"FLOW FROM FLEXIBILITY"

The Walla Walla Basin
The Water Management Initiative
.
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Introduction

The Water Management Initiative (WMI) is a unique opportunity, which has been presented to the people of the Walla Walla basin. Washington State Department of Ecology (Ecology) Director, Jay Manning, offered the initiative concept on a visit to the basin in 2005. He proposed to the people of the basin a different type of water management, one where the basin would be responsible for their own decisions and their own management of the resources in the basin. The offer had two requirements 1) instream flows had to be enhanced, and 2) any conflicts that would arise would be handled within the basin. In return Ecology would grant flexibilities, within the existing laws to help achieve the above-mentioned points. These flexibilities could demonstrate to the legislature the opportunity to enhance flows for fish if some permanent policy changes were enacted. If some flexibilities were identified as needed components but were not achievable because of the existing code, Ecology could use its existing authority to seek legislative changes to state law for a pilot program for the Walla Walla basin only. The Director also acknowledged that to achieve the ultimate goal of reaching identified instream flows a major storage project would have to be built. We could not reach the target flows with the initiative alone but the initiative would be a representation to the federal funding sources that this basin deserved such a project. In response to this offer the basin decided to enter into a partnership with Ecology to pursue further the notion of "flow from flexibility".

The water management initiative in Walla Walla represents an attempt to recognize the need to use our resources for economic stability but also the need for preservation and protection of critical stream flows and riparian habitats. By identifying both critical elements, economic and environmental enhancements, the basin working as one entity can develop a management system that can achieve both desired goals. This management system will require the application and implementation of cutting edge technology. Integrating these technologies with new flexibilities can demonstrate greater environmental enhancements associated with the policy changes. This can then be used as a model and reproduced for other basins throughout the state and nation.

Background

This offer was extended to the Walla Walla basin because the basin has demonstrated the ability to work together on local issues and find solutions to those problems where other basins have not succeeded. This track record has gained the attention of the state and federal agencies and also has created a very good working relationship between the local people and these agencies. There have been countless numbers of volunteer hours in collaboration with the agencies developing science based conservation plans. These include a coordinated salmon recovery, watershed and sub-basin plan, a bi-state habitat conservation plan and others. These have all contributed to outcomes that both the community and the agencies can live with and have bought into because of the collaborative process used to developing then. This has contributed to "can do" attitude which has lead to some very creative out of the box thinking. It was this creativity and track record, which drew the Director of Ecology to put this offer on the table.

This collaboration has lead to many restoration projects which have already been implemented making progress towards the restoration of the stream flows, fish populations, and the riparian environments in the basin. These projects represent significant financial investment by both the funding agencies and the basin in the use of new technologies to reach desired outcomes. Projects such as the CREP (Conservation Reserve Enhancement Program) program have re-established over 150 miles of riparian habitat. Washington Department of Fish and Wildlife's Cooperative Compliance Program decreased juvenile fish mortality by installing compliant fish screens on over three hundred pump diversions throughout the basin. The irrigation efficiencies program has trusted over 6 CFS (summer flows) into the state trust with many more projects identified to save water. Other projects undertaken by the basin aimed specifically at increasing stream flows using cutting edge technologies include shallow aquifer recharge, and aquifer storage and recovery projects.

Current Situation

The Walla Walla basin is a very unique watershed due to the diversity and location of the area. The watershed (Watershed Resource Inventory Area, WRIA #32) includes portions in both Oregon and Washington. Roughly 2/3 of the basin is on the Washington side with the remaining 1/3 being in Oregon. The Oregon portion of the watershed is the upper region of the basin. This in itself can create cumbersome obstacles to overcome because of two sets of laws to deal with. Another issue at hand in the watershed is the fact that the water in the basin has been over allocated. A result of this over allocation had been the annual de-watering of tributaries and especially the main stem of the Walla Walla River. This problem was alleviated to some extent, for the mainstem, in 2000 by a negotiated settlement agreement between the three largest irrigation districts on the Walla Walla River with US Fish and Wildlife Services to bypass water. This has re-watered portions of the river, which in turn has kept the federal ESA regulators at bay. This re-watering has also lead to another identified problem relating back to the two different states. Water bypassed and protected in Oregon is not protected once it crosses the border and becomes Washington water. Two of the three irrigation districts are in Oregon while the remaining district is in Washington. Many of the smaller streams and tributaries of the mainstem are still dewatered today mainly due to the over allocation of water rights. These low or no stream flows have been identified in all the plans for the basin as a key limiting factor and a threat to ESA listed fish and other species. All these plans identify measures and actions that could improve flows throughout the basin. This information identified in these plans will be useful when the time comes to implement the demonstration projects for the WMI.

Other challenges identified have to do with the organization structure of entities working within the basin. At this time there are eight different organizations performing some type of leadership role. Although the intent of these organizations are always for the betterment of the resources and the people of the basin, many things are duplicated, activities performed are redundant and may at times represent inconsistent messages and activities. This has opened the door for funding agencies and policy makers to ask questions such as: Who speaks for the basin?: Are activities coordinated?: Who is accountable ?: and Are resources being used on the highest priorities? By establishing a

set of needs for the basin, these and other challenges came be taken on and the basin can overcome then. The identified needs are as follows:

- Create local leadership and governance structure
- Formally organize all water users in the basin
- Define target flows and develop mechanisms to create and protect them
- Respond to legal disincentives through added flexibilities
- Set up a dispute resolution mechanism
- Establish performance measures and a tracking system for flow improvements

The flexibilities identified by the basin irrigators which they would like to see addressed through administrative relief or code adaptation could, if granted, greatly augment conservation efforts, including instream flows. Following are several examples:

- Use of surface and ground water conjunctively
- Simplified water right changes that benefit streams and users
- Share conserved water through the use of spreading
- Relief from relinquishment -"Use it or Lose it"
- Incentives rewarding innovation which lead to conservation
- Create a "water bank" within the basin
- Explore shared authority- (joint board of control)

By identifying the needs of the basin, and the flexibilities wanted, the basin has then been able to forward a performance task list which would need to be implemented to make the water management initiative successful. By establishing the first identified need: "Creating a local governance structure" the basin has a mechanism in which the tasks can be accomplished. The identified tasks are as follows:

- Ensure restored instream flows remain in stream
- Expedite water transfers and other water management measures
- Administer a water exchange or water bank.
- Manage agreements between water users
- Adopt and implement local water management policies
- Operate dispute resolution mechanism
- Track performance measures and flows
- Engage in water related economic development

As the basin has moved forward with the Water Management Initiative the governance mechanism has been identified as a major component to the success of the initiative. A very important issue is that of consolidating some of the eight different entities into this organization, thus streamlining many of the processes already in place. It has been delivered from the basin load and clear "Do not create a new organization, there are too many already". Because the basin has been heard, the organizational structure has expanded well beyond performing functions of the WMI. Not only can the governance structure serve to implement the initiative it can also overcome some of the legal challenges and some, if not all of the organizational challenges set forth in this paper. The governance organization could perform functions such as coordinating the implementation of projects, could be the one voice for the basin, be a single conduit for funding agencies, and resolve the bi-sate water issues. If authority was granted to this governance mechanism by the legislature, then Ecology as a partner could "hand off" some of its authority to this organization. This would in essence establish a shared-self governance organization which has some endowed authority from the state to make

decisions on water management within its basin. This organization could then grant some of the administrative flexibilities identified by basin users and seek legislative flexibilities with Ecology as a partner. This allows the local people, who have the most at stake, a say in the decisions which affect their water and it creates an organization which can establish and operate a water bank, and a dispute resolution mechanism. Through the establishment and authorization of the shared governance mechanism, all the identified needs and challenges can be overcome because the tasks can be accomplished. This has focused the work on the initiative into the study of forming such an organization and the subsequent authorization from the legislature. This process is ongoing with the hope to have an organizational structure in place and authorized by the legislature in 2009.

On The Ground Implementation

Using technologies we can demonstrate how existing and new flexibilities can prove to be beneficial to both the environment and the users. A great example is the irrigation efficiency program. This program could benefit greatly by some minor policy adjustments, but it does work now on a limited basis and when it is implemented the results have had tremendous benefit to the environment and the user. The following is an example of a real project that was implemented in the Walla Walla basin.

This is an example of the existing irrigation efficiency program. To qualify for this program an irrigator must have an historical use that is greater than what he needs, usually due to low application efficiency. This creates a trustable component thus, the State is able to lease the saved water portion of the right. The example project is roughly 600 acres and has eight water rights associated with the properties, all eight being surface rights. The Walla Walla River splits the property with the majority of irrigated lands (424 acres) on the southern side. Of these 424 acres, 190 were being flood irrigated through an earthen lined ditch. This ditch contained all waters of a small tributary, which were diverted from the natural channel into the ditch two miles above the property and other waters delivered by a different ditch. In essence the tributary was dried up two miles above the property and all water was delivered to the farm via this ditch. Once the ditch water entered the property it followed the natural contours along the lower edge of a bench for approximately 1 mile where it discharged into a lower pasture never making it back to the river. This is the last property on this ditch but it has two of the most senior rights associated with these waters, and these rights contain stock water rights, hence water always was available to the user and it ran in the ditches roughly 49-50 weeks out of the year.

Of the 190 flood irrigated acres, 129 were converted to low pressure center pivot, another 49 acres were hand line and the remaining 12 acres would not be irrigated. By implementing new low pressure drop style center pivot technology the irrigation efficiency for these acres's changed from 50% to 85% and from 50% to 65% for new hand lines. A new pump station uses variable frequency technology to save more water and energy. Using these percentage numbers (NRCS standard efficiencies), soils information and crop consumptive use data a water management plan was developed with a net savings of 293 ac-ft year, or 1.63 CFS. Due to the complex nature of trust water programs the trustable components are usually less than the total savings. Total trustable components on this project were 257 ac-ft/year and .724 CFS[9]. These quantities were

then trusted by the state. In return for the saved water the landowner received 85% cost share on the project. Total estimated cost for this project was $341,064.00 and was installed on budget. The landowner trusted all 100% of the documented savings.

On the books this project only shows the trusted savings, while in reality true saving and environmental benefit, especially on this project, cannot even be measured. The re-watering of two miles of a known salmonid spawning and rearing area and the elimination of a mile of ditch, running water 50 weeks out of the year, discharging into a field, are not shown as outcomes and are not measurable under this program. One can actually calculate the cost per ac-ft per year on this project (15year lease) but it is truly the un-documented increase to instream flows and riparian habitat that make this project a true win-win for all.

From the outset of this program this owner had been resistant to it. The reason, a complete validity and extent had to be done and he did not want to jeopardize any of his water rights. It was through an educational process that this landowner was shown, first he didn't need as much water as he was using, second all the excess water he was using was costing him money and third his production on his land would go up due to the efficiency of the new technology. This information and the financial incentive was all that was required to entice this landowner to step forward. Now conceive response to this program if some flexibility, such as changes to a water right which result in environmental benefit does not require a complete validity and extent, were granted. This flexibility could open the floodgates to restoration efforts because the fear of relinquishment could be reduced significantly.

Another great example of using precision application, drip irrigation, combined with flexibilities to enhance both economy and environment is the concept of spreading water. Spreading water is defined as using water on ground that is not associated with a water right. Simply put: irrigating land that does not have a water right. In prior appropriation doctrine the place of use is specific and uses elsewhere are illegal. If some flexibility was granted in this area the outcomes could have significant benefits to both the irrigator and the environment. The following is an example, if an irrigator is growing a high consumptive use crop, such as alfalfa hay, 4.5 Ac-Ft/year @ 60% efficient, the potential to convert to a low consumptive use crop such as wine grapes and integrate precision application, drip irrigation, can have a tremendous savings associated with the conversion. In this example the grapes would require 1.8 Ac-Ft @ 95% efficient. The associated 2.7 Ac-Ft savings could then be split between the landowner and the state each taking half. (These are example numbers and are representative only.) The States portion would be trusted to instream use while the landowner would be granted permission to apply the water to other lands which could then lead to greater production from the newly irrigated ground, resulting in economic benefit for the user and environmental benefit for all the citizens of the state. In return for the instream flow contribution a portion of the cost of the infrastructure conversion could be shared by the State, removing some of the economic burden of investment off the user. The establishment of a water bank could be the function used to accomplish the implementation of this flexibility.

One more combination of technology and flexibility would be the implementation of conjunctive use as a practice for water right holders. Conjunctive use is the ability to move from surface water to ground water and back again. The current code does not allow for this because the two sources of water are considered as separate and not

interconnected. If irrigators would increase efficiencies through new technologies creating a quantity of savings as described above, the state could extend this flexibility when the stream flows dropped below the target flows for that particular reach. The irrigator would have a more reliable source of water to base their farming practices and crop rotations and any savings from the efficiency upgrade could be left instream. The final piece to this flexibility would be to implement an aquifer recharge program and recharge the amount of water used out of the aquifer. This recharge could be implemented in the winter months using excess waters, which normally just flow out of the basin. In essence we would be using the existing storage capacity in the ground to help hold the waters for use at a later time. To recharge the shallow aquifers water could be diverted during high flow times, onto the natural alluviums, allowing for percolation into these shallow gravels. To recharge the deep aquifer, all water must be treated to drinking water quality and then pumped back down the actual wells. This process is expensive, but the city of Walla Walla has already invested the infrastructure on five of their deep wells and have been implementing recharge for a couple of years. If the quantities of water used from each aquifer, during times of low flow, were monitored and measured we as a basin could create partnerships with the city to recharge the deep aquifer and with local landowners who's property could be flooded to practice the shallow aquifer recharge.

Another very important concept of the initiative is the concept of water banking. This concept requires all the identified components of the WMI. First you need an organization that can be the bank, then you need water saving technology to generate the deposits of water, then you need the flexibilities to spread that water to other ground. The concept is relatively simple: water is deposited through voluntary purchases, leases or donations. These would come from irrigators and other water right holders. Of the total quantity of water deposited an allocation would be made to the state for instream flows and a portion could be made available to users who want to expand production for that year. The bank could be monitored on a year-to-year basis, hence in low water years no excess water would be available for use, and likewise in a good water year there would be plenty in the bank for distribution to those who were willing to pay the highest for it. This concept is the accumulation of all the discussed points, with the organization being the key component. This is important because at this time only Ecology has the authority to establish water banks, thus this could be extended to the local organization as one of the flexibility granted to the basin.

These are all examples of how the use of water savings technology can be augmented by combining them with flexibilities. Many programs implementing technology exist today without the flexibility portion and most have had marginal results at best. By educating our users on the correct application and use of water, giving them the incentives to make the investments in these new tools and creating the needed flexibilities that can lead to economic benefits; the WMI will increase local stream flows and riparian habitats and enhance local economic stability. Only after the flexibilities have proven to work will the changes to policy be recommended for permanence, and then some that work in Walla Walla may not work in other areas simply due to the diversity between water users and watersheds throughout the state. The model of a local water management scheme could be the reproducible component and the changes to code to gain flexibilities, could be unique to each basin.

Conclusion

Many people and organizations have wrestled with the concept of change but few have succeeded. The bottom line is we have to do a better job of managing the water we have by using such tools as real time data from weather station networks, implementing high efficient application methods and educating users on how to schedule and plan for water use using these tools. By adding the flexibility component to the mix, the WMI, can achieve success were others have failed. The idea of integrating water saving technology with needed flexibilities to generate the positive environmental benefits and keep local economies stable will work because it is a true win-win scenario. By removing the investment barrier, through monetary assistance and displacing the perceived or real threat to relinquishment, through education and added flexibilities we will enable irrigators to once again be the stewards of the resource with out costing them the farm. It is time for this generation to step up and solve this issue and lead not with what we say, but rather in what we do, by creating this new water management system. A system in which local people are responsible for local decisions and everyone has a stake in the outcome. By accomplishing this the WMI can demonstrate that investment incentive combined with flexibilities, managed by local people, can generate the desired outcomes everyone in the west needs.

Resources

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