

Farm Bill Water Conservation Programs

Use and Potential in the Colorado River Basin

Prepared by:

Mary E. Kelly

Parula, LLC

And

Melinda Kassen

WaterJamin Legal & Policy Consulting

For:

Environmental Defense Fund

August 2011

Table of Contents

Executive Summary	3
Introduction	5
EQIP	5
AWEP	9
CCPI	10
CIG	11
Use of Farm Bill Conservation Programs In the Colorado River Basin	11
EQIP	11
AWEP	15
CCPI and CIG	15
AWEP Case Studies	16
Upper Klamath Basin	16
Northern California Wine Country	19
Upper Methow Tributary Enhancement Project	21
Eastern Snake Plain Aquifer	24
Republican River (Colorado)	27
Recommendations	29

Executive Summary

Irrigated agriculture is vitally important to the economy and quality of life in many areas of the Colorado River Basin. It also accounts for a significant share of the basin's existing water use. The conservation title of the federal farm bill provides a number of programs that can be used to improve water management in irrigated agriculture. Conservation organizations working to protect healthy river flows at the basin and sub-watershed levels have been interested in how these programs might be better used to both assist agriculture and protect and restore flows.

This report briefly examines how relevant farm bill conservation programs have been used in the seven basin states in recent years. It also provides profiles of how a particular program—the Agricultural Water Enhancement Program (AWEP)—has been used in other areas of the western U.S. and discusses whether those projects offer lessons for greater use of AWEP in the Colorado River Basin. Finally, the report offers recommendations for enhanced use of federal farm bill water conservation programs in the basin to help address demand pressures, changing water needs and protection of healthy river flows.

Summary of Recommendations: There appears to be substantial potential to increase the use of farm bill water conservation programs, particularly AWEP, in the Colorado River Basin with the dual goal of benefitting agriculture and healthy flows. In the Upper Colorado Basin particularly it will be important to coordinate expanded funding with the EQIP funding already going to salinity control.

Lessons learned from AWEPs in other parts of the western U.S. show that while there are some challenges to be overcome in properly structuring a multi-benefit AWEP, this farm bill program holds important potential for watershed level efforts. Strong working relationships among growers, local and state officials, NRCS staff and non-governmental organizations are crucial to well-designed AWEPs that can be implemented with a minimum of difficulty, especially where protection or restoration of healthy flows is part of the project's goals. In addition, changes in AWEP to allow group contracts, instead of the current requirement for individual grower contracts, could be beneficial.

Finally, given the water supply and demand pressures in the Colorado River Basin, as well as the vital economic and environmental importance of maintaining healthy river flows for tourism, recreation and fish and wildlife, it is worth exploring whether various farm bill programs, including water conservation programs, could be combined in a larger-scale *Colorado River Basin Initiative*. An Initiative approach could be structured to target priority watersheds where improvements in agricultural irrigation practices and infrastructure are best aligned with priorities for protecting or restoring river flows.

Introduction

The federal farm bill, last reauthorized in 2008, contains a number of programs that have strong potential to improve water management in irrigated agriculture. The legislation, combined with annual appropriations, makes available millions of dollars every year to help farmers and ranchers increase irrigation efficiency, reduce overall water use, protect riparian and other vital habitat, and improve water quality (including reducing salinity). The following federal farm bill conservation programs are particularly relevant to the Colorado River Basin:

- Environmental Quality Incentives Program (EQIP);
- Agricultural Water Enhancement Program (AWEP), a sub-program of EQIP;
- Cooperative Conservation Partnership Initiative (CCPI); and
- Conservation Innovation Grants (CIGs).

All of these programs are administered through the Natural Resource Conservation Service (NRCS), an agency of the U.S. Department of Agriculture (USDA).

Each of these programs is described briefly below. Depending on how they are applied in a particular area, other programs that can be relevant to water conservation include the Conservation Reserve Program (CRP) and the Conservation Reserve Enhancement Program (CREP). CREP is discussed below with respect to the one of the case studies. Neither CRP nor CREP have been used extensively to retire irrigated land in the Colorado River Basin.

EQIP

One of the largest, broadest and most established farm bill conservation programs, EQIP, is:

A voluntary program that provides financial and technical assistance to agricultural producers through contracts up to a maximum term of ten years in length. These contracts provide financial assistance to help plan and implement conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland. In addition, a purpose of EQIP is to help producers meet Federal, State, Tribal and local environmental regulations.¹

Nationally, annual EQIP funding ranged from \$ 1 to \$ 1.2 billion between 2003 and 2010. National EQIP funding for FY 10 was \$ 1.18 billion. The President's budget for FY 11 requested \$ 1.2 billion. Figures 1, 2 and 3 show EQIP funding and acreage distribution around the country for FY 10. Total FY 10 funding for the seven Colorado River Basin States is about \$ 178 million, though only a portion of those funds are used in the Basin itself or in areas that receive water from the Colorado River.

¹ <http://www.nrcs.usda.gov/programs/eqip/>.

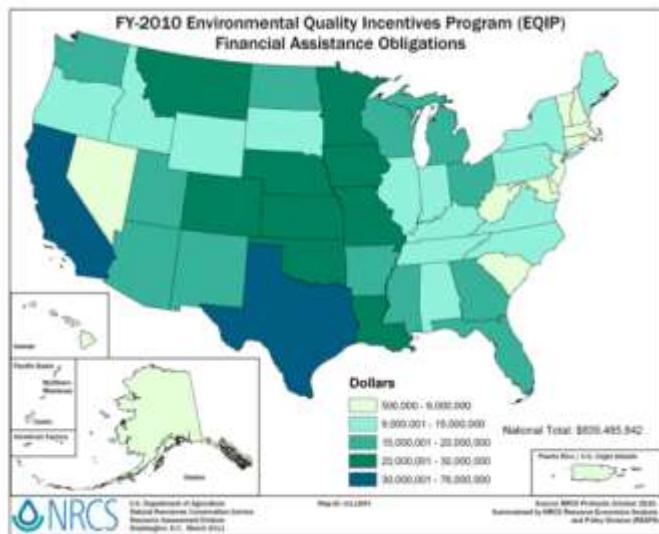


Figure 1. National EQIP Financial Assistance Obligations

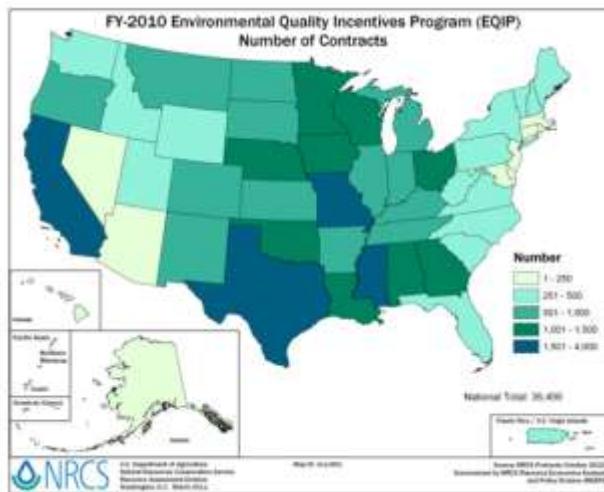


Figure 2. FY 10 EQIP Contracts by State

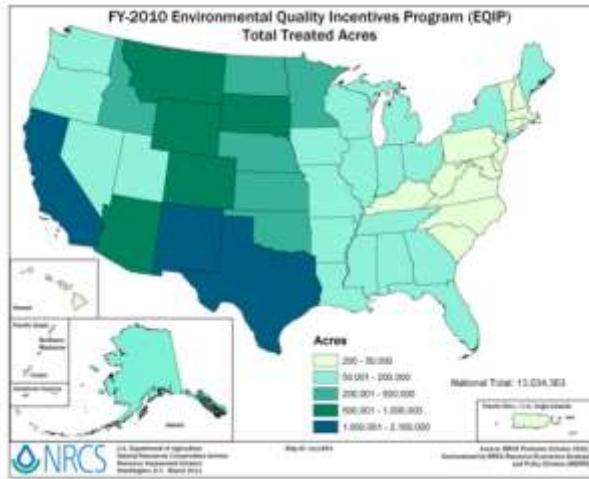


Figure 3. FY 10 EQIP Acreage by State

Active agricultural producers, including both farmers and ranchers, on “eligible” lands can apply for EQIP funding, which is generally, but not always, administered through the local or state NRCS offices. EQIP funds pay the partial costs² of primarily on-farm conservation practices that have been identified as appropriate to help resolve various natural resource issues. Under amendments in the 2008 Farm Bill, EQIP funds can also be used to pay the partial costs of developing “Conservation Plans” with the help of a certified Technical Service Provider.

For purposes of this report, important EQIP authorized practices include actions to improve irrigation efficiency, reduce consumptive water use and/or reduce salinity load to streams and rivers. In fact, conservation of surface water is an identified national priority for EQIP. Since 2008 priority has been given to EQIP applications that seek funding for practices that reduce water use in the operation of a producer who agrees not to use any associated savings to bring new land under irrigation

² EQIP can pay as much as 75% of the cost of the project, though lower matching percentages are common. Limited resource producers, socially disadvantaged producers and beginning farmers and ranchers may be eligible for up to 90 percent of the approved practice cost. EQIP payments to producers are limited: *“Participants may not receive, directly or indirectly, payments that, in the aggregate, exceed \$300,000 for all EQIP contracts entered into during any six-year period. Participants whose projects NRCS determines to have special environmental significance may petition the NRCS Chief for the payment limitation to be waived to a maximum of \$450,000.”*

<http://www.nrcs.usda.gov/programs/eqip/>. Producers with income in excess of the “adjusted gross income” (AGI) limits are not eligible for EQIP, unless the AGI limit is waived by USDA for particular environmental sensitive lands and where the waiver is essential to the success of a broader project. The AGI for farm bill conservation programs is a three-year average of \$ 1,000,000, unless over 66% of that income is derived from farming. Congressional Research Service, Agricultural Conservation Issues for the 111th Congress, July 2009, at 10-11.

production.³ This is important because demand for EQIP significantly exceeds available funding as shown in Figure 4.

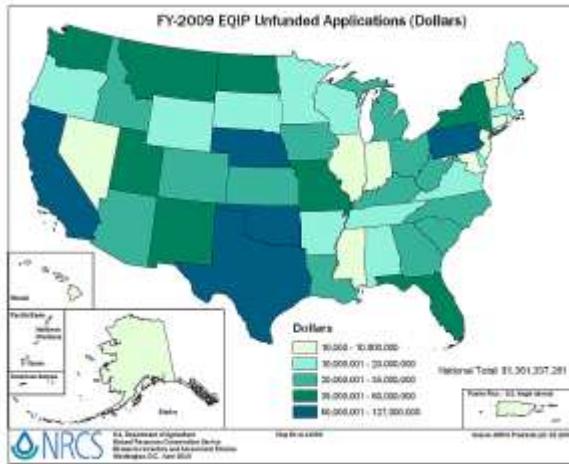


Figure 4. FY 2009 Unfunded EQIP applications.

Figure 5 shows the average FY 09 payment per acre under EQIP for irrigation water management practices on irrigated lands:

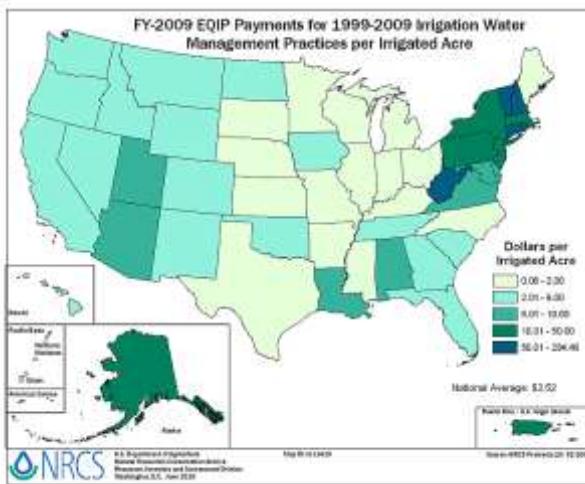


Figure 5. Average EQIP per acre payments for irrigation water management practices

³ 16 U.S.C. Sec. 3839aa-2.

As discussed in further detail below, the bulk of EQIP funding in the Upper Basin of the Colorado River has been used for irrigation water management changes related to salinity control.

AWEP

The AWEP program was added to the suite of farm bill conservation programs in 2008. It operates as a sub-program of EQIP. The AWEP program, which replaced the Ground and Surface Water Conservation Program, was created to promote water conservation (both ground water and surface water) and to improve water quality. The AWEP program allows “partners or groups” to develop and submit proposals for relevant conservation practices in specific geographic areas (e.g. a watershed).

Eligible partners or groups include:

- Federally recognized Indian Tribes
- States
- units of local government
- agricultural or silvicultural associations or other groups of such producers such as
 - an irrigation association
 - an agricultural land trust
- or other nongovernmental organization with experience working with agricultural producers.

The AWEP proposals are evaluated at the national level by NRCS, with the use of various review advisory boards.⁴ Priority may be given to AWEP proposals that:

- Include high percentages of agricultural land and producers in a region or other appropriate area;
- Result in high levels of applied agricultural water quality and water conservation activities;
- Significantly enhance agricultural activity;
- Allow for monitoring and evaluation; and
- Assist producers in meeting a regulatory requirement that reduces the economic scope of the producers operation.

Higher priority must be given to proposals that:

- Include the conversion of agricultural land from irrigated farming to dryland farming;⁵
- Leverage Federal funds provided under the program with funds provided by partners; and
- Assist producers in States with water quantity concerns.⁶

⁴ See NRCS, AWEP NHQ Review Evaluation Guidance, March 2010.

⁵ These kinds of proposals can be funded for a five-year period.

The “manager’s report” accompanying the 2008 Farm Bill identified certain areas as “priority” for AWEP funding, including the Eastern Snake Plain Aquifer, Puget Sound, the Ogallala Aquifer, the Sacramento River watershed, the Upper Mississippi River Basin, the Red River of the North Basin and the Everglades.

While NRCS will enter into an agreement with the partner group whose proposal it has approved, the AWEP funds are actually being provided to individual producers via EQIP contracts, with accompanying EQIP eligibility requirements. As noted in some of the case study descriptions below, this practice may limit the effectiveness of AWEP in conserving water on a “watershed” basis if high numbers of individual producers must each have an individual contract. The partner group is usually responsible for: designing the AWEP practices, in concert with the local NRCS; outreach to participants; finding funds to help cover the cost share required from the producers; and monitoring and evaluation.

Funding for AWEP was \$ 58 million (for 63 projects, including several multi-year projects) in FY 09 and \$ 19.8 million for new projects in FY 10. Another \$ 40.4 million was allocated in FY 10 for projects approved in FY 09.⁷ Appendix A provides information on AWEP projects approved for FY 09 and FY 10.

CCPI

The Cooperative Conservation Partnership Initiative (CCPI) allows the use of multiple farm bill conservation programs (EQIP, the Conservation Stewardship Program, or CSP, and the Wildlife Habitat Incentive Program, WHIP) to achieve outcomes in an approved project area.

The primary purposes of CCPI are:

- Addressing conservation priorities on a local, state, multi-state or regional level;
- Encouraging producers to cooperate in meeting applicable federal, state and local regulatory requirements;
- Encouraging producers to cooperate in the installation and maintenance of conservation practices that affect multiple operations; or
- Promoting the development and demonstration of innovative conservation practices and methods for delivering conservation services, including those for specialty crop and organic producers.

Priority is based on percentage of producers in the project area involved, leveraging of non-federal funds, effectiveness of conservation practices, and promotion of innovation.

To implement CCPI, NRCS enters into agreements with eligible partner entities that contribute resources leveraging the federal funds.⁸ Potential partners submit proposals to NRCS, which judges them through

⁶ 16 U.S.C. Sec 3839aa-9 (e)(2)-(3). See 75 Federal Register 16719, April 2, 2010 for detail on the AWEP proposal submission and review process (<http://www.federalregister.gov/articles/2010/04/02/2010-7515/agricultural-water-enhancement-program#h-13>).

⁷ Congressional Research Service, Environmental Quality Incentives Program (EQIP): Status and Issues, August 13, 2010.

a competitive review process, usually on an annual basis. As with AWEP, actual funding still comes to individual producers and producers must meet applicable conservation program eligibility requirements. In FY 2010, NRCS awarded \$ 6.6 million in CCPI projects at the national level (See Appendix B), with another \$ 50 million in state-level competitive awards. Unfortunately, details on CCPI awards made by state-level NRCS offices are sparse.

CIG

The Conservation Innovation Grants (CIG) program was initiated in the 2002 farm bill and reauthorized in 2008. The program provides grants, with a 50% non-federal funds match requirement, to “stimulate innovative approaches to conservation and accelerate technology transfer in environmental protection, agricultural production and forest management.”⁹ So, for example, CIG grants might help fund water conservation innovations achievable through application of new precision agriculture techniques. Total annual funding for CIG awards have ranged between \$ 18 and \$ 21 million over the last three years. NRCS has set aside about \$ 15 million of EQIP funds/year for a national competitive grants process and about \$ 5 million for “watershed competitive grants” processes in Chesapeake Bay and the Mississippi River and there are also state-level CIG competitions.

Use of Farm Bill Water Conservation Programs in the Colorado River Basin

Use of farm bill water conservation programs in the Colorado River Basin (or in areas receiving water from the Colorado) has primarily been focused on EQIP funds being used to: (1) reduce salinity in the Upper Colorado River Basin and (2) improve irrigation efficiency in various areas of Arizona that receive water from the Colorado River. Apart from those focus areas, there has been relatively little use of the other available farm bill water conservation programs, particularly in regard to the scale of irrigated agriculture at the watershed level, let alone the Basin as a whole.

EQIP

About \$ 18 to 20 million/year of EQIP funding is allocated to projects to reduce salinity load to the Upper Colorado River in authorized project areas in Wyoming, Colorado and Utah. Figure 6 shows the 10 authorized salinity control project areas. The biggest project areas are the Lower Gunnison River in Colorado (171,000 irrigated acres potential service area) and the Uinta Basin in Utah (226,000 irrigated

⁸ Eligible partner entities includes states, tribes, non-governmental organizations, producer cooperatives or associations and universities.

⁹ CRS, supra note 6, at p. 5.

acres potential service area).¹⁰ This funding is combined with Salinity Control program funds that the U.S. Bureau of Reclamation provides directly and through funding it passes to the three states (known as the Basin States Program, or BSP.) These BSP funds, which do not require a match, are targeted to fund projects that do not meet EQIP eligibility criteria (including for off-farm entities) or to help meet cost share requirements for EQIP funded projects.



Figure 6. Salinity Control Project Areas (Source: July 2011 Salinity Control Forum Triennial Review)

¹⁰ For a review of FY 2009 implementation of the Colorado Basin Salinity Control Program via USDA/NRCS, see USDA, Colorado River Basin Salinity Control Program Accomplishments for Fiscal Year 2009, available at <http://www.usbr.gov/uc/progact/salinity/pdfs/FedAccompRep-2009.pdf>. NRCS is looking at the feasibility of expanding the program to other areas of the basin. Id.

EQIP funding is directed primarily at on-farm improvements. Producers receiving funding must also meet other EQIP eligibility requirements. The EQIP funds provide cost-share (up to 75 %) for various conservation practices designed to reduce salinity loading, depending on the area and the type of farming or ranching operation. Funded practices include:

- Converting irrigation water delivery from open earthen ditches and canals to underground ungated or gated pipelines;
- Ditch lining;
- Land leveling;
- Installing irrigation water control structures; and
- Converting from surface flood irrigation to sprinkler, surge or drip irrigation.

While NRCS reports reductions in salinity loading and improved irrigation efficiency due to implementation of these EQIP projects, it does not appear to track the fate of the water conserved through improved efficiency. It appears that, at least historically, conserved water may primarily have been used to expand irrigation and/or extend the irrigation season beyond what was previously possible.¹¹

The 2008 Farm Bill added a provision requiring that where payments are provided to producers for “water conservation or irrigation practice,” priority is to be given to applications which result in an actual reduction in water use.¹² This provision has now been incorporated into the EQIP regulations, tracking statutory language, as follows, at 7 C.F.R. 1466.20(b):

(2) For applications that include water conservation or irrigation efficiency practices, the State Conservationist will give priority to those applications where:

- (i) Consistent with State law in which the producer's eligible land is located, there is a reduction in water use in the agricultural operation, or where the producer agrees not to use any associated water savings to bring new land under irrigation production, other than incidental land needed for efficient operations.
- (ii) A producer who brings new land under irrigated production may be excluded from this latter condition if the producer is participating in a watershed-wide project that will effectively conserve water. The State Conservationist will designate eligible watershed-wide projects that effectively conserve water, using the following criteria:

(A) The project area has a current, comprehensive water resource assessment;

(B) The project plan has demonstrated effective water conservation management strategies; and

¹¹ For example, USDA reports that in the Big Sandy River project in Wyoming, which has been underway since 1988, “water savings from improvements in irrigation systems now allows a full irrigation season of water for the entire irrigation district.” USDA, *supra* note 9, at p.7.

¹² Section 2503 of the 2008 Farm Bill, amending Section 1240B of the Food Security Act of 1985, codified at 16 U.S.C. 3839aa-2.

(C) The project sponsors have consulted relevant State and local agencies.

While the EQIP projects in the Upper Colorado are directed at salinity reduction, many, if not most, of the projects involve water conservation and irrigation efficiency projects. It is not clear whether the state offices of NRCS are considering these new criteria in prioritizing EQIP applications under the Salinity Program.

Comment [M1]: For discussion with NRCS offices

Recently, NRCS has sought not only to fund physical on-farm irrigation improvements but also to improve irrigation water management by farmers and ranchers. For example, in the Lower Gunnison, NRCS has launched an intensive irrigation water management (IWM) program, “working one on one with producers to educate them on how to achieve improved efficiency with their irrigation systems” (including monitoring and record keeping).¹³ The efforts include use of a Mobile Irrigation Lab to assist in soil moisture monitoring and an irrigation tool box “worksheet” and IWM “certification” of irrigators. Funding and staffing constraints have limited the scope of the IWM efforts, however.¹⁴ Emphasis on better IWM is also a priority for the Uintah Project.¹⁵

In the Grand Valley unit, the program faces new challenges as larger farms are subdivided, causing problems in “tail water delivery and disposal methods,” as well as a large increase in the number of users on canal laterals.¹⁶

In addition to reaching initial acreage goals, a challenge facing the salinity control in the Upper Basin is that the more efficient systems installed in the earlier stages of the program (1980s) are now reaching the end of their design lives and may soon need replacement.

Patterns of EQIP funding in the Lower Colorado River Basin are more difficult to characterize. In Arizona, the total EQIP allocation for the state was about \$ 17 million.¹⁷ About \$ 3.6 million of these funds were for installing more efficient irrigation systems in areas of the state that receive Colorado River water from the Central Arizona Project. These practices generally include level basin systems, drip irrigation, irrigation water management, conversion to sprinklers, and small off-channel storage reservoirs to improve water delivery in gravity fed systems. Of the CAP-served areas, most of the EQIP funds in FY 10 were spent in Casa Grande/Pinal County (almost \$ 1 million). The Yuma area received about \$ 664,000 in EQIP funds, with the remainder distribution among the Avondale, Chandler and Parker areas as well as the Gila River Indian Community.

¹³ USDA-NRCS, Monitoring and Evaluation Report—2009: Lower Gunnison Unit, 2010, at 3.

¹⁴ Id.

¹⁵ USDA-NRCS, Monitoring and Evaluation Report—2009: Uintah Unit, 2010, at 22-28.

¹⁶ USDA-NRCS, Monitoring and Evaluation Report—2009: Grand Valley Unit, 2010, at 5, 9.

¹⁷ Information in this and the following paragraph is from an interview by Jocelyn Gibbon, Environmental Defense Fund, with Dennis Kimberlin at Arizona NRCS. The authors appreciate the assistance from Ms. Gibbon and Mr. Kimberlin.

The water conserved with this EQIP funding does not generally go to expand irrigated crop acreage.¹⁸ The unused CAP water essentially stays in the CAP “excess pool” and is available for use by cities or others under a complicated set of CAP allocation rules.

AWEP

To date, AWEP funding has been not been used in the Colorado River Basin (see Appendix A). None of the FY 2009 nor FY2010 approved AWEP proposals were located in the Basin. The Palo Verde Resource Conservation District, which is located in an area that receives Colorado River water, did secure approval of a \$ 175,000 AWEP to improve water quality and “provide water conservation benefits by improving water use.”

CCPI and CIG related to irrigation

There appear to have been few irrigation-related CIG or CCPI awards in the Colorado River Basin in either FY 09 or FY 10. The Gaddi ahi Irrigation Project on the lower San Juan River in New Mexico received CCPI funding in 2010 to install a large irrigation pipeline to improve irrigation water delivery. The San Juan Farm Irrigation project, sponsored by the Navajo Nation and designed to install to increase irrigation efficiency was funded in 2011 and contracts are just being issued. In 2004, the state of Arizona was awarded a \$ 500,000 CIG grant to promote “innovative best management practices,” including irrigation water conservation, including in areas that used CAP water.¹⁹

In Colorado, the Colorado River Water Conservation District (CRWCD) received CIG funding of \$ 75,000 to develop an extensive data base and mapping that might then be used to determine how agricultural water conservation in the Lower Gunnison River could be better used to address salinity and selenium issues.²⁰

¹⁸ Arizona ground water law prohibits expansion of irrigated acreage in “Active Management Areas.” Yuma, which receives significant amounts of Colorado River water is not in an AMA, however.

¹⁹ Information on San Juan and Arizona projects from Dennis Kimerlin, Farmland Programs Specialist, Arizona NRCS.

²⁰ The final report on this CIG is available at

http://www.seleniumtaskforce.org/images/2010_03_31_CIG_Final_Report.pdf.

AWEP Case Studies

This section presents five case studies of the application of AWEP to improve irrigation water management and improve instream flows in other parts of the western United States. In theory, AWEP was designed to operate more at a watershed level and foster innovative partnerships for both irrigation efficiency improvement and protection or restoration of instream flows. This kind of approach, if well-implemented and with access to sufficient funding, would seem to hold promise for several areas of the Colorado River basin that have older, less efficient irrigation systems and where protection or restoration of instream flows offers potentially significant environmental benefits.

The five case studies are:

- Upper Klamath Basin (Oregon)
- Northern California Wine Growers
- Upper Methow Tributary (Oregon)
- Eastern Snake Plain Aquifer (Idaho)
- Republican River (Colorado)

These cases were selected because they had some aspects or approaches that might be relevant in various areas of the Colorado River Basin.

The AWEP secured by the Klamath Basin Rangeland Trust involves reducing water use on irrigated hay and pasture fields in the tributaries to Upper Klamath Lake in order to increase flows to the Lake for environmental and other purposes. The northern California wine growers AWEP helps fund the construction of off-stream storage, among other measures, to reduce direct stream diversions at particular times of year important to fish. Though small, the Upper Methow Tributary AWEP is specifically directed at increasing instream flows. The Eastern Snake Plain Aquifer AWEP involves multiple parties, including the state of Idaho, with multiple goals and is targeted to a fairly large geographic area. The Republican River AWEP in Colorado can be compared to results achieved with the implementation of CREP in the same watershed.

Upper Klamath Basin²¹

The last decade brought deep conflict over water use to the Klamath Basin, which spans over ten million acres in Oregon and California (Figure 7).²² Much of the basin water use is in the Upper Klamath, dedicated to irrigation of pasture and row crops. Heavy water use in the Upper Basin has placed pressure on water needs, including downstream flows required for endangered Coho salmon and maintenance of sufficient water levels for two endangered sucker species in Upper Klamath Lake. In

²¹ The authors appreciate the assistance of Shannon Peterson, Klamath Basin Rangeland Trust, in preparing this section.

²² <http://www.nrcs.usda.gov/feature/klamath/klambasin.html> .

2001, with a deep drought, the U.S. Bureau of Reclamation stopped irrigation deliveries from Upper Klamath Lake in an effort to protect downstream flows. In 2002, tens of thousands of salmon and steelhead perished in the Lower Klamath. Controversy predictably ensued, leading to litigation and the not uncommon battle of experts that characterize so many western water disputes.

In response, in 2002 USBR sought to lease water that was being used to flood irrigate cattle pasture and leave the water resulting from this compensated “forbearance” in the stream, letting it flow into Upper Klamath Lake. The continuing problem also resulted in the involvement of NRCS and a specific earmark of \$ 50 million in EQIP funds for water and other resource concerns in Klamath in the 2002 Farm Bill.



Figure 7. KBRT AWEP project area

The [Klamath Basin Rangeland Trust](#) helped organize ranchers in the Wood River Valley sub-basin who were interested in the USBR program, which was operated on a “bid” basis and was initially based on conversion of irrigated pasture to dryland. KBRT also helped direct some of the Klamath EQIP funding to focus on conversion to dryland production in the Wood River Valley. Intensive monitoring in the Wood River Valley determined that real “wet” water savings, based on evapotranspiration, is around 1AF/ac,

which was actually lower than initial estimates of 2-3 AF/ac. However, this provided a solid number on which to base payments and flow targets.

However, in 2007 funding for the USBR “Water Bank” was decreased and directed only at On-Project acreages, and the 2002 Farm Bill and Klamath EQIP expired.

After the enactment of the AWEP program via of the 2008 Farm Bill, KBRT worked closely with the NRCS and Upper Klamath ranchers to develop an AWEP application that drew on lessons learned from the previous conservation efforts. The AWEP for the Upper Klamath is available to off-project irrigators and is scheduled to provide \$ 9 million over 5 years. The overall goal is the conservation of 15,000 acre-feet/year to flow into Upper Klamath Lake.²³ By carefully working with ranchers to explore the economics of fallowing a certain amount of pasture (or applying one early season irrigation and forgoing later season irrigation), the AWEP program has to date resulted in about one-third of the acreage in the Wood River Basin being managed to increase stream flow, with an estimated 12,000 acre-foot/year contribution to Upper Klamath Lake. Under the AWEP program, producers can enter into 3-year contracts, with an optional extension to 5 years if there is a reasonable expectation that they will pursue permanent sale of at least a portion of the rights to the conserved water.²⁴

Ranchers who have participated in the AWEP and prior programs for a few years have adapted grazing and pasture management practices to minimize loss of productivity. The AWEP program provides the opportunity (and funding support) for landowners to experiment with running their operations with less or no irrigation. This then creates potential opportunities for permanent purchases (which are not funded by the current AWEP) or even longer-term leases of the rights to the conserved water, and conversion of those rights to instream flow.

Use of the AWEP program in the adjoining Sprague River basin, which is more arid, has been somewhat more complicated and KBRT is just now working with “early adapters” to work through economics, monitoring and other issues.

Lessons learned from the AWEP program in the Upper Klamath basin include:

- Having an organization like KBRT that has good relationships with both local ranchers and NRCS helped lead to a successful AWEP proposal and strong project implementation;
- KBRT worked closely with area irrigators to understand their assessment of the economics, program structure and other issues;
- While potential effects of the compensated irrigation forbearance on third parties and the local economy were a concern early in the development of the EQIP and AWEP programs, those

²³ The recent Klamath Basin Restoration Agreement calls for restoring 30,000 acre-feet/year of flow to Upper Klamath Lake.

²⁴ The AWEP program also pays partial costs for other management measures related to less irrigation, including fencing for cattle rotation, stock water supplies and dryland seeding where necessary.

concerns have been reduced as cattle operation productivity has been largely maintained even with the programs in place;

- Careful measurement and monitoring of water savings has been important to effective program design and implementation, and having a third party, such as KBRT, to carry out those activities is helpful; and
- An active and informed local NRCS office can help the state office understand payment structure and other issues that are critical to program success.

Northern California Wine Country²⁵

In 2008, juvenile endangered Coho salmon and steelhead trout were stranded on the Upper Russian River in northern California's wine country.²⁶ The National Marine Fisheries Services attributed the incident to simultaneous surface water diversions at low flow by wine growers (for frost protection) and requested a moratorium on such diversions.²⁷

To reduce the probability of these types of incidents occurring in the future, the California Land Stewardship Institute (CLSI) worked closely with area wine growers and the NRCS to develop an AWEP proposal that would fund irrigation efficiency improvements and off-channel storage, particularly on the tributaries. The goal was to provide irrigators with alternatives to diverting directly from the river, especially during low flow periods.

The approved AWEP will provide \$ 5.7 million over 5 years in the region shown in Figure 8.²⁸ The AWEP is helping to fund the installation of off-stream ponds, groundwater wells and wind machines to reduce and eliminate direct diversions for frost protection. To date, along the main stem of the Russian River, 13 off-stream ponds totaling 350 acre-feet of storage have been constructed. These ponds provide the storage needed to reduce diversions from the Upper Russian River by over 87 cubic feet per second (cfs), slightly greater than the rate of direct diversion during the 2008 incident. A groundwater well has replaced the diversion nearest to the tributary stranding incident in 2008. A total of \$6,590,900 has been invested including \$5,030,000 in private funds and \$1,560,900 in AWEP funding. Like other AWEPs, the funding is provided through EQIP contracts with individual growers. Assistance is also provided to help the water rights owners modify their permits at the State Water Resources Control Board (to switch from direct diversion to off-channel storage).

²⁵ The authors appreciate the assistance of Laurel Marcus, California Land Stewardship Institute, in preparing this section.

²⁶ The fish kills, which involved less than 100 juveniles, occurred in a record-cold winter of the third year of a serious drought. Growers divert water to provide frost protection for newly-budded grape vines.

²⁷ Direct diversions from the Upper Russian River and its tributaries are made by individual growers who hold water rights. Diversions are made both for irrigation and, in the winter, for frost protection.

²⁸ The AWEP also included a component to increase use of recycled water in the Napa area.

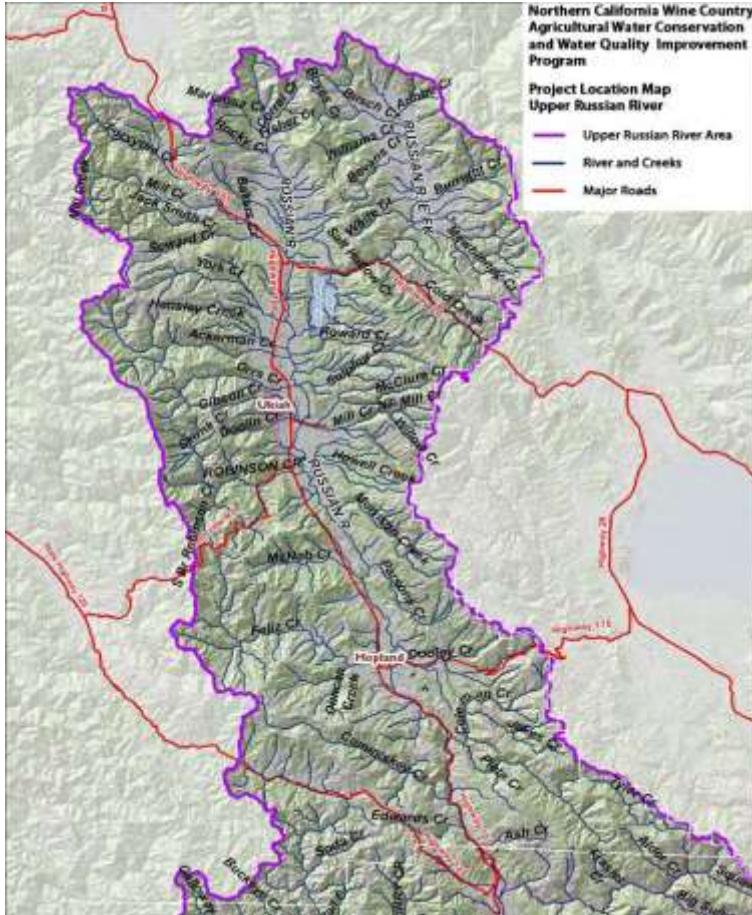


Figure 8. Northern California Wine Growing AWEP region

(Source: <http://www.sonomawinegrape.org/files/Russian-River-Frost-Total.pdf>)

CLSI was ideally positioned to prepare the AWEP proposal. It had a track record of working with the local Farm Bureau and the Wine Grape Commissions to provide "Fish Friendly" certification to grape growers and strong relationships with the well-connected local NRCS conservationist. CLSI obtained supplemental funding to conduct outreach to producers, assist in identifying projects, develop and implement stream monitoring, establish a Science Advisory Group to guide the project, and work with NRCS to implement the AWEP program.

Lessons learned from the AWEP program for the northern California wine country include:

- Existing relationships with producers, farm organizations and NRCS—developed through the Fish Friendly certification program—were key to reaching an agreement on the AWEP proposal components;
- Income limitations and restrictions against funding for publically traded companies kept some more profitable growers out of the AWEP program;
- It is important that the AWEP cover a large enough area of the watershed so that glitches with particular proposed projects do not unduly hamper full implementation of the AWEP program on an annual basis; and
- Dependence on local and state government funding to help with project cost share and technical services provided by CLSI is precarious, especially in the face of state and local budget woes.

Upper Methow Tributary Enhancement Project

The Methow River in north central Washington State is a tributary of the Columbia River (Figure 9). The basin is rural and its economy is primarily agricultural. The basin is home to several species of endangered salmon. While the state has established minimum stream flows for many reaches within the basin, these flows are often not met as a result of water diversions for irrigation.

In 2009, Trout Unlimited received a CCPI grant for irrigation efficiency projects in the Methow, with one stated goal being to pipe a particular ditch and thereby restore flows to the tributary from which it diverted. Because the local NRCS project manager supported the project, it was ultimately successful, even though the means for achieving improved flows changed during project implementation. The ditch called out in the application did not end up being the project focus because there were neither enough ditch users who qualified as “farmers” under EQIP, nor FSA-qualified growers.²⁹ NRCS’ flexibility, allowing TU instead to improve the efficiency of diversions by replacing two head gates with center pivots, proved critical to the project’s success, especially given that the time between project approval and the deadline for spending the funds is short. One of the deals was for a permanent transfer of water and the other was for a 10 year lease term.³⁰ That both growers made long-term dedications of water was critical in terms of community awareness and acceptance. Because there was little experience in the basin with pivots prior to 2009, many growers were reluctant to commit to a specific dedication quantity upfront.

In 2009, TU also applied for an AWEP grant, but was unsuccessful. However, they reapplied in 2010 and received \$250,000/year for three years.

²⁹ Part of this was due to the Income cap, which has also been a problem in some of the California AWEPs that involve wine growers. In addition, for a grower to become FSA qualified can take a year, so with the short-time-frame AWEP programs, if there have not been other active Farm Bill programs in the watershed such that growers are already FSA-qualified, the AWEP program may be hard-pressed to get off the ground.

³⁰ While the deals are done for purposes of the CCPI, the water rights paperwork is still pending with the state water trust.

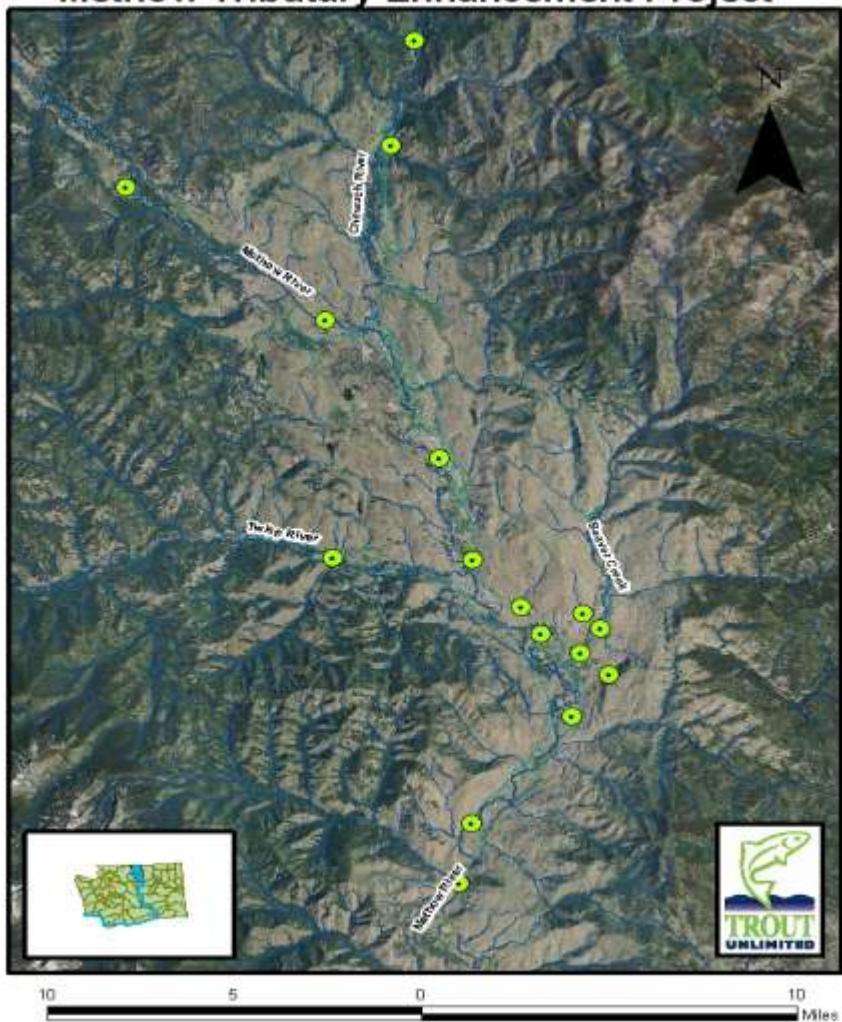
The AWEP did not specify a single flow target, but did set out a range of flow targets for three tributaries. Moreover, the rating system for individual growers gives a strong preference in those who are willing to make instream flow dedications, whether temporary or permanent. Finally, TU is paying much of the match from Bonneville Power Authority's Columbia Basin Water Transactions Program and Washington State Department of Ecology funding.

Having raised awareness and interest in the community, TU had more customers than their \$250,000 could fund. Both because of this and their having received only \$140,000 for year 2 of the AWEP grant, TU has applied for a CCPI grant to supplement the AWEP in 2011. NRCS and TU jointly evaluate grower requests for funding. However, the local NRCS office has declined to become actively involved in the instream flow aspect and refers applicants to TU for information about what they must do to benefit the stream.

Lessons learned include:

- The project proponent is more likely to succeed if it already has a working relationship with NRCS staff.
- Similarly, project proponents can benefit if they have established relationships with specific growers who want to participate in the program lined up before receipt of the AWEP grant.
- Project proponents must work fast; AWEP awards are made in May and the money must be obligated by August.
- Getting the first agreement with a grower is critical; once there is a demonstration that the projects benefit the environment without adversely affecting crop or animal production, it is easier to sign up additional growers.
- Many NRCS staff are unfamiliar with, and therefore not comfortable with, using farm bill programs to improve stream flows, so having a knowledgeable project proponent to advocate for such benefits as part of the AWEP is critical; and.
- It is important that the AWEP have flexibility so that glitches with particular proposed projects do not unduly hamper full implementation of the AWEP program on an annual basis.

Methow Tributary Enhancement Project



This map is provided "as is" and without warranty of any kind. 2006 aerial data provided courtesy of NRCS.

Figure 9. Methow Valley AWEP Project Area (Source: Trout Unlimited)

Eastern Snake Plain Aquifer

Ground water withdrawal in Idaho's Eastern Snake Plain Aquifer (ESPA) (Figure 10) has exceeded replenishment on an annual basis for years. This has led to on-going litigation—often between the agricultural users who divert from natural surface springs fed by the aquifer and those who pump ground water. The springs are diminishing and even drying up, and flows in the rivers along the northern edge of the basin are disappearing further upstream, exacerbating concerns about Endangered Species Act listings and potential listings of both native trout and whitefish. The State and water users had been using federal farm bill programs, including CREP, to retire irrigated land, in an attempt to bring the aquifer back into balance, but more action and funding was needed to achieve that objective. The SPA was named as a specific focus area for AWEP in the manager's report to the 2008 Farm Bill.

In 2008, Idaho's Governor formed the SPA Comprehensive Aquifer Management Plan (CAMP) Advisory Committee, including representatives of all the various water interests. The ground water users' delegate brought AWEP to the attention of Idaho Department of Water Resources (IDWR) staff and the CAMP Advisory Committee. He organized an information sharing meeting with local NRCS staff, interested parties, including spring users, the state and conservation non-profits, to discuss an AWEP application. No surface water irrigators were involved in the AWEP application or, initially, in the program. Ultimately, IDWR wrote the AWEP application, with help from the Attorney General.

The AWEP was approved in 2009 for five years at a total of \$ 3 million/year. It has several formal components. The spring users section is for efficiency and water delivery improvements for the Thousand Springs area. The ground water users' portion is for ground-to-surface water source conversions for the land above the rim of the canyon. Non-governmental conservation groups (TU and TNC) developed the section providing for converting irrigated lands to reduce surface water diversions high in the basin and reduce aquifer demands in strategic areas with the goal of increasing both surface water flows down the rivers and aquifer recharge below the valley floor. The goal was to reduce water usage by 20,000 acre feet (AF) over five years by switching irrigators to dryland farming, with targets of 10,000 acres or 125 producers (assuming 160 acres/producer). Other components are aquifer-wide demand reduction incentives and assistance to farmers to convert to less water intensive crops.³¹

³¹ For the state agency's description of the AWEP, see,
http://www.idwr.idaho.gov/waterboard/WaterPlanning/CAMP/ESPA/PDFs/ImpCom/2010/05-17-2010_AWEP-Overview.pdf.

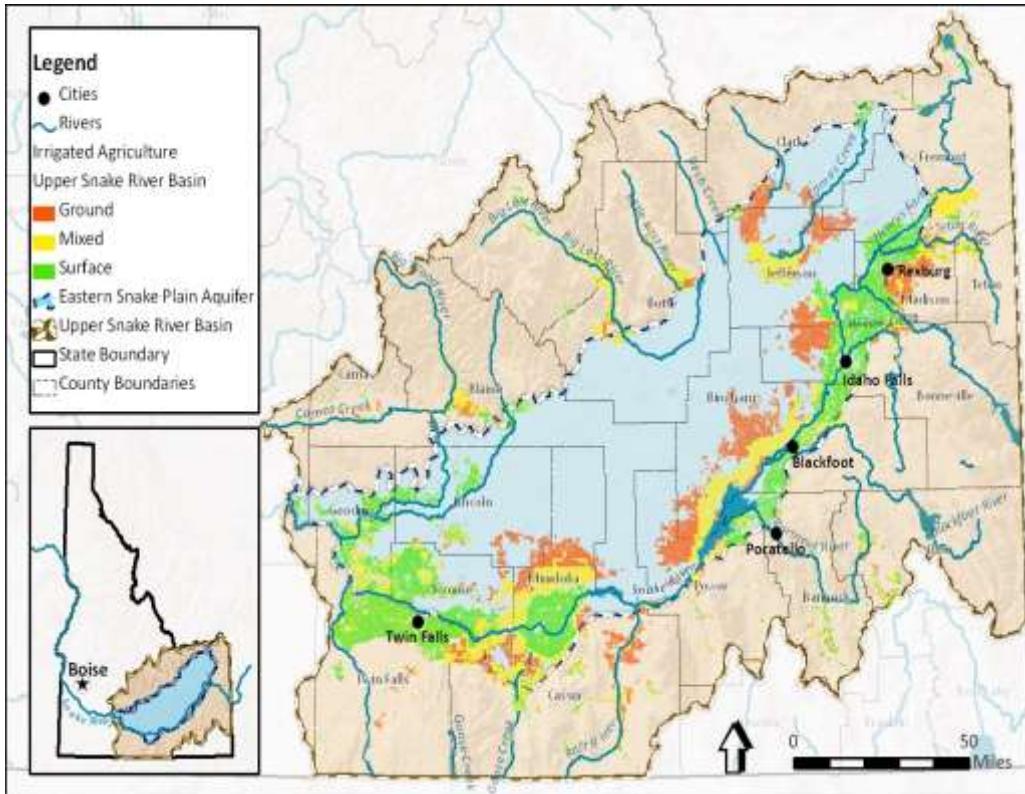


Figure 10. Eastern Snake Plain Aquifer Region (Source: ESPA AWEP Application, State of Idaho)

Although IDWR is the applicant, AWEP funds come through the NRCS State Conservationist. IDWR had requested that certain stricter state policies be requirements for grant recipients. For example, a state policy required that water from upstream fallowed land would have to go to a downstream water user. Ultimately, however, the federal agency used this policy, and others, as ranking criteria rather than restrictions. Thus, with the federal agency as administrator, the AWEP has increased flexibility for dryland conversions because it allows upstream fallowed lands to send water downstream even with no designated downstream user. This provision has not been tested, however, as there has yet to be fallowing done under the AWEP.

As the AWEP enters its third year, the spring users' representative has worked tirelessly to sign fellow spring users up for the AWEP. Thus, that part of the AWEP is over-subscribed. As a result, real efficiency improvements have been made, with many previously leaky ditches now piped. Because the spring users were chronically short of water, however, the increased amount of water available appears to have gone to increase their consumptive irrigation use, rather than to improve river flows.

By contrast, while ground water users have expressed interest, actual sign-up has not been as active as originally anticipated. There may be several reasons for this. First, the legal issues surrounding conjunctive ground and surface water management are still not settled in Idaho (they remain pending before the state Supreme Court). Thus, incentives to enroll are not as strong as those who set up the AWEP had anticipated. Second, the contemplated additional financial incentives from the state did not materialize. Without those incentives, record commodity prices put demand reduction and fallowing practice reimbursements at a competitive disadvantage. Further, getting growers interested might have been easier a few years ago when there was a drought. The ground water users' representative is no longer actively looking for participants, because the ground water users have not been water short in the last two years, nor have they felt in danger of the State Engineer seeking to limit their pumping. This same situation occurred earlier in the decade under the Conservation Reserve Enhancement Program. Whenever the Water Resources Director threatened curtailment, growers would flood in and sign up. With no current threat, and because ground water users identified sufficient mitigation water elsewhere – which itself was not needed because 2010 had a wet spring – they have not felt compelled to use the AWEP. Finally, in Idaho, there is no state constituency clamoring for transfers of agricultural water to other uses; rather, preserving agriculture, its profits and its culture are fundamental to Idaho's self-identity. As a result, unless there are compelling financial or other benefits, irrigators will not be moved to participate.

For Trout Unlimited and The Nature Conservancy, the NGOs trying to jump start the fallowing/banking/dryland conversion part of the AWEP, their historical lack of connections on the ground proved a high hurdle. They had no projects the first year and the only project applicant in year two did not qualify. They have held meetings with local and regional NGOs and are cautiously optimistic about getting two projects funded in year three. Unfortunately, the state and federal agencies have yet to take aggressive efforts to educate water users about the benefits and operational features of sending water to the downstream water bank. To date, neither the state nor NRCS has conducted aggressive outreach on this portion of the AWEP. The NGOs believe now that their outreach efforts should have included IDWR and NRCS staff, not just growers, from the beginning, especially in areas without a local NGO to promote the program.

Finally, NRCS has steadily cut back the amount of money available for this AWEP. While total funding was initially \$ 15 million over five years, or \$ 3 million annually /year, funding for 2011 (year 3) will be less than \$ 2 million. The state has yet to appropriate the matching funds that were intended to be part of AWEP implementation and written into the ESPA CAMP legislation. Without the state's financial contribution, the incentives for growers to make long term decisions have not materialized. In addition, the recovery of crop prices since 2008 has further dampened incentives for growers to take land out of irrigated production through the AWEP.

The lessons learned are similar to those in the Methow, especially with regard to having already established relationships both with agency staff and with growers on the ground, and with regard to having a means to advocate for the instream flow benefits components of the AWEP, without relying on NRCS to do so.

Republican River (Colorado)

The Republican River basin in Colorado is a 1.5 million acre watershed on the eastern plain of the state (Figure 11). This rural area has an integrated agricultural economy. Most landowners have both irrigated fields in corn, wheat, hay and even millet, as well as dryland acres in winter wheat, beets or pinto beans. They almost all also run cows. Irrigators withdraw over 1 million acre feet annually, of which they consume 75% on a half million acres of irrigated land. Yuma County is one of the nation's top ten corn producing counties. Most of Yuma's corn stays local, going to ethanol (30%) or feedlots.

However, the Republican, including its North and South Forks and the Arikaree (a third headwaters tributary), is not a high flow river. Most irrigation water comes from the Northern High Plains (Ogallala) aquifer. Springs and other inputs from this aquifer provide the majority of the river's base flow. To bring the aquifer and well pumping into complete equilibrium would require retirement of 75% of irrigated acreage (with 250,000 AF of consumptive use); without equilibrium, however, aquifer water levels and stream flows will continue to decrease.



Figure 11. Republican River Basin in Colorado (Source: The Nature Conservancy)

Because the River crosses the state line into Kansas (and from there into Nebraska), it is the subject of an interstate compact among Colorado, Kansas and Nebraska.³² The compact, approved in 1942, allocates the surface water among these three states and has been the subject of extended litigation and controversy. A series of decisions imposed fairly strict surface water delivery obligations on Colorado. As a result, in the early 2000's, the state created the Republican River Water Conservation District (District) to organize the irrigators and figure out ways to solve the problem facing the Colorado portion of the Basin: compact compliance.

³²Section 37-67-101, C.R.S. (2010)

Though it is the smallest of the three tributaries to the Republican, the Arikaree River has high biological value. There are Brassy Minnow (a Colorado endangered species), Orange-throat Darter (CO threatened), Plains Leopard Frog, and a substantial switch grass/tall grass prairie/cottonwood plant complex. The Nature Conservancy has designated it a “G1 community,” so rated because there are five or fewer in the world. Yet, the Arikaree only connects to the mainstem in the winter. In fact, TNC calls the 16-mile perennial segment, with flows of 2 cubic feet per second, “the live reach.” TNC’s Fox Ranch borders five miles of this live reach. By contrast, both the North and South Forks are perennial at the state line.

In the mid-2000’s, the District pushed a large Conservation Reserve Enhance Program (CREP), which it hoped would bring money to the basin and create an incentive to retire wells, the key to solving compact delivery problems. A retired Colorado Department of Water Resources staffer wrote the CREP proposal. Ultimately, the District won a \$ 48 million grant from NRCS, to which the District itself added \$ 12 million, to retire 30,000 irrigated acres (and 5000 acres of corners).³³ The goals of the CREP included.³⁴

- Enrolling 35,000 acres of land into the CREP to establish native grasses, riparian buffers and wildlife habitat and to restore wetlands;
- Reducing by 5 percent Republican River and Ogallala Aquifer irrigation water used for agricultural purposes; and
- Achieving 30,000 to 35,000 acre-foot annual groundwater savings through the retirement of landowners’ permanent water rights.

Because the compact treats the three tributaries differently, the CREP did as well. The North and South Forks must contribute more to compact delivery than the Arikaree. Therefore, the CREP was structured to make the conservation payment incentives highest within 1, 2, and 4 mile zones from the North and South Forks. The Arikaree, even its riparian zone, was part of the 4+ mile zone, i.e., the one with the smallest payment incentives. This incentive structure does reflect the current understanding of the ground water – surface water interaction (i.e., groundwater in the vicinity of the Arikaree has less effect on mainstem surface flows). Moreover, the CREP was primarily about compact compliance, even though it was also designed to provide environmental benefits where possible. To illustrate the compact compliance focus of the CREP, it also was structured to pay partial costs of a pipeline to tap wells near the North Fork and run the water pumped to the state line where the water is then put back into the river. The District and TNC are now working on a 2nd CREP application for another 30,000 acres. In the intervening few years, however, the District applied for, and won an AWEP, which followed the same general set of principles.

Although the NRCS lists the Republican AWEP as a project to retire irrigation rights on 35,000 acres, the local TNC staffer who has worked on the CREP, the AWEP and the 2nd CREP, described the AWEP has affecting only a few thousand acres. This perception reflects TNC’s belief that the two year AWEP was

³³ For more detail on the CREP, see <http://www.republicanriver.com/Programs/CREP/tabid/110/Default.aspx>.

³⁴ <http://water.state.co.us/SurfaceWater/Compacts/RepublicanRiver/Pages/CREP.aspx>.

substantially less important than the CREP, for several reasons. First, a CREP creates substantially more leverage, with its potential for 75 % cost share vs. the 50% cost share of this AWEP. Second, AWEP is limited to EQIP funds, a smaller pot of money than is available for a CREP, which includes a wider variety of farm bill conservation programs, including the Conservation Reserve Program, with which many farmers were already familiar. Third, the CREP requires a 15 year retirement period, whereas AWEP requires only five. Finally, CREP results in permanent retirement of the well because it requires retirement of the well permit. Thus, under the CREP, the USDA required, and paid for, the outright retirement of the land while the District paid for retirement of the irrigation well permits. The AWEP, by contrast, allowed the wells to be taken out of service temporarily.

In addition, TNC was able to leverage the CREP in a way that it was not able to use the AWEP. Under the CREP, TNC offered financial incentives to well owners near the Arikaree to make retiring those wells equivalent for the user to retiring a well closer to the North or South Fork, at least from a financial incentive point of view. It was worth it to TNC to pay Arikaree-vicinity well owners to retire their wells because increasing flows on the Arikaree has more environmental benefit than does increasing flows by the same amount on the other two tributaries. Moreover, because of the larger match required for CREP, TNC's ability to leverage the private and state money it raised for its efforts was greater with the CREP than it could be using the AWEP. Through the CREP, TNC retired three wells. It would like to use the second CREP to retire another three alluvial wells in the Arikaree's "live" reach. TNC considers its efforts an insurance policy for the live reach, an effort to maintain, rather than improve, flows.

Lessons learned include:

- The AWEP turned out to be less cost-effective, particularly from a water rights retirement standpoint, than the CREP.
- Convincing farmers to retire irrigated land or wells requires aligning the Farm Bill program's financial incentives with actions that result in the most ecological benefit. Because of the differences in the match structure between CREP and AWEP, it was easier for TNC to achieve this alignment under the CREP.

Recommendations

This section provides recommendations based on the findings of this report and the lessons of the five case studies, focusing on the following three questions:

First, given that the AWEP program has not been used at all to date in the Colorado River basin, what can conservation groups learn from the case studies that might promote more extensive use of the program in a way that is effective for both farmers and the environment?

Second, can farm bill water conservation programs be more directly linked to instream flow protection or restoration in key watersheds of the basin?

Third, could farm bill water conservation programs—including AWEP, EQIP, CREP, CCPI and CIG—be combined in a targeted “initiative” approach, such as the recent Mississippi River Basin Initiative, to maximize watershed scale benefits?

AWEP

The case studies illustrate the potential of AWEP to both improve irrigation practices and irrigation water management while protecting or restoring instream flows. The following recommendations could make it easier for AWEP to be effectively applied in the Colorado River basin to meet these two important goals:

Building Relationships is Critical to Effective AWEPs: As virtually all the case studies show, preparing a strong AWEP proposal and making it work on the ground requires the partner or partners submitting the AWEP proposal to have good working relationships with growers who qualify for Farm Bill payments. In addition, it is critical for an NGO seeking to design an AWEP program that will benefit the environment as well as farmers to have a good working relationship with the local NRCS staff who control the ultimate flow of dollars. Not having either set of relationships, with growers or with the NRCS, will end up being a barrier to achieving environmental objectives.

In addition, at least in the Upper Colorado River basin, it may be important to link AWEP projects to salinity control objectives, building on existing EQIP priorities.

Group Contracts Could Be More Effective than Individual Grower Contracts: One of the differences between the new AWEP program and the existing EQIP program was that AWEP was designed to operate at a watershed level. NRCS does not believe it has the authority, however, to enter into a single group or umbrella contract with a representative of a group of producers (or other entity that can pass payments through to producers), meaning that the implementation of larger-scale projects involving multiple growers requires individual NRCS contracts with each producer participating in the project. This means a significant amount of the workload remains at NRCS, stretching an already busy staff. Thus, while AWEP projects allow better watershed-level targeting of EQIP funds for best practices, as well as a greater emphasis on monitoring and evaluation, there may be ways to improve program delivery in the future.³⁵

Short AWEP Time Frames Require Sorting out Difficult Issues Early. From the case studies, it is apparent that the success of an AWEP requires a well-organized effort that can move with all due speed to meet the program’s tight time frames. This will be particularly critical in cases that involve large

³⁵ In an April 2009 letter to NRCS, a diverse coalition of groups urged NRCS to make the grants available directly to such entities. The groups included the Association of California Water Agencies, Family Farm Alliance, Nature Conservancy and Trout Unlimited.

numbers of individual growers and/or legal or policy issues with respect to devoting conserved water to instream flows (either through forbearance or actual change in the underlying water right).³⁶

Linking to Instream Flow Protection

From the perspective of competition for increasingly scarce public funds, there is a strong case to be made that irrigation efficiency projects that are designed to provide environmental (instream flow) benefit should receive funding priority. Protecting and improving healthy river flows can provide significant local economic benefit by supporting recreation, tourism and land values. In some areas, using farm bill water conservation programs to address irrigators' needs and also improve flows may also provide more flexibility in protecting fish and wildlife.

While the Farm Bill's 2008 "water savings provision" should result in fewer EQIP projects expanding irrigated acreage with water saved in efficiency improvements, it does not automatically translate into more water in the stream. Without attention to the flows issues during project design, increased on-farm water efficiency could also mean increased consumptive use on farm (through more frequent irrigation or even switches to more water-intensive crops or, in some cases, use of the conserved water by other consumptive users such as cities.)

But, water rights are a complicated state law matter. The case studies indicate that NRCS appears uncomfortable with and, in some cases, unfamiliar with, how reduced consumptive use or, in some states, conserved water, could be dedicated to instream use.

Addressing this issue will require more ground work up front: from NGOs, river interests, state agencies, growers, irrigation districts and NRCS to agree on project objectives and mechanisms for achieving those objectives. Additional investment in monitoring and analysis of projects like some of the AWEPs described in this report, demonstrating how instream flows can be improved without prejudice to the economic interests of producers, could also be helpful.

Watershed-Scale "Initiative"

In recent years, USDA has sought to maximize the benefits of farm bill conservation programs at a landscape or watershed scale. The Mississippi River Basin Healthy Watersheds Initiative is one of the

³⁶ An additional Idaho example shows the peril of moving forward with an AWEP without sorting out these kinds of critical issues. The Portneuf Marsh Valley Canal Company near the City of Pocatello, Idaho received a 2009 AWEP for \$ 18.5 million. The project was designed to slow seepage from an old leaky canal by piping and ditch lining, thereby improving flows on the Portneuf River through the City of Pocatello. Although the water rights transfer that underpins the project (changing irrigation water rights to municipal rights for instream flow improvement and other purposes) was underway when the canal company received the AWEP grant, the court has yet to finalize the change. Without a final court order, the Canal Company has been unable to spend any money because it cannot improve its canals and ditches before it has the authority to transfer the saved water to the City for a different use. As a result, NRCS cut overall funding for the project by one third, to \$12 million. This AWEP may be over before the transfer occurs, revealing a frustrating chicken-or-egg problem with the program timing.

larger such efforts. Focusing on 43 targeted priority watersheds in this vast basin, the MRBI works with farmers and conservation partners in 13 states to reduce nutrient runoff that has caused extensive water quality problems. According to USDA, through the MRBI, NRCS can offer support for a suite of conservation practices promoting water quality, wetland restoration and wildlife habitat while maintaining agricultural productivity.³⁷ Total FY 10 financial and technical assistance funding for MRBI in FY 10 was \$ 32 million. NRCS recently approved \$ 14 million in just CCPI and WREP grants as part of the initiative.³⁸

Could such an initiative be appropriate for the Colorado River Basin and, if so, what would it look like? While it is too early to fully answer that question, some relevant observations can be made at this stage. First, any such initiative should be complementary to existing use of farm bill water conservation programs to address salinity issues. There is no reason for a new initiative to work at cross-purposes with the significant investments being made in salinity control. Rather, coordination and leveraging of various funding sources to meet both salinity control and flow protection/improvement goals would seem more appropriate.

Second, any such initiative has a better chance of securing substantial funding and achieving success if it is designed from the ground up. That means involvement of farmers, irrigation districts, state water agency officials and local and state NRCS personnel.

Third, given the size of the Colorado Basin, any initiative would probably have to first be aimed at priority sub-watersheds. For example, where are improvements in agricultural irrigation practices best aligned with possibilities for improving or restoring flows? Where could such improvements best be combined with invasive species control and riparian restoration?

None of these steps will be easy, but, given the scale and economic importance of water management challenges in the Colorado River Basin, the farm bill conservation programs as a source of funding for necessary improvements cannot be ignored. And using those programs most effectively to achieve multiple benefits is going to be necessary, especially with looming federal budget cuts.

³⁷ For more information, see http://www.nrcs.usda.gov/programs/mrbi/mrbi_overview.html and http://www.nrcs.usda.gov/programs/mrbi/mrbi_2010_annual_report.pdf.

³⁸ <http://www.nrcs.usda.gov/programs/mrbi/mrbi-ccpi-fy2011.html>.