carson Division water will be used directly for environmental purposes. While the current Truckee River acquisition program will not likely have as great an effect, in part due to market prices, the long term goal of the Pyramid Lake Paiute Tribe is to completely end irrigated agriculture. Even if the results fall short of these goals, Senator Newlands would not recognize the Newlands Project of the 21<sup>st</sup> Century.

While P.L. 101-618 is landmark legislation for a number of reasons, two innovative features are critical to the success of water rights acquisition programs:

- The most important is in authorizing use of Reclamation Project water outside of the project for specific environmental purposes. There may be no other Reclamation Project where outside interests are permitted to buy Project water for use outside of the Project boundaries for environmental purposes.
- The second is in authorizing federal agencies, including Fish and Wildlife Service to buy land and water, apply the water to environmental needs, and sell the land. For the large majority of Newlands Project water acquisitions, the sellers preferred to sell land and water both.

The approach of buying land and water rights, converting the water rights to environmental use and selling unneeded land is widely used in Nevada, unlike other states. This tactic creates substantial capital requirements, as each transaction requires outlays for both the land and the water. As a matter of risk management, it also elevates the role of appraisals and requires appraisers experienced in both irrigated land valuation and dry land valuation. Some of the land acquired in Truckee River transactions lingered unsold for several years, because inaccurate appraisals led the buyers to pay too much, and expect greater returns from dry land sales.

Legal efforts to require that environmental transactions address third party impacts have had mixed results. Nevada [water law protecting the financial and operational interests of other water users and irrigation districts](http://www.leg.state.nv.us/NRS/NRS533Sec370)<sup>127</sup> creates significant costs for environmental water acquisitions, but is helping to resolve a point of potential community opposition. While some of the Newlands transactions have been subject to the requirement, even in Nevada

<sup>127</sup> <http://www.leg.state.nv.us/NRS/NRS533Sec370>

the law does not resolve all issues. The Pyramid Lake Paiute Tribe disputes the requirement as a matter of tribal sovereignty. The Fish and Wildlife Service entered into a long-term agreement with the irrigation district, even though it claims legal exemption. Churchill County's dust ordinance, which requires a permit to take irrigated land out of production, has met with less success. Again, the Pyramid Lake Paiute Tribe disputes the requirement. While RSWC has not been willing to apply for a permit with open-ended requirements, they are in negotiations with Churchill County about the issues.

The Nevada examples are a laboratory for understanding third party effects of permanent water right transactions. Nevada water development caused severe and significant third party impacts, particularly on Native Americans as well as fish and wildlife. Remaking the Newlands Project to address those impacts is itself having significant third party impacts on the local economies, social structure, groundwater users, and in some cases, the environment. The Newlands Project efforts are not attempting to comprehensively address those third party impacts – which may be a reason the permanent water rights acquisition efforts are making progress towards their goals. In at least some Division of Wildlife water acquisitions, effort is made to build community support, with good results.

In 1997, a reviewer of the [Truckee-Carson River Basin Study](#)<sup>128</sup> commented that the extreme degree of contention and litigation in the basin may limit the applicability of solutions developed there, particularly negotiated solutions and permanent acquisitions. However, since 1997, contention and litigation, especially over endangered species, became extreme in a number of other basins, especially the Klamath and Rio Grande. Negotiated settlements with voluntary permanent acquisition of water rights may not seem so extreme in other basins now.

The Truckee River example of resolving a Clean Water Act issue in part by acquiring water that increases flows at critical times of the year is a novel and potentially important case. While its initial use may have required particular circumstances, it is an approach that could be replicated many places in the West where water quality issues are exacerbated by quantity issues.

<sup>128</sup><http://www.bioe.orst.edu/Faculty/selker/Oregon%20Water%20Policy%20and%20Law%20Website/Report%20of%20the%20WWPRAC/TRUCKEE.PDF>

## Appendix F

### Oregon: Private Water Trusts and Klamath Water Bank

#### F.1 Introduction

Given its reputation for abundant rain and enormous runs of salmon and steelhead, Oregon might seem an unlikely focus for either acrimony over water and fish, or buying water for fish. But Oregon has both of those things. The Bureau of Reclamation entered the market after demand for irrigation water ran into a dry year and the ESA on the Klamath River in 2001. Oregon is also home to two well-established private organizations devoted to buying water, including the nation's first such organization, the Oregon Water Trust, and an ambitious collaborative effort among water users and conservationists in the Deschutes Resources Conservancy.

#### F.2 State Law Procedures and Issues

Despite Oregon's deserved reputation for rain in the western part of the state, much of the state is arid. Water in many of the state's rivers was fully claimed by the early 1900's, with major rivers literally drained dry. In 1955 the state legislature adopted minimum perennial streamflow standards, but they had little effect in some of the streams most in need of water.

In 1987, the Oregon Legislature recognized that a mechanism to convert existing senior water rights to instream flow was needed and enacted the Instream Water Rights Act. Oregon's Instream Water Rights Act encourages public or private entities to lease, purchase or receive as donations existing water rights and convert them to enforceable instream flow rights with the original priority date. Dedicated instream rights, however, can only be held in trust by the state. [Eligible instream uses include](#) recreation, conservation of fish and wildlife, pollution abatement and navigation.

Dedication to instream use typically occurs through a change of use proceeding. Oregon provides for temporary (less than five years) changes and permanent changes. The temporary transfer process for instream leases typically takes 45 days to process and requires a modest amount of supporting material, such as an affidavit of historical use from the watermaster or air photos; public notice is required, and the application may be protested. Permanent transfer applications require greater supporting materials and typically take three to five years to process, but may, if protested or complex, take much longer.

Oregon takes a somewhat unusual "paper rights" approach to quantifying the right available for conversion to instream use. In this system, the full quantity of decree, certificate or permit is available for conversion, regardless of historical use. Injury to third-party water users is not allowed, so the converted quantity may be adjusted to prevent injury.

Oregon also allows use of conserved water for instream flows through the state's [Allocation of Conserved Water Statute](#).<sup>129</sup> Water made available through improvements in efficiency, or decreases in system losses, is available for reuse by the water rights holder, less 25%, which is dedicated to instream flows. While some western states do not allow water users to claim "salvaged water," Oregon law is intended to encourage investment in conservation and efficiency by rewarding water users with a portion of the water saved. If third parties, such as a water trust or government entity contribute to the conservation investment, the *quid pro quo* is typically a share of the conserved water.

The second opportunity for using the Oregon approach to quantifying water available for transfer is through "paper water rights," rights that have been issued, but which may not have been fully used. Under Oregon law, rights that are not exercised in full may be subject to partial or complete cancellation after five years of non-use. However, cancellation proceedings are not common, creating an opportunity to dedicate the full amount of a water right, less injury, to instream flow. While the Oregon Water Resources Department (OWRD) allows "paper" rights to be converted to instream use, this practice it is now being challenged in litigation over a change in use to instream flow by water users who prefer quantification based on consumptive use.

Except in unusual circumstances, Oregon manages groundwater and surface water supplies as two separate systems, even when they are hydrologically interconnected. This approach encourages the state and water users, including those interested in instream flows, to de-emphasize impacts of any particular action on groundwater users. An exception is the Deschutes Basin, where new groundwater permits are required to mitigate for their expected effect on surface water flows.

### F.3 Environmental Water Transactions – Oregon

Three different approaches are being used in environmental water acquisitions in Oregon, by three very different organizations. In the Bureau of Reclamation's [Klamath Project](#),<sup>130</sup> the Department of the Interior is buying water through the Klamath Water Bank in order to meet a specific flow requirement under the Endangered Species Act. [Oregon Water Trust](#)<sup>131</sup> is a conservation driven organization using a variety of means to usually lease, and occasionally buy, water rights in selected tributaries, usually for the benefit of anadromous fisheries. The [Deschutes Resource Conservancy](#)<sup>132</sup> is a partnership among water users, conservationists and other interests designed to create and execute collaborative solutions to flow issues on Oregon's heavily used Deschutes River.

<sup>129</sup> <http://www.leg.state.or.us/ors/537.html>

<sup>130</sup> <http://www.usbr.gov/dataweb/html/klamath.html>

<sup>131</sup> <http://www.owt.org/>

<sup>132</sup> <http://www.deschutesrc.org/>

### F.3.1 Klamath Water Bank – Bureau of Reclamation

In 2001, a long-brewing disaster hit the Klamath River Basin – issues created by a massively over-appropriated system, a dry year and new restrictive ESA requirement that the Bureau of Reclamation maintain both specified lake levels and river flows to protect endangered fish, created problems. There was insufficient water to meet the ESA requirements for the lake and river, as well as supply farmers in the Klamath Project and wildlife refuges. Reclamation severely curtailed water deliveries to farmers, turning an irrigation and fishery problem into a national political symbol.

After the high-profile events of 2001, the National Marine Fisheries Service revised its ESA prescriptions for the threatened Coho salmon and issued a [May 2002 Coho Biological Opinion](#)<sup>133</sup> that set out water management requirements for 2002–2012. In addition to flow targets, the Biological Opinion required that Reclamation establish a supply of water to be used to supplement flows for the Coho. Under this prescription, Reclamation is obligated to obtain and use for flow augmentation: 30,000 acre-feet in 2002; 50,000 acre-feet in 2003; 75,000 acre-feet in 2004; and 100,000 acre-feet in 2005 and thereafter. The Klamath Water Bank is Reclamation’s approach to obtaining this water.

Water issues in the Klamath Basin are complicated by the fact that Oregon is still in the process of the [Klamath water rights adjudication](#); <sup>134</sup> therefore, water rights available for purchase are subject to a degree of uncertainty. Because Reclamation’s Klamath Project is downstream of much of the irrigation use in the basin, resolving upper basin water rights is critical to managing the Reclamation project. If upstream water users are taking more than their share of the water, the Reclamation project gets less than its share, exacerbating both the fishery and agricultural water problems.

While there are many sources of information about the Klamath situation, most focus on the fishery issues. The state adjudication website and a study by Oregon State University and University of California, Davis academics, [Water Allocation in the Klamath Reclamation Project – 2001](#)<sup>135</sup> along with its follow-up reports, focus on water use rather than the biology.

**Approach** Given that the requirement to set up a water bank for the 2002 irrigation season was finalized in late May 2002, Reclamation quickly settled on a basic approach that it has continued, with refinements, to date. Reclamation uses two techniques for annual water acquisitions: fallowing; and using groundwater. In fallowing, Reclamation pays farmers to not irrigate their land for the growing season – no water from any source is to be applied to the land. For groundwater substitution, typically farmers agree not to use surface water, but rather pump groundwater for any irrigation. In both cases, Reclamation essentially pays farmers not to use surface water they presumably have a legal right to use. A new approach for 2004 pays farmers to pump groundwater directly into streams, if Reclamation needs

<sup>133</sup> <http://www.usbr.gov/mp/mp150/envdocs/kbao/KpopBO2002finalMay31.pdf>

<sup>134</sup> <http://www.wrd.state.or.us/programs/klamath/index.shtml>

<sup>135</sup> <http://eesc.orst.edu/agcomwebfile/edmat/html/SR/SR1037/SR1037.html>

the water to meet its obligations. Accounting for, management of and use of the water is up to Reclamation, using the facilities of the Klamath Project.

In its first three years of operation Reclamation had increasing water acquisition goals (30,000 acre-feet in 2002; 50,000 acre-feet in 2003; and 75,000 acre-feet in 2004), but approximately the same amount of money to work with in each year (\$4.5 million).

Because Reclamation is relying on annual leases, and has control of water releases from the Klamath Project, it does not convert water to instream use following Oregon's procedures.

**Accomplishments** The Klamath Water Bank is a work in progress; each year of experience resulted in significant changes in approach, with significant cost reductions achieved yearly.

In 2002, the bank obtained 30,000 acre-feet of water at an average cost of about \$133 per acre-foot; however, questions have been raised about whether all of the water paid for was delivered. In 2003, the 58,581 acre-feet obtained cost about \$75 an acre-foot. In 2004, that dropped to \$59 per acre-foot for the first 49,331 acre-feet, with a price of between \$58 and \$75 for the remaining 25,000 acre-feet, if Reclamation needs to buy it to meet the ESA flow prescription.

In 2002, Reclamation was faced with a severe time problem, and scrambled to find the 30,000 acre-feet of water required. Reclamation did not have time to set out a normal procurement process, with public notices, bids and careful review. Instead, it quickly spent \$4 million to obtain the 30,000 acre-feet of water needed, primarily through groundwater substitution agreements. Reclamation also entered into agreements worth almost \$1 million with the Klamath Basin Rangeland Trust, a 501(c) 3 corporation set up by landowners who in turn obtained agreements from farmers to enter their water and land into the Reclamation program. An [Oregonian](#)<sup>136</sup> (March 16, 2003) newspaper story reported that the arrangement with the Klamath Basin Rangeland Trust not only caused Reclamation to pay far more than market value for about 8,000 acre-feet of water, but that it may have paid for more water than it received. In early 2004, the [General Accounting Office announced an investigation](#)<sup>137</sup> into the arrangement to determine if the federal government received what it paid for.

The next year, 2003, Reclamation was much better prepared for water bank operations and took a more orderly approach. It sought water from within the Reclamation project to avoid adjudicated rights, and again concentrated on fallowing and groundwater substitution. Reclamation set a standard offer of \$75 per acre-foot, whether from substituting groundwater for surface water or from fallowing (assuming 2.5 acre-feet of water per acre). It received offers to sell from owners of just over 47,000 acres, and accepted offers on half of those acres. Reclamation obtained 35,389 acre-feet from fallowing and 23,192 from ground-water substitution, at a cost of \$4,445,032.

<sup>136</sup> <http://www.gardenbanter.co.uk/archive/32/2003/03/4/11302>

<sup>137</sup> <http://www.klamathbasincrisis.org/waterbankdewater/wbgaoscrutwtrbnk041804.htm>

In 2004, after seeking comments on the program to date, Reclamation made significant changes. An [Oregon State University Extension study](#)<sup>138</sup> suggested that economic returns to water ranged from about \$25 to \$250 per acre-foot. This implied that substantial amounts of water may be available at prices well below the \$75 per acre foot offered in 2003. Further, the Klamath Reclamation Project land returned greater value to water than much of the rest of the basin, which meant that taking land out of production outside of the project would have less economic impact. Reclamation responded by adjusting its process, reopening the process to non-Reclamation water and using a reverse auction where water owners submitted a sealed bid with a price per acre they were willing to accept. Reclamation evaluated bids by reducing the offer to a price per acre-foot, using crop type and soil classification to calculate the water used per acre, and selected land for enrollment based on cost per acre-foot and their desired mix of water sources. In addition, Reclamation worked with the California State Water Resources Control Board and the Oregon Water Resources Department (OWRD) to avoid buying groundwater in areas being overpumped.

In May 2004 Reclamation announced the awards for the year. Fallowing agricultural land will generate 22,583 acre-feet, with 60% of that from land outside the Reclamation project. Substituting groundwater supplies for surface water will generate 16,656 acre-feet. Direct pumping of groundwater will produce 10,092 acre-feet of surface water flows. The remaining 25,000 acre-feet of water required under the Biological Opinion will be produced through groundwater pumping, if needed, and paid for only if used.

It is too soon to know whether the water bank is having the desired effect biologically. In September 2002, a massive salmon kill in the Klamath was attributed in part to low flows, indicating that flow issues are far from resolved. For Reclamation, the goal is to meet the prescription set under the ESA for the Klamath Water Bank; whether that prescription is effective is left up to the agency setting the standard.

**Outstanding issues and lessons** Reclamation staff, as well as other observers and participants are unanimous in their assessment that the Klamath Water Bank is a work in progress.<sup>139</sup> Each year of operations resulted in improvements in efficiency, reduced cost per acre-foot, and greater acceptance within the Klamath area.

Reclamation is struggling with a mismatch in timing between when water is available through the bank and when the fish need additional water. Irrigation demand is the greatest in June and July, while the greatest need for additional water for Coho salmon is in March and April. Reducing irrigation demand through fallowing or groundwater substitution does not necessarily produce water at the right time. Consequently, Reclamation anticipates increasing its reliance on sources of water where the timing is controllable, including direct groundwater pumping and additional storage.

Reclamation believes that increased storage capacity dedicated to environmental needs would help resolve timing issues and reduce conflict with irrigation. It is actively exploring creating new storage with three projects. One would use existing wildlife refuge ponds for

<sup>138</sup> <http://eesc.orst.edu/agcomwebfile/edmat/EM8843-E.pdf>

<sup>139</sup> Baker, Gary. Special Projects, Bureau of Reclamation Klamath Area Office. Personal communication. March 2004.



active storage in the summer when they are not needed for waterfowl. Two others would increase capacity in one of the reservoirs by buying land that could be inundated.

Reclamation is conducting a study of the effectiveness of land fallowing in 2004 for the water bank. In addition to the problem of flow timing, Reclamation is concerned that it may be paying for fallowed land that would have been left fallow for other reasons. Due to these concerns, Reclamation cut down the land-fallowing element of the bank in 2004. Appropriate accounting for water produced from fallowing is also at least part of the potential problem in 2002 being investigated by the GAO.

The heavy reliance on groundwater pumping--40% of the water bank supplies in 2003 and 70% for the larger 2004 bank--together with many agricultural producers' desire for greater reliability in their water supply creates another set of issues in the Klamath Basin. With over \$100 million in relief funds and other assistance poured into Klamath since the 2001 crisis, and continuing uncertainty in water supplies, many agricultural producers have installed or improved groundwater wells. The [Oregonian](#)<sup>140</sup> (May 2, 2004) reports that greater demand on groundwater for irrigation, plus a transfer of groundwater to surface water through the water bank, has already resulted in declining water tables throughout the basin, in some places by as much as 20 feet. In 2004, Reclamation worked with Oregon and California to select groundwater bids that would avoid the areas with the most severe declines in water table, as well as minimize impact on surface water and third party groundwater users, especially domestic wells. However, the extent of the problem and Reclamation's potential contribution to it, are not yet defined.

Groundwater pumping and some efficient irrigation techniques, such as sprinklers, rely on electricity. Many Klamath water users have very cheap electricity rates that are set to expire in 2006. If, as anticipated, Klamath irrigation electricity rates rise sharply, the economics of irrigated agriculture and groundwater pumping may change, possibly making a significant proportion of irrigated agriculture in the basin uneconomic. Reclamation may find revising its strategy advisable as costs change. An [OSU Extension Report on electricity rates](#)<sup>141</sup> found that while most agricultural lands would remain profitable despite the anticipated nine-fold increase in electricity prices, some land would become economically marginal, and crop substitutions would be probable.

While Reclamation currently has a system of monitoring in place that accounts for lake levels as well as the large inflows, outflows, diversions and return flows within the project, additional monitoring stations and information systems are needed to understand and account for the impacts of fallowing and groundwater use.

### F.3.2 Oregon Water Trust

The Oregon Water Trust (OWT) is the oldest dedicated non-governmental practitioner of environmental water transactions in the country. Started in 1993 to take advantage of the

<sup>140</sup> <http://www.klamathbasincrisis.org/waterbankdewater/wbkswellstrblore050304.htm>

<sup>141</sup> <http://eesc.orst.edu/agcomwebfile/edmat/EM8846-e.pdf>



Oregon Instream Water Rights Act that authorized private acquisition of water rights for conversion to state-held instream flow use, it takes a free-market approach.

**Approach** After a decade of operations, OWT has moved to being selective, working only on the highest-value transactions.

OWT focuses its efforts on six basins that have historically significant salmon and steelhead fisheries. Within those basins, it targets the small to medium sized tributaries, where a modest addition of water can make a significant difference to the fishery. To select the tributaries, it uses ecological, hydrologic and water rights data to identify priority streams and superior water rights. The goal of the selection process is to identify situations where a precise application of one of the transaction techniques available creates the greatest biological impact, at minimum cost to the irrigator, the surrounding community, and to OWT. Selecting transactions and approaches that help OWT form relationships and collaborations with farmers, ranchers, watershed councils, environmental advocates, tribes, agencies and other stakeholders is also of increasing importance to OWT.

For most of its transactions, OWT uses short-term leases. In keeping with its desire to build relationships with agricultural producers and communities, OWT prefers approaches, such as leases and related arrangements that keep agricultural lands in production. In addition, instream flow leases of less than five years can be quickly approved by OWRD using an expedited temporary transfer process. In contrast, longer-term leases and permanent water right conversions require lengthy review and are more often subject to protest and even litigation. As a result, OWT is very adept at leasing water, and uses a variety of lease techniques. The most commonly used of these are short-term leases, split-season leases and dry-year lease options. An example of a short-term lease is a two-year agreement OWT and the Bureau of Reclamation entered on the Middle Fork John Day River. The John Day is an undammed refuge for wild spring Chinook, steelhead and bull trout. The lease puts 11.2 cubic feet per second of senior water rights through critical spawning habitat and provides late summer rearing conditions. The agreement cost \$50,000 per year for 2,180 acre-feet, or \$22.94/acre-foot/year.

A small proportion of OWT transactions are longer term – permanent or more than five years. These transactions go through OWRD’s more rigorous transfer of use process. Given OWT’s preference for not taking land out of production, some of these arrangements are designed to meet the needs of fisheries, without impairing agricultural use of the water. Examples include structural changes in the irrigation system, switching from a tributary diversion to groundwater pumping or a mainstem diversion. OWT will also contribute to improving irrigation system efficiencies and dedicating conserved water using Oregon’s Allocation of Conserved Water statute. An example is on Bear Creek, where OWT helped a landowner switch from a tributary diversion dam to a mainstem pump at a cost of only \$13,000; the result was removal of a fish- passage-blocking dam and increasing flow in a very small tributary by 0.5 c.f.s.

Where other entities are taking land out of agricultural production, for instance conservation buyers or developers, OWT will assist in dedicating water to instream use. On Trout Creek in the Deschutes basin, Portland General Electric acquired a 3,200-acre ranch. OWT is in the process of buying water rights to 102 irrigated acres (up to 2.59 c.f.s)

for \$124,500. Proceeds from the sale of the water were used to build educational facilities for school children on the ranch.

**Accomplishments** Beginning with two leases totaling just over one c.f.s in 1994, OWT has grown to a 2003 portfolio of 84 projects totaling almost 124 c.f.s. Leases of five years or less account for 90% of OWT's the current portfolio. The remaining 10% is a mix of 12 permanent paid acquisitions (12 c.f.s.), a donated water right, three conserved water projects and long-term leases. For 2003, the value of water leased and purchased was more than \$750,000, of which almost 60% was donated.

Over its 10-year history, the OWT paid an average of \$18/acre-foot/year and \$74 /acre/year for leased water. For buying water rights, the averages are \$156/acre-foot and \$1,055/acre.

**Outstanding issues and lessons** Fritz Paulus, OWT's Executive Director, characterized the lesson of the last decade as "using the right tools, with the right landowner, on the right land, with the right biology... and being willing to say no." <sup>142</sup>

He went on to explain that the OWT is becoming increasingly careful about the transactions it enters. In its work the OWT is increasingly concerned about risk management – looking for projects with as few complications and complexity as is possible. Further, it tries to use the minimum intervention – for instance leasing water for a partial season or a few critical weeks if that is what is needed to achieve the fisheries impact, rather than permanently acquiring the entire right. When faced with a project that is too complex, uncertain in biological impact, or in peril of prompting litigation with poor facts, OWT is willing to back out of a potential deal.

This more cautious approach is a result of hard-won experience. One transaction undertaken in the late 1990's is still in litigation, with issues raised that OWT would prefer be based on stronger facts. OWT is not averse to undertaking transactions where litigation is a possibility – an event that is almost inevitable in water rights. OWT is also willing to undertake transactions that are controversial. However, it does so with a greater understanding that building good relationships with water users and community members is usually more productive in the long term. It is trying to put its resources into better quality transactions where there is clear biological benefit and better circumstances if litigation or controversy ensues.

Paulus also counsels patience. OWT is now well established in Oregon, and has more potential transactions than it has resources to complete. This situation allows it to take the careful current approach. However, a patient approach requires careful coordination with both donors and the organization's board of directors, who may be interested in immediate results.

### F.3.3 Deschutes Resource Conservancy

<sup>142</sup> Paulus, Fritz. Executive Director, Oregon Water Trust. Personal communication. June 2004.

For the [Deschutes Resources Conservancy](#),<sup>143</sup> collaboration among stakeholders is the essence of its approach. Conflict, controversy and litigation are avoided, in favor of market driven approaches that bring stakeholders together.

This approach results from the history, structure and philosophy of the organization. Begun in 1989 as a working collaboration between Environmental Defense and the Confederated Tribes of the Warm Springs Reservation over ecosystem issues on the Warm Springs Reservation, the effort quickly expanded to the on-reservation impacts of off-reservation activities, including management of federally owned land and water quantity and quality problems with irrigated agriculture. As the scope of the issues grew, stakeholders from every level of government, agriculture, development and other interests were engaged. The working group adopted methods based on market incentives, consensus with the Basin's stakeholders, and ecosystem approaches. Ultimately, the organization incorporated as a 501(c) 3 non-profit, with a 19-member, [two-tier board of directors](#).<sup>144</sup> One tier is made up of private interests, representing environmental and recreational interests, developers, agricultural producers, hydropower generators and timber. The other tier is composed of representatives of governmental entities at the federal, state, local and tribal levels.

DRC enjoys an unusual level of federal recognition. In 1996, federal legislation authorized federal agencies to work closely with the organization. That was followed by appropriation of federal funds to support the DRC's work beginning in 1999. In addition to money for specific projects, federal appropriations for support of the organization are authorized through 2006 at the \$2 million per year level, although federal budget competition makes appropriations a continuing struggle.

**Approach** Most of DRC's projects involve ecosystem restoration work on wetlands, riparian corridors and stream channels. For the water acquisitions, DRC primarily uses two approaches: improving efficiency; and the Deschutes Water Exchange, a water bank. In addition, DRC is working carefully with water districts and agricultural producers on permanent water rights acquisitions that are supported by the local community.

Efficiency projects use Oregon's Allocation of Conserved Water statute and public investment. Where improvements in irrigation systems, usually replacing leaky ditches and gravity systems with pressurized piping and sprinklers, result in diversion of less water, some or all of the conserved water is dedicated to instream flows. In the region, conveyance losses of 45% are typical, creating many opportunities for cost-effective efficiency improvements. In addition to the 25% minimum dedication required under the law, additional conserved flows are dedicated in proportion to the public investment in the improvements. The additional proportion is sometimes subject to negotiation among the DRC, the water rights owner, the investing public entities, and OWRD. DRC serves as a promoter of the projects, as well as a grant seeker and facilitator of public agency investment. An example is an efficiency project involving replacement of 12,611 feet of leaky conveyance ditches with a piping system at a cost of \$150,000 that will result in an

<sup>143</sup> <http://www.deschutesrc.org/>

<sup>144</sup> <http://www.deschutesrc.org/board/drcboard.htm>

instream flow dedication of 1.2 c.f.s. on Squaw Creek. This is the first phase of a five-phase project that will ultimately yield an instream dedication of 6.0 c.f.s.

With the [Deschutes Water Exchange](#)<sup>145</sup> (DWE), the DRC is harnessing the market in ambitious ways. DRC provides several sets of services under the DWE, including annual leasing, fee-for-service consulting on water issues and transactions, and a groundwater mitigation credit bank. DRC plans to expand its water bank to include transactions among irrigators as well as for instream use.

The annual water-leasing program is well established, with leasing having been undertaken since 1998. In addition to tributary water leasing, where small contributions can have significant biological effect, the DRC leasing program is being extended to a dewatered reach of the Deschutes below Bend. In this 40-mile reach, summer flows are typically around 30 c.f.s., while Oregon's Department of Fish and Wildlife target flow is 250 c.f.s. In the first two years of operations, that 30 c.f.s flow was increased by 10 c.f.s. In 2004, leases more than doubling that flow to 65 c.f.s. were executed. The ten-year goal is to steadily increase leasing and instream dedications to reach the 250 c.f.s. goal.

In most areas, DWE uses a standard offer approach, paying \$7 per acre-foot of instream flow. With typical water use, an acre taken out of production costs \$24 to \$40, with roughly 30 acres needed to yield one c.f.s. However, in one irrigation district with a higher proportion of commercial farmers, the standard offer did not achieve the desired results. In 2002, they offered \$29 per acre and entered only one lease. In 2003, it tried a sealed bid process, where irrigators made offers for selling water. DWE accepted those offers below its undisclosed ceiling price, up to a maximum of \$50,000. It received eight bids, three of which were below the \$75 per acre ceiling; DWE then executed leases with the three winning bidder for just over \$10,000 and about 197 acres; subsequently, it entered leases with two additional water users at the \$29 per acre offer. In 2004, the auction had unexpected results: DWE raised its reserve price expecting farmers to bid as in 2003, while irrigators reduced their offers based on the prior year's reserve price. The result was nearly tripling the land and water leased, while the overall amount paid by DWE increased by only 50%.

The next phase for the DWE's water bank is to extend its market to agriculture-to-agriculture leases, making acquisitions for the environment only one of a variety of markets within the bank. DRC received a grant from the Bureau of Reclamation under the Water 2025 program to initiate this service.

Groundwater use in the Deschutes basin usually has a direct impact on surface water flows. The OWRD stopped issuing groundwater pumping permits while it established a [mitigation credit system](#)<sup>146</sup> to offset the impact of new groundwater pumping on surface flows. The system requires obtaining credits for instream dedication of surface water in order to mitigate for the effects of groundwater pumping. In 2003, DWE received a state charter to serve as a groundwater mitigation bank for the exchange of mitigation credits. In 2004 the DWE conducted its first auction of groundwater credits, on behalf of a private client. This

<sup>145</sup> <http://www.deschutesrc.org/dwe.htm>

<sup>146</sup> [http://www.deschutesrc.org/DWE/Groundwater%20Mitigation/groundwater\\_2.htm](http://www.deschutesrc.org/DWE/Groundwater%20Mitigation/groundwater_2.htm)

was a fee for service arrangement, with the revenues generated for DWE going to its acquisition fund.

DWE also offers consulting services to water users. These include transactional services including evaluation, due diligence and brokerage, as well as assistance with state water rights applications and processes. Fees generated are invested in acquisitions. In 2003, for example, DWE assisted a water rights owner in converting the right to instream flows, and receiving groundwater mitigation credits in exchange.

**Accomplishments** In the history of the DRC, the most remarkable accomplishment is in developing an effective working relationship among its stakeholders, who are typically antagonistic in other parts of the state and the West. As Bruce Aylward, manager of the DWE puts it, the DRC approach is based on “cooperation, collaboration and initiation, but not evaluation, litigation or agitation.”<sup>147</sup> For a locally based organization, with staff and board who live, work and play in the same community with the water users they are trying to win as customers and partners, this natural strategic approach is working.

Oregon’s “paper rights” system, along with its Allocation of Conserved Water law, makes working on irrigation efficiency a natural strategy for the DRC. Working with irrigation districts, land owners and the NRCS, as well as other agencies, DRC has completed several projects and is developing more. Two irrigation efficiency projects are particularly noteworthy because they involve multi-year, multi-phase work that will result in substantial amounts of water returned to tributaries, 11.3 c.f.s. on Tumalo Creek and six c.f.s. on Squaw Creek.

Water leasing through the Deschutes Water Exchange is growing rapidly. From 1998 through 2000, DRC relied on donations of leases and acquired less than 2,000 acre-feet per year. In 2001 and 2002, DRC began paying for leases, in addition to accepting donations, acquiring about 9,000 and 8,000 acre-feet respectively. Then the leasing program took off, with 15,715 acre-feet in 2003 and 24,717 acre-feet in 2004 through July 1. The number of leases also has grown rapidly in the past two years, from 108 to 135.

For most leases, DWE has established a standard offer of \$7 per acre-foot, which is below the cost of irrigation district operations assessments plus the cost of processing for some districts. This means that while DWE is making a financial contribution to farmers enrolling in the lease programs, it is not covering all costs, much less lost profits. For one district, DWE is experimenting with an auction/sealed bid process that has been quite successful where a low standard offer was not.

DRC is making inroads developing longer-term leases and on permanent acquisitions. For 2004, 97 of its 135 leases are for five years, a significant improvement over the annual lease approach of prior years. It has participated in a few permanent water rights acquisitions in partnership with Oregon Water Trust, and is actively pursuing permanent acquisitions that are acceptable to affected water districts.

<sup>147</sup> Aylward, Bruce. Manager, Deschutes Water Exchange, Deschutes Resource Conservancy. Personal communication. June 2004.

**Outstanding issues and lessons** Gaining the cooperation and collaboration of a variety of interests on ecosystem restoration is the major accomplishment of the DRC, and the means for doing it are the most important lessons.

The DRC understands that in order for it to work effectively with its disparate stakeholders and board members, it must look for situations where every interest can gain, even if that means the ecosystem gains less than the maximum amount. Given the philosophy of the DRC, leasing and efficiency improvements are the best way to work for increasing instream flows. Permanent acquisitions of water rights will not be a priority unless they can be accomplished with full support of the agricultural and general communities.

Developing and maintaining relationships with water districts are critical. While an individual water rights owner may be interested in leasing or selling its rights, unless the affected water district is supportive, DRC will not entertain the transactions. DRC is more interested in working effectively with water districts than any individual member of a district. The overall strategy is to institutionalize leasing, efficiency and eventually other arrangements within the districts; this is possible only if DRC places a higher priority on relationships with districts than with individual district members who may want to sell their water.

In an area where urbanization pressure is converting agricultural lands to suburbs, the water districts are very wary of converting water rights because it could destabilize their finances through loss of operations and maintenance revenue. DRC is working with districts to create a reasonable operations and maintenance buyout price, based on the present value of expected revenues and that keeps the district financially viable. While this is not required under Oregon law, it is the type of concession the DRC is willing to make in order to work collaboratively with an important stakeholder.

DRC's careful, patient work in engaging stakeholders, designing a strategy that embraces common interests and avoiding divisive approaches, and effective execution, is without doubt critical to its success. An additional factor may be that DRC staff, board and customers live, work and play in the same area. Staff at DRC note that they have the most success with the people nearest to their offices and home in Bend; irrigation districts further from home are less receptive. This suggests that embedding a water acquisition office within the affected community may increase the chances of success.

Some commercial farmers are interested in improving the quality of their water rights by shifting to supplies with greater reliability. DRC is actively exploring the opportunities to improve the reliability of water rights for the commercial farmers, using the less reliable supplies for instream use. While ecological resources are important to the DRC and they would like instream uses to have reliable supplies, it is more important to support commercial agriculture and develop good relationships with water districts than to obtain the best rights for instream use.

Given the nature of farming in the area, commercial irrigators with larger water rights are less interested in leasing than smaller, lifestyle farmers. While this means that DRC must

engage in more numerous small transactions, that cost is worthwhile in part because it leaves the commercial farmers in operation.

#### F.4 Summary

Environmental water acquisitions have a long history in Oregon, with significant activity in recent years as the Klamath Water Bank began and the Oregon Water Trust and Deschutes Resources Conservancy developed their relationships and additional funding from the Columbia Basin Water Transactions Program became available.

Oregon's general treatment of surface and groundwater as two separate systems may be creating problems in Klamath, where increased reliance on groundwater pumping for both the environmental water use and irrigation use appears to be straining the capacity of groundwater basins. Where the two systems are closely coupled, increased pumping may adversely affect surface flows. On the other hand, in the Deschutes, where the state is addressing the impacts of groundwater pumping, the mitigation credit system may actually improve surface flows. Frequently, the surface rights retired to create the mitigation credit are greater than the credits received – the surface right retired may exceed the maximum available mitigation credit of three acre-feet per acre. Further, the mitigation credit required for groundwater pumping was set conservatively, so that the actual impact on surface flows should usually be less than the mitigation credit required. The result of this system should be a small net gain in surface flows.

Environmental water transactions that rely on an increased use of electricity may be sensitive to electricity prices. In the Klamath, where electricity rates are due to increase substantially for many Klamath irrigators in 2006, the attractiveness of groundwater pumping and pressurized systems may wane. At the same time, new opportunities for transactions may arise as the economics of irrigated agriculture change with electricity prices. This issue does not seem to be a concern elsewhere, and may be present in the Klamath because of the impending expiration of a particularly low power rate.

Third-party impacts are especially important in the Deschutes, where the DRC operates under a model and philosophy that is sensitive to opposition. DRC's efforts with water districts in resolving real and potential objections provide a test bed for solutions. Creative approaches to risk management, especially in creating more reliable water for agriculture and improved but less reliable supplies for the environment, may be useful elsewhere. If this approach can be combined with mechanisms for supplying reliable environmental water at critical time periods, perhaps for migration or spawning, less reliable water may be acceptable at other times.



## Appendix G

### Texas: Fledgling State-Operated Water Trust

#### G.1 Introduction

In Texas, the issue of environmental flows – instream flows needed to maintain healthy river and riparian life, and the freshwater flows needed to maintain productivity of the state's bays and estuaries – is a very hot topic. Recently, environmental water transactions have taken a back seat to the political controversies over direct, new appropriations of water for fish and wildlife. While the state statutorily created the [Texas Water Trust](#)<sup>148</sup> in 1997, it contains only one environmental water right acquired through donation in 2003.

#### G.2 State Law Procedures and Issues

Environmental water is a ripe issue in part because Texas is in the process of establishing methodologies to determine flow conditions in the state rivers and streams necessary to support a sound ecological environment, and creating an instream flow data collection and evaluation system. The [Texas Instream Flow Program](#)<sup>149</sup> includes not only work by the relevant Texas state agencies, but also a National Academy of Science review. The state has also completed a number of studies on the freshwater flows needed for several of its major bay and estuary systems, and the conservation community in Texas has been advocating for action to guarantee these flows at an appropriate frequency.

Current controversy focuses on attempts by a number of non-governmental organizations to directly appropriate water. For a number of years, Texas granted instream flow as well as fish and wildlife rights to the Texas Parks and Wildlife Department (TPWD) without much controversy. Also, since 1985, permit applications for new or amended consumptive uses of water within 200 miles of the bays and estuaries have been reviewed for potential adverse environmental effects, and many of those permits had freshwater release conditions placed on them. However, when the [San Marcos River Foundation](#),<sup>150</sup> a non-profit, applied for a large new water right (1.3 million acre-feet) to protect the Guadalupe estuary and the San Marco River, basing its claim on a TPWD study that indicated the Guadalupe portion was necessary to protect the estuary,<sup>151</sup> attention to the issue exploded. The result was a denial of the application followed by the obligatory appeal, and more importantly, a legislated two-year moratorium on new permits for instream flows or freshwater flow to bays and estuaries.

The moratorium legislation, however, explicitly sanctioned converting existing water rights to instream or estuary inflow use or adding those uses to existing rights, giving at least

<sup>148</sup> <http://www.twdb.state.tx.us/assistance/WaterBank/wtrust.asp>

<sup>149</sup> <http://www.twdb.state.tx.us/instreamflows/index.html>

<sup>150</sup> <http://www.sanmarcosriver.org/rightspage.htm>

<sup>151</sup> Wassenich, Dianne. Executive director, San Marcos River Foundation. Personal communication. March, 2004



implicit support to such efforts. A process to set up a local Rio Grande water trust to lease or otherwise acquire existing rights and have them used for instream flow is underway, and interest in other areas of the state may lead to additional such organizations.

The legislation set up a Study Commission on Environmental Flows, charged with delivering recommendations to the 2005 session of the legislature on how to handle environmental flow issues. The Study Commission in turn set up a [Scientific Advisory Committee to the Study Commission on Environmental Flows](#)<sup>152</sup> that was to deliver a report in October 2004 intended to inform the recommendations. Given that several rivers in the state are already fully appropriated, the recommendations can reasonably be anticipated to focus on reallocation in addition to new environmental appropriations. Hence there is a significant role for environmental water acquisitions.

Texas has a generally favorable setting for environmental water acquisitions. Fish and wildlife protection is a reasonably well established beneficial use of water, one that is already incorporated into some private and public water rights. Water rights in the state are adjudicated, due to a major state-wide effort that started in 1967 and is now complete except in the Upper Rio Grande basin. Water marketing for non-environmental use is established in the state, subject to a requirement that transfer not impair other water rights. There is even a state-sponsored [Texas Water Bank](#)<sup>153</sup> in a position to facilitate transfers.

On an overall statewide basis, Texas has already issued paper water rights well in excess of its annual river flows. Many of those permits and certificates are not fully exercised, resulting in both large amounts of “paper rights” and far less diversion than legally permitted. However, enforcement of water rights has not been a priority in Texas, except in a small number of rivers with state water masters. Cancellation of water rights is rare, and due to legislation in recent years, increasingly difficult. Thus, improvements in enforcement would likely be needed to ensure that water acquired for environmental purposes was, in fact, left instream. Further, many of the policy directions and issues around environmental water acquisitions have not been addressed. The discretion of the water rights permitting agency, the Texas Commission on Environmental Quality (TCEQ), is quite broad. While it asserted a lack of authority in applications for new direct appropriations for environmental flows, its authority for converting existing rights to environmental use is reasonably well established.

<sup>152</sup> [http://www.tceq.state.tx.us/comm\\_exec/igr/sa\\_comm/](http://www.tceq.state.tx.us/comm_exec/igr/sa_comm/)

<sup>153</sup> <http://www.twdb.state.tx.us/assistance/WaterBank/waterbankMain.asp>

### G.3 Texas Water Bank Donation

Texas attorney Colquitt “Kit” Bramblett grew up on his family’s 20,000-acre ranch on the Rio Grande below El Paso, which included about 23 miles of river front property. With his father retired from running the ranch, and a job as the County Attorney, Bramblett wanted to continue to run a few cattle on the ranch, but did not want to irrigate the 500 acres of farmland. Instead of abandoning the ranch’s senior, adjudicated 1,236 acre-feet irrigation water right, Bramblett decided to [donate the water to the Texas Water Trust](#).<sup>154</sup>

**Approach** The Bramblett donation required converting an irrigation right to an instream right, and then transfer of that instream right to the Texas Water Trust. TPWD had the expertise and staff to handle the change of use process. Further, it had the authority to accept a charitable donation, which conferred potential tax benefits important to the donor. Consequently, Bramblett donated the water right to TPWD, which went through the change of use process with the TCEQ. After adding instream use to the water right, TPWD transferred the right to the Texas Water Trust.

For this initial donation, TPWD took an approach that minimized complications and issues presented to the TCEQ.<sup>155</sup> In its change of use application, TPWD sought to add instream flow as a beneficial use and sever the right from use on the Bramblett ranch. However, it did not specify a place of use beyond the original point of diversion.

TPWD chose not to attempt to protect the downstream reach for a variety of reasons. TCEQ staff have informally indicated that any environmental flow right that sought to protect downstream reaches would be intensely scrutinized. For TPWD, which owns other water rights that it may seek to amend, submitting an application for change in use that could cause no injury or impairment to other water users or the environment was preferred because it allowed TCEQ to process the application as a minor modification, avoiding the notice and hearing required for major modification. Because the application was structured in a way that it could not possibly impair any downstream users, TCEQ did not consider issues of historic use, consumptive use or return flows.

In September 2003, the change in ownership and use as well as the donation was completed and received extensive press coverage.

**Accomplishments** The Bramblett donation accomplished three things.

The most important accomplishment was symbolic. It demonstrated that the Texas Water Trust, which had been in existence since 1997 without a drop of water in the system, could work. It also generated a great deal of public attention and interest, with wide coverage in the Texas press. The feel-good news of a donation was welcome in Texas after years of

<sup>154</sup> <http://www.rioweb.org/Archive/jss11-wbr111703.html>

<sup>155</sup> Barron, Collette. Attorney, Texas Parks and Wildlife Department. Personal communication. March 2004.

drought, and the controversy surrounding TCEQ's action in March 2003 on the San Marcos River Foundation application.

The second accomplishment was creating the beginnings of policy and process for such conversion of rights. While the TPWD chose to minimize the issues presented to TCEQ, the legal precedent for acquiring, amending and donating water rights for environmental purposes was set. Further, the result of Mr. Bramblett's anticipated claim of a tax deduction for his donation will be closely watched around the West.

In addition to these accomplishments, flows in the Rio Grande were marginally improved. While the small right involved will not significantly improve the river's condition, it provides an incremental benefit.

#### **G.4 Conclusion**

Attention focused on environmental water use in Texas is directed at new appropriations and reservation systems that balance urban water demand and environmental needs. The Bramblett donation demonstrates that the existing water administration system in Texas is conducive to an environmental water transaction approach. Because Texas law appears to permit either donation to the Texas Water Trust or holding of environmental flow water rights by other entities, including non-governmental organizations, a number of organizations and individuals are now exploring such approaches.

## Appendix H

### Washington: A Full Complement of Federal, State and Private Programs

#### H.1 Introduction

Forestalling further injury and ultimately recovering salmon and steelhead fisheries are driving efforts to acquire water in Washington. While there are a variety of problems in the state that could benefit from environmental water acquisitions, including wildlife, resident fisheries, water quality, and wetlands, the impact of Endangered Species Act listings of anadromous fish propels the effort. Despite the success of its technology industries, Washington's state economy is still very dependent on resource use in its timber, agriculture and hydropower-driven industries, which are adversely affected by the ESA fishery problems. Water acquisitions, therefore, are important not just for environmental reasons, but also for the health of the state's resource based economies.

Because of this importance, Washington has the most complete set of actors working on environmental water acquisitions – federal agencies, state agencies and private entities.

#### H.2 State Law Procedures and Issues

Washington established an administrative water rights system in 1917, with regulation though the current Department of Ecology (Ecology). New water rights applications and changes to existing rights subject to the administrative system are processed by Ecology, with the exception of water rights undergoing adjudication (such as in the Yakima River watershed), where the court considers changes.

Washington water law made no provision for protecting instream use of water until 1949, when legislation allowed water rights to be conditioned to protect fish and wildlife. In 1976, the State began establishing minimum instream flows by rule; they have been completed in 19 of Washington's 62 watersheds. By 1999, 350 streams and rivers had been closed to new appropriations, and low flow provisions had been placed on approximately 250 water rights. In 1998, the legislature adopted a new approach, calling on local interests and stakeholders to work with Ecology to set out plans for the water future of individual watersheds, including instream flow standards. This process, known as the [2514 Watershed Planning Process](#)<sup>156</sup> is ongoing.

With well more than a century of intensive water development in Washington, and insufficiently effective instream flow protection dating back to 1949, the State recognized that simply limiting and conditioning new appropriations was not enough to meet instream flow needs in the watersheds where essentially all water had already been claimed. A [pilot effort](#)<sup>157</sup> in acquiring water rights for instream and a variety of other uses began in 1989 for

<sup>156</sup> <http://www.ecy.wa.gov/watershed/background.html>

<sup>157</sup> <http://www.leg.wa.gov/RCW/index.cfm?fuseaction=chapterdigest&chapter=90.38>

the Yakima River in the first trust water right program. This was followed by [state trust rights](#)<sup>158</sup> legislation in 1991.

Trust water rights are rights managed by the State for a variety of purposes, most commonly to protect instream flows; however, trust rights can be used for a variety of “unmet and emerging needs” including drought response, mitigation and reserving supplies for future use. Trust rights are created from existing rights that are donated, sold or leased, in whole or in part, to the state. A donated trust right [may be conditioned by the donor](#)<sup>159</sup> to ensure that it is used for the intended purpose – the state could not, for example, convert a donated instream right to municipal use. A critical difference from instream flows established by rule is that trust rights retain the priority date of the underlying right acquired by the State, allowing the establishment of senior instream flows.

Washington formalized the methods and approaches it uses in quantifying the trust right in its 1992 [Trust Water Rights Guidelines](#).<sup>160</sup> While this publication is still the best source document, Ecology is in the process of developing additional standardized approaches. The process starts with the “gross water savings,” which is the entire historic diversion for land fallowing, or the difference between historic diversions and diversions after implementing a water conservation project. “Net water savings” are then calculated at any point downstream by subtracting return flows and water needed to satisfy other rights from the “gross water savings.” Washington also quantifies consumptive use by month, to reflect differing water demands during the irrigation season. The result may be a trust right that is variable with both distance downstream and by time of year.

Several features of trust water rights are important for environmental water acquisition efforts. Trust rights are specifically exempt from Washington’s relinquishment standard of non-use for five years. Protection from relinquishment is particularly useful for leases because it creates an incentive for water rights holders to enroll rights that would not otherwise be used into the trust program, reserving them for future use. When public funds (state or federal) are used to pay for irrigation efficiency or conservation projects, the recipient of funds is obligated to convey to the state a portion of the net water savings. In practice, the water obligation is proportional to the public investment. A member of an irrigation district may not convey water rights into the trust program without the approval of the district’s board of directors; further, the trust right may not impair the operational efficiency of the district.

Washington’s legislature continues to be active in making adjustments to the trust rights program resulting in a complicated set of rules that vary depending on whether a trust right is created by purchase, short term lease, long term lease, donation or public investment in water conservation. The application process, notice, quantification of water eligible for trust enrollment, intensity and timing of review and exercise of the right all vary with the method of acquisition. Ecology’s water acquisition program produced a strategy document in 2003 with an excellent description of the variations in the [Washington Water Acquisition Program handbook](#)<sup>161</sup> (see appendix III of the document).

<sup>158</sup> <http://www.leg.wa.gov/RCW/index.cfm?fuseaction=chapterdigest&chapter=90.42>

<sup>159</sup> <http://www.leg.wa.gov/RCW/index.cfm?section=90.42.080&fuseaction=section>

<sup>160</sup> <http://www.ecy.wa.gov/pubs/92088.pdf>

<sup>161</sup> <http://www.ecy.wa.gov/pubs/0311005.pdf>

Washington [is working to address a large](#)<sup>162</sup> backlog in processing applications for new water rights and changes in existing water rights. In 2001, Ecology had approximately 2,000 applications on file for new and changed rights, yet had been processing them at a rate of only about 120 per year between 1995 and 2000. In 2001, the Legislature authorized changes to the system, most notably changing from a first-come, first-serve to a two-line system, with change applications processed separately from new applications. Applications involving trust rights jump to the head of the change-in-use line, greatly decreasing processing time. However, speed of processing and backlogs are still a problem for trust water rights. Utility of short-term leases is limited when processing the application can take six to 11 months. Annual leases are most used in the Yakima basin, where the court engaged in the basin adjudication can process change applications in less than a month.

In addition to the two-line system, Ecology is also addressing the backlog issue by funding a staff member in each of the three major regions of the state dedicated to processing trust water acquisitions as well as quantifying net water savings from conservation and efficiency projects. Dedicated staff should make decisions more quickly and more consistently. Consistency is a benefit to third parties, such as the Washington Water Trust, who are advising water rights holders on how Ecology will view potential transactions. In addition, Ecology is in the process of refining standardized approaches to quantification issues.

### H.3 Environmental Water Transactions – Washington

While water is short in a number of Washington's 62 watersheds, the 1999 [Washington Statewide Strategy to Recover Salmon](#)<sup>163</sup> found that in 16 watersheds water had been "over-appropriated"—more water had been claimed for use than is naturally available. Consequently, environmental water acquisition efforts in Washington target watersheds in that list of 16.

At the federal level, the Bureau of Reclamation is involved in environmental water acquisitions through its [Yakima River Basin Water Enhancement Project](#)<sup>164</sup> (YRBWEP), and the Bonneville Power Administration (BPA) is funding water acquisition through the [Columbia Basin Water Transactions Program](#)<sup>165</sup> (CBWTP). Washington State is engaged in two major efforts to acquire water: by purchase or lease through the Department of Ecology's [Washington Water Acquisitions Program](#)<sup>166</sup> (WWAP); and through irrigation efficiency and conservation in the Washington State Conservation Commission's [Irrigation Efficiencies Grants Program](#).<sup>167</sup> In addition, the [Washington Water Trust](#)<sup>168</sup> (WWT) is actively completing transactions, often in conjunction with either the state or BPA. A novel local effort on the Dungeness River on the Olympic Peninsula resulted from over 15 years of efforts by an Indian tribe, irrigators and Ecology. Other entities are in various stages of

<sup>162</sup> <http://www.ecy.wa.gov/programs/wr/rights/wrchange-progress.html>

<sup>163</sup> <http://www.governor.wa.gov/gfro/strategy/longversion.htm>

<sup>164</sup> <http://www.usbr.gov/pn/programs/yrbwep/opsindex.html>

<sup>165</sup> <http://www.cbwtp.org/>

<sup>166</sup> <http://www.ecy.wa.gov/programs/wr/instream-flows/wacq.html>

<sup>167</sup> <http://www.scc.wa.gov/programs/irrigation/>

<sup>168</sup> <http://www.thewatertrust.org/>

water acquisitions, including The Nature Conservancy, the Trust for Public Lands and the Walla Walla Watershed Alliance.

### H.3.1 Washington Water Acquisition Program

Ecology's Washington Water Acquisition Program (WWAP) started as a pilot project in 2000, with a \$1 million appropriation for water acquisitions in four high priority basins, the Yakima, Walla Walla, Dungeness, and Methow. This resulted in 21 water leases in the basins, and laid the foundation for institutionalizing the effort. With good results, the program was extended statewide.

WWAP spent early 2002 in planning, and produced a very useful [Washington Water Acquisition Program handbook](#),<sup>169</sup> creating its strategy and approach. With additional funding in hand, WWAP is actively looking for acquisitions.

**Approach** WWAP has both institutional and programmatic goals. Recognizing that it is a new program using an approach that is both new and controversial within the state and West wide, WWAP is working to develop public trust and acceptance as well as support from other public agencies. In part this will be achieved by ensuring the acquisition efforts are fair, decision making is predictable and expedient, and public funds are used efficiently and effectively. It is working to identify the areas where its approach can most effectively optimize salmon productivity and then acquire the water needed to achieve that result.<sup>170</sup>

WWAP has specific expertise in some of the areas needed for it to succeed, but others may be better positioned to lead in other areas. The areas it considers appropriate to lead include priority setting, administration and process improvements, as well as monitoring and accountability. Because WWAP is part of Ecology, which serves as both a regulatory agency and market participant, WWAP is willing to have other actors serve lead roles in marketing, prospect development and valuation of water rights.

Within the 16 watersheds identified as being both critical for salmon and subject to over-appropriation, WWAP is now in the process of identifying specific stream reaches where acquiring additional water will have particularly significant impacts, and where the hydrology and network of water rights is favorable to transactional approaches. These priority areas will then serve to guide its own acquisition work, as well as the work of others such as the Washington Water Trust and the state's irrigation efficiency program.

WWAP recognizes that it has a variety of tools to use to solve specific problems, and that tailoring its approach as narrowly as possible to the problem is preferred. Specifically, while permanent acquisitions of water rights are sometimes needed, obtaining those rights through efficiency and conservation or source switching has less effect on the surrounding community than fallowing agricultural lands. Further, a portion of a right may suffice to provide water where and when needed, for instance through split seasons, dry year options

<sup>169</sup> <http://www.ecy.wa.gov/pubs/0311005.pdf>

<sup>170</sup> Adelsman, Hedia. Washington Department of Ecology. Personal communication. June 2004.



or other means. To do this effectively, it needs detailed information about the biological and hydrological problem, water rights network and the use of the water right by the water user. Matching the tool to the problem is important.

System and administration improvements have been a major focus for WWAP, in part because of the tremendous backlog in processing water rights applications in Ecology. WWAP strongly supported development of the two-line system, where change applications are treated separately from new rights applications. Putting trust applications at the head of the change line helps, but is not enough. Using money obtained from BPA, Ecology now has three permit writers devoted to trust water rights applications, including purchase, lease, donation and net water savings from irrigation efficiency. A fourth new staff member will work with the three permit writers to develop systems and approaches to improve fairness, consistency and predictability in processing applications. Two of the significant and complicated issues that are being addressed are developing consistent methodology for the calculation of net water savings in efficiency projects and evaluating water rights proposed for trust rights acquisitions

Monitoring and accountability are works in progress. WWAP is in the process of establishing a database of trust water rights compatible with both GIS and the existing water rights database in order to better track trust rights and plan acquisition strategies. It is designing measurement systems in order to evaluate the performance of acquisitions within both the hydrologic and biologic systems. It also is working on enforcement options; Washington's rare use of water masters makes enforcement particularly problematic. Improving its ability to monitor and enforce is a clear and growing need as trust rights are added to the system; WWAP obtained BPA funds for additional stream gages in the Yakima River system and will be evaluating where additional investments in measurement are needed.

While WWAP intends to fully participate in transactions, it recognizes that in some instances intermediaries may be more effective. Given WWAP's position within Ecology, which is the regulatory agency for water rights, some separation may be useful. Water users have expressed discomfort with submitting water rights to WWAP for possible acquisition, when Ecology also has enforcement authority under Washington's relinquishment standard. The Washington Water Trust performs an important intermediary function in many instances.

A recent review of WWAP, *Of Water and Trust: A Review of the Washington Water Acquisition Program*<sup>171</sup> by the Policy Consensus Center, a joint effort by Washington State University and University of Washington, found that WWAP's success depends on two factors. The first is in understanding the physical, biological, legal and community settings of its projects, and tailoring its approaches to those settings; it is most effective when the understanding of the local communities parallels WWAP's. The second is developing trust relationships with community leaders and institutions that can result in bringing potential participants into the program.

<sup>171</sup> [http://www.cbwtp.org/library/UW\\_WSU\\_water2004.pdf](http://www.cbwtp.org/library/UW_WSU_water2004.pdf)



**Accomplishments** As a new program, with an approach and strategy in place for just a year, the WWAP is making remarkable progress. The [WWAP December 2003 Progress Report](#)<sup>172</sup> showed that Ecology spent \$4.1 million in state and federal funds to acquire 41,000 acre-feet of water for instream flow purposes. Of this, about half was spent on five transactions to acquire permanent rights to 4,284 acre-feet. The other half was spent on 57 water rights leases in the Columbia, Dungeness, Methow, Walla Walla and Yakima River basins. In addition the program has received five donated water rights. As of May 2004, WWAP had completed 77 transactions.

The institutional accomplishments are perhaps more significant for long-term success. WWAP is developing credibility with some parts of the water user community, and has an increasing number of transactional opportunities. Washington's permit application backlog could easily have doomed any effective use of an acquisition strategy. WWAP, as a program within Ecology, found support in the Legislature to create the two-line system, and then found funding to hire dedicated staff to expedite its work.

**Outstanding issues and lessons** Washington is taking a very innovative approach with WWAP – essentially creating a state government water trust, with money and authority to enter the full array of transactions, from outright purchase to short term leases.

The WWAP's unique position has led to some very important institutional successes, especially in devising a way around the backlog of permit applications that could doom an acquisitions strategy. Gaining permit writers dedicated to trust rights, and creating the systems to allow them to develop consistent, defensible and predictable approaches is a very important step in establishing the conditions for success not only for WWAP but also for Washington Water Trust and any other market participants.

Being within the water rights administrative agency creates a set of problems as well. Almost all of WWAP's transactions involve rights that are freshly adjudicated – removing the element of uncertainty about relinquishment, validity, priority and quantity. While this suggests a tactical approach of working in areas with recent adjudications, it also suggests that the dual role Ecology plays may be a factor in discouraging applications from holders of less clear rights. Because the salmon issues of priority to WWAP are not always found in watersheds with recent adjudications, it also suggests that if results are sufficiently predictable and the relevant data available, the Washington Water Trust, or other intermediaries, have a very important role.

Because permanent water rights acquisitions often cause distrust in agricultural communities, WWAP primarily entered leases. As it develops better relationships, it is moving toward longer term leases and other arrangements. It is also actively exploring transactions involving other entities who are buying water rights along with land, agreeing to buy the water right in these transactions. WWAP has already entered three-cornered deals of this nature with the Bureau of Reclamation and a land trust. Partnerships with land trusts or other land-acquisition entities appear to be a potential area of growth.

<sup>172</sup> [http://www.ecy.wa.gov/programs/wr/instream-flows/isfap\\_prorpt.html](http://www.ecy.wa.gov/programs/wr/instream-flows/isfap_prorpt.html)

The Policy Consensus Center's review indicates that WWAP has real challenges ahead in both obtaining detailed site-specific information on which to base action and in developing relationships with agricultural water users needed to succeed.

### **H.3.2 Washington Irrigation Efficiency Grants Program**

Acquiring water through irrigation efficiencies is a second state strategy. In 2001, the legislature appropriated \$7.8 million for use in an efficiency grants program administered under contract with Ecology by the Washington State Conservation Commission's [Irrigation Efficiencies Grants Program](#).<sup>173</sup>

Grants are made to local conservation districts in the 16 priority salmon basins to improve irrigation efficiency, with a portion of the conserved water returned to the state trust water rights program for instream use. Net water savings are determined by the USDA Natural Resource Conservation Service in consultation with the Center for Law and Policy, a Washington state water advocacy organization, and confirmed in Ecology's processing of the trust water right. While the minimum term for trust dedication is 10 years, the WWAP and Ecology prefer longer term leases or permanent dedication. Up to 85% of the cost of a project may be from public funds.

The Washington system differs markedly from ground and surface water conservation in the federal 2002 Farm Bill EQIP program in that the Washington system requires water that be dedicated to environmental use in return for public investment, while the federal program has no such requirement.

In the first 18 months of the program, from mid-2001 to the end of 2003, nine cost-share projects worth approximately \$2.4 million were approved. Additional projects are underway.

### **H.3.3 Bureau of Reclamation – Yakima River Water Enhancement Program**

Congress passed the [Yakima River Water Enhancement Project](#)<sup>174</sup> (YRWEP) in 1994 (Title XII, Public Law 103-434). The twin aims of YRWEP are to protect, mitigate and enhance fish and wildlife, and to improve water supply reliability for irrigation. In addition to adding fish and wildlife as project purposes, setting flow goals, and providing authority for several conservation and efficiency projects both on the Yakima Reservation and off, YRWEP authorizes the acquisition of water for instream and fishery purposes. By the eighth year after enactment, 110,000 acre-feet per year was to have been made available for fish and wildlife. Acquisition of land, water and water rights by purchase or lease is specifically authorized and is not subject to a requirement of sharing the cost with the state or local entities.

<sup>173</sup> <http://www.scc.wa.gov/programs/irrigation/>

<sup>174</sup> [http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=103\\_cong\\_bills&docid=f:s1146enr.txt.pdf](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=103_cong_bills&docid=f:s1146enr.txt.pdf)

**Approach** In carrying out YRWEF, Reclamation uses irrigation efficiency work as its primary tool. However, Reclamation has purchased land and water rights where the water can be converted to trust use and the land used for other project purposes. Reclamation has also purchased and retired a hydroelectric project, providing substantial additional instream flows in the bypassed reach.<sup>175</sup>

Flow augmentation through irrigation efficiency work is the centerpiece of Reclamation's work in YRWEF. The model project is the Teanaway River, important for spring Chinook and steelhead because it has some of the best cold water spawning and rearing habitat in the Yakima River Basin. In 1996, floods on the Teanaway wiped out diversion dams, headgates and gravity ditches. Reclamation used annual leases to keep the water rights active and irrigators whole while it spent \$3.5 million, most from BPA, to replace antiquated systems with pressurized pumps and pipes, which reduced the amount of water diverted by about 65%, from roughly 4,000 acre-feet per year to 1,400 acre-feet per year. Further, the point of diversion was moved downstream, to a screened off-channel point that did not act as a fish passage barrier, increasing flows in a long reach. Reclamation also acquired a parcel at the confluence of the Teanaway and the Yakima to serve as backwater habitat. Results are promising. While biologists found only an average of one salmon redd per year from 1980 to 1999, in 2001 they found 21 redds and in 2002 there were 110 redds.

Direct acquisition of land and water is a secondary approach for Reclamation. In addition to the community relations and political consequences of retiring agricultural land, Washington law grants irrigation districts the right to disapprove sale of water rights for trust purposes. The result is that Reclamation avoids buying land and water within irrigation districts, and avoids uplands. Instead it uses targeted acquisition of riparian land that is suitable for restoring as riparian and backchannel habitat, and fits into other restoration goals. Examples include:

- Land at the mouth of the Teanaway River, where the land could be used as backchannel habitat and the water rights eventually enrolled in the trust water program.
- Riparian land within a ditch association that could be used for habitat restoration. Because the ditch association does not have the right to veto a trust water dedication as an irrigation district could, the deal could go through. Water deliveries from the ditch are used in the restoration project and then will be placed in the trust rights system. The ditch fees are paid by Reclamation, keeping the ditch association whole.
- A multi-party deal in which a conservation land owner (Rocky Mountain Elk Foundation) sold land and water rights to Reclamation. Ecology contributed \$100,000 for the water rights and converted them to trust rights.

By far Reclamation's largest acquisition is of the Wapatox hydropower plant water right on the Naches River. A large canal diverted water at a rate of between 300 c.f.s. and 450 c.f.s. for power generation and about 51 c.f.s. for irrigation, substantially reducing flows in the bypassed reach. While the Naches River supports roughly 30% of the Yakima Basin's

<sup>175</sup> Isley, Stan. Washington Department of Ecology. Personal communication. June 2004.

steelhead runs, the Wapatox reach has been identified as a historic problem for fish passage and rearing. Because the underlying power generation portion of the right had little or no consumptive use, instream use of the trust right will extend along the bypassed reach, but not downstream. However, that protection should solve the fish passage and rearing problem in the reach. Reclamation will continue to deliver water to the irrigators. Ecology's WWAP also contributed to the transaction.

Buying Wapatox was not without controversy. Price and cost effectiveness were real issues. The water rights alone cost more than \$6.5 million, with more for the facilities and land. This very small power project (six megawatts) faced a costly and uncertain future in a licensing procedure under the Federal Energy Regulatory Commission. Before Reclamation stepped in, BPA dropped out of a proposed purchase, reportedly because of concerns about the cost-effectiveness of the acquisition.

**Accomplishments** With the 2003 Wapatox hydropower water right acquisition, Reclamation has acquired approximately 221,638 acre-feet per year of water for instream flow augmentation in the Yakima Basin. Apart from the Wapatox right, Reclamation bought water rights of 3,371 acre-feet as of February 2004, at a cost of about \$9.6 million. Reclamation's share of the Wapatox water right will be \$6.48 million, with additional sums for project lands and facilities.

Until the Wapatox transaction, Reclamation had missed its 2002 target of 110,000 acre-feet of flow augmentation water rights in the first eight years of YRWEF. This single transaction put it well ahead of the target. However, the huge Wapatox flow is for a relatively short reach, without downstream benefits. Reclamation hit its target, in a way that provided real benefits, but did not substantially alter the flow patterns of the Yakima Basin, the apparent intent of Congress.

**Outstanding issues and lessons** In the Yakima, the Bureau of Reclamation has actively acquired farms and ranches, retired irrigation water rights and enrolled the water rights in a trust rights program to benefit fish and wildlife. This is a role for Reclamation that is quite unusual, perhaps unprecedented in the West.

Reclamation's approach is careful. It operates at a small scale, avoiding uplands areas within irrigation districts. With the Wapatox transaction, it avoided significant impact to irrigation, while at the same time achieving its statutory target and having significant fishery benefit. In their other projects, it tried to have the land restoration elements highlighted, making water acquisition just one of many elements to a transaction, in an effort to minimize public opposition. These approaches are appropriate in a climate generally hostile to environmental water acquisitions, especially by the federal government. The WSU review of WWAP indicated that many stakeholders in the Yakima are strongly opposed to any environmental water transactions, making Reclamation's accomplishments more remarkable.

With the statutory acquisition target met, most of the money earmarked for acquisitions spent, and the irrigation efficiency projects moving towards construction, Reclamation will de-emphasize purchase of land and water. Leases may still be important tools, as they were on the Teanaway, as bridges while conservation savings are achieved.

#### H.3.4 Washington Water Trust

Just as the Oregon Water Trust was founded in 1993 on the model of land trusts, the Washington Water Trust was founded in 1998 on the Oregon Water Trust model. WWT works cooperatively with farmers, ranchers, irrigation districts, public agencies and other organizations to acquire water and water rights through donation, purchase and lease. WWT's mission is to improve instream flows in Washington's rivers and streams for the benefit of water quality, fisheries and recreation. WWT focuses its work on small streams and tributaries where returning a small amount of water to the stream can have a significant benefit.

**Approach** When founded in 1998, WWT faced a generally hostile reception from most water users and especially the irrigated agriculture community, very limited funding and a water rights administration system that moved glacially. It also was attempting to work cooperatively and collaboratively in the middle of heated controversy over ESA-listed salmon, a topic that sharply divides Washington interests. With these obstacles, WWT completed few transactions (only four or five in the first five years) and patiently spread its message of an incremental, voluntary, and market-based approach to resolving instream flow issues.

In the last two years external factors changed, creating a much more favorable climate for WWT's approach. Work on the 2,514 watershed planning process is now leading to plans that recognize the need for a mechanism to shift water to instream uses. Because these plans are formulated through extensive community involvement, they are serving to defuse some of the opposition to instream flows and market approaches. In 2001, Ecology entered the field, with money to spend on acquisitions and a need for an intermediary between water users and the state agency. Ecology also set about streamlining the process for converting water rights to trust rights, with a two or three year process being slashed to three to 11 months, with further improvements expected. BPA established the Columbia Basin Water Transactions Program to make grants for instream flow acquisitions, with Washington's salmon and steelhead streams a high priority. Because WWT spent those early years developing relationships and establishing a reputation, it was prepared to take advantage of the new opportunities.

While WWT has established its reputation and collaborative approach, it is still working on setting priorities and strategy.<sup>176</sup> Until now, it has worked opportunistically on transactions that appeared to be closable. This resulted in a large number of short-term leases, which afford the water rights holder maximum flexibility, but have limited lasting impact. However, given water user skepticism about environmental water acquisitions, short-term leases were the only deals that could be completed. With the encouragement of its major funders, WWAP and CBWTP, WWT is now placing a higher priority on a smaller number of long term leases, permanent acquisitions, irrigation efficiency projects and source switching. This represents a shift in emphasis from doing deals, to doing good deals. It

<sup>176</sup> Pelly, Lisa. Washington Water Trust. Personal communication. June 2004.  
Dykstra, Peter. Trust for Public Land. Personal communication. June 2004.

expects this trend to continue, while still using annual leases as low risk enticements for water users and as bridges while longer term arrangements are made.

Because its major funders (WWAP and CBWTP) work on salmon and steelhead, most of WWT's transactions are in small tributaries where benefits accrue to anadromous fish. WWT uses the priorities established by WWAP in its handbook, and as WWAP refines those priorities to specific reaches, WWT will shift its priorities as well. Because it has limited funding sources, WWT selects its projects to appeal to one of those two major funders.

WWT has a new Executive Director (June 2004) who is expected to refine the strategy. As it develops other funding sources and acquisition opportunities, WWT sees future roles in water quality, recreation, non-ESA listed fish and other areas, as well as a continuing role with ESA-listed fishery restoration.

**Accomplishments** In its first five years, WWT established a reputation and presence in the high priority basins of Eastern Washington, particularly the Methow, Yakima, Walla Walla and Okanogan. Its staff developed good relationships with irrigation districts, water users and public agencies.

As of the end of 2003,<sup>177</sup> WWT had completed 28 leases and two permanent acquisitions. Most of the leases were short term (up to three years) however four were longer. In 2004, WWT is in active negotiations for seven permanent water rights acquisitions and a ten-year lease. It has also turned down renewals of some of its annual leases. This reflects its new approach of pursuing fewer, but longer term, transactions.

**Outstanding issues and lessons** WWT staff and former staff report that understanding two things is essential in their work: the interests and operations of irrigated agriculture; and that every transaction is fact specific, data intensive and complex. With each transaction taking significant resources and time, the shift from doing deals to doing the best deals is appropriate. What constitutes the “best” deals is still being defined. It likely involves a balance between the desired impact (usually on ESA-listed fish) and the community impacts, and will depend on the legal and hydrological setting.

Even with expedited processing for trust rights, Ecology may take months to complete its work. Along with other considerations, this leads to placing a higher priority on longer-term transactions.

Defining the relative roles and working relationship of WWT and WWAP is also a work in progress. WWAP is both a market participant (as both dealmaker and funder) and within a regulatory agency. Given Washington's relinquishment laws, water users are often uneasy with submitting their water use records to WWAP for review before a transaction. WWT can and does serve a role as an intermediary between the water user and the WWAP. Whether this role as intermediary expands depends in part on how the WWAP evolves.

### H.3.5 Dungeness River – Community Cooperation

<sup>177</sup> <http://www.thewatertrust.org/newsroom/2003trans.pdf>

A long-running effort to improve salmon habitat and populations on the Dungeness River on the Olympic Peninsula provides a useful view of how several of the Washington state factors can combine into a successful restoration effort.<sup>178</sup> The Dungeness River is shared by the [Jamestown S'Klallam Tribe](#),<sup>179</sup> agricultural water users, a variety of riverside and uplands property owners, and runs of Chinook and pink salmon.

**Approach** In 1987, a drought year in the Pacific Northwest, the Dungeness dwindled to the point that a child could jump across it. This was disastrous for the salmon runs, particularly the pinks. The Tribe, concerned about its treaty fishing rights, obtained flow measuring devices and set about determining where water in the Dungeness was being used. Measurement turned into a six year effort, with a surprising, but ultimately clear result – agricultural water users were diverting about 82% of the river's flow. Agricultural water users were not interested in discussing treaty fishing rights, their water uses or any changes to the system, and the community tension and the kind of controversy now common around the West where ESA-listed fish and farmers collide ensued.

Several key people helped to break the impasse. A farmer recognized the legal threat posed by the ESA and treaty fishing rights to agricultural water rights, and began working with the agricultural community to consider alternatives. Two retired statistics professors who lived in the area compiled extensive reports about water rights and water use that provided a common base of information. The charismatic tribal chairman was respected in the general community and worked well with a variety of interests. An Ecology staff person also served to bring interests together. By 1990, the community became more interested in finding solutions than continuing to fight.

A major water rights summit in Washington in 1990 resulted in the Chelan Agreement, which established pilot collaborative watershed planning efforts in the Dungeness-Quilcene and Methow Valley. While the Methow Valley remains a hotbed of contention over water rights and endangered fish, the Dungeness-Quilcene has become a model of effective collaboration and results.

**Accomplishments** Since 1990, irrigation efficiency and other improvements reduced the irrigation draw on the river, and improved habitat for fish. Further improvements are underway. Reducing inefficient conveyance and irrigation has affected shallow groundwater and wetlands dependent on the artificial recharge. Addressing these third party impacts is part of the next phase of work.

Since 2001, Ecology has been active in leasing water in the Dungeness during the late irrigation season. These split season leases allow farmers to harvest two cuttings of hay and alfalfa, and forego the third cutting. Ecology is working with the agricultural interests on longer term and permanent rights acquisitions as part of the next round of efficiency improvements.

<sup>178</sup> Seiter, Ann, formerly with the Natural Resources Department  
Jamestown S'Klallam Indian Nation. Personal communication. January 16, 2004.

<sup>179</sup> <http://www.jamestowntribe.org/>



While the Dungeness is a story of cooperation and collaboration to solve common problems, the process and results have detractors. In particular, property owners along the Dungeness are concerned about flooding and the potential effects of removing flood control structures as part of restoring riparian habitat.

**Outstanding issues and lessons** The Dungeness example shows the power of compelling data and the effectiveness of local people working within their community. In this context, environmental water rights acquisitions are an instrument used in the broader solutions devised by the community. They are not an end in themselves.

Water use and rights data that clearly demonstrated the problem, its source, and a potential solution were absolutely necessary to the success of this effort according to current and former Tribe staff. Until the debate got beyond positions and theories, and focused on facts, no progress was made. Everyone acknowledged that water use is not the only problem with salmon, but in this case agreement was reached that it is part of the solution.

The story of the Dungeness is the story of individuals who made a difference in creating solutions acceptable to the community. Tribal leaders and staff started the process, and served important roles in gathering data, and then shaping community response. Leaders from the agricultural community emerged who convinced agricultural water users that they faced issues (ESA, tribal fishery rights and potential non-beneficial use of water) that were better approached through negotiation and collaboration than litigation. Local Ecology staff also served important roles in communication and consensus building.

The Dungeness is an excellent example of win-win solutions that rely on adjustments to agricultural water use, rather than ceasing irrigation. The two main approaches used are irrigation efficiency improvements and split-season leases. Both limit the amount of water used in irrigation, but allow irrigation to continue.

#### H.4 Summary

In Washington, the full complement of environmental water acquisition approaches are in active use.

At the federal level, Reclamation is using both outright purchases of land and water rights and irrigation efficiency, with BPA engaged in acquisitions indirectly through the CBWTP. Reclamation is using a careful purchase strategy, avoiding agricultural land and water rights within irrigation districts and buying only land useful for its environmental restoration projects. This approach appears to have minimized negative public relations and community response. However, this approach did not meet the statutory directive of acquiring 110,000 acre-feet within eight years.

Reclamation's second approach, buying and retiring a hydropower project, met that requirement and more, but with an effect that may have been more limited than Congress intended. Buying the hydropower rights will result in greatly increased flows, but only in a limited tributary reach. By contrast, fallowing of agricultural land or other means of reducing consumptive use has potential impact on much longer reaches, theoretically all



the way to the ocean. Reclamation's irrigation efficiency work is still in the planning stage, after almost ten years, but is nearing the implementation stage.

From a Western perspective, the most remarkable element in Washington is that the state is programmatically entering water markets to buy environmental water. While the program is young, its very existence is a major accomplishment. In a short time, WWAP has accomplished much in addition to transactions. Washington has gone much further than other states in setting up formalized approaches to quantifying rights that are entered into the trust right system. For conversions of agricultural rights, the system is information intensive, but reasonably predictable according to experienced practitioners. There is still significant technical and policy work needed to standardize approaches to irrigation efficiency work, however. Working with the legislature to create the two-line system, where changes are processed separately from new rights applications, and putting trust water rights at the head of the line was an essential step to processing environmental transaction in a reasonable time. Adding dedicated staff, and coordinating their methods will also streamline the process and make it more predictable.

Work on irrigation efficiency by the state, Reclamation, and NRCS is freeing up water in a number of areas. To what extent that water is helping with flow-related biological issues is difficult to determine. It clearly is important and effective in some places, such on the Dungeness River. Whether it will be as effective in water short areas like the Yakima remains to be seen. Washington places a high priority on irrigation efficiency as a salmon recovery tool; it is still working on how to best execute this technique.

After several years of developing a reputation and relationships, the Washington Water Trust was able to take advantage of increased funding through the WWAP and BPA's CBWTP to enter into many more transactions. As it continues to develop, the WWT will shift from opportunistically doing transactions, to finding and completing transactions with broader impacts and longer terms.

Effectively integrating the state's WWAP with private efforts such as the WWT is an outstanding issue. As evidenced by a recent review of the WWAP, there are inherent problems in having part of a regulatory agency act as a market participant and funder. Because Washington water law requires proof of historical use, many potential sellers are uneasy with submitting their water rights for review as part of a transaction. A water right owner once compared it to volunteering for an IRS audit. In a paper water rights state, such as Oregon, or in a state that accounts for water use carefully, such as Colorado, this would be less of a problem. This problem is likely responsible for most Washington transactions being in areas with fresh adjudications of water right validity and quantity. An obvious approach for the state is to rely even more heavily on organizations that can serve as intermediaries – a role the WWT is already serving. Other organizations, especially land trusts, but also water districts, agricultural associations, and public agencies could also serve this role.