

**Henry's Fork Watershed Council
Annual Watershed Conference
Upper Snake River Valley Recharge Symposium
December 11, 2012
Meeting Minutes**

The Annual Watershed Conference was held at the Shilo Inn Convention Center in Idaho Falls. The meeting started with welcome and introductions made by the Henry's Fork Watershed Council Co-facilitators: Brandon Hoffner, Executive Director, Henry's Fork Foundation and Dale Swensen, Executive Director, Fremont-Madison Irrigation District. Brandon and Dale explained that over the years recharge has evolved from the "just do it" attitude to actually using the Eastern Snake Plain Aquifer Model (ESPAM) model as a tool to identify efforts of recharge on specific river reaches. There have been debates over state and private efforts to develop recharge programs and who should pay for those programs. While the Eastern Snake Plain Aquifer (ESPA) Comprehensive Aquifer Management Plan (CAMP) has identified recharge as a significant way to improve water levels in the ESPA; there is still not a cohesive, coordinated program in place that rewards entities who are able to recharge nor one that helps relieve those who are under a threat of having their water supply curtailed. This symposium was held because we must identify the roadblocks associated with creating an effective recharge program as well as identifying steps to be taken to remove those roadblocks, whether they are legislative, policy, political, or funding constraints.

Mr. Gary Spackman, Director, Idaho Department of Water Resources, Boise gave a keynote address regarding the Idaho Water Resource Board and how the IDWR is vested with the exclusive authority to appropriate water for managed recharge. Appropriation processes are set forth in Chapter 2, Title 42 of Idaho Code; these processes involve developing policies and procedures for appropriation and use of water for managed recharge that will protect senior water rights while maximizing the use of water for managed recharge.

The History of Recharge was moderated by Sarah Rupp, Water Resources Director, Friends of the Teton River.

The first speaker was **Brian Patton, Chief, Water Planning Bureau, at the Idaho Department of Water Resources in Boise.** Brian briefed the history of managed aquifer recharge efforts on the Eastern Snake Plain Aquifer.

- 1962 recharge efforts started when the U.S. Bureau of Reclamation (BOR) looked as using the aquifer as a water storage system to provide irrigation and flood control benefits,
- 1970-1974 the Idaho Water Resource Board (IWRB) started a pilot recharge project in St. Anthony at Egin Lakes under a temporary water rights permit; Egin Lakes is still used today as part of the FMID IWRB recharge program.
- 1978-1980 the Legislature created the Lower Snake River Aquifer Recharge District (LSRARD). The initial plan proposed by LSRARD was to develop recharge basins at numerous locations along Northside - Milner-Gooding, and Big Wood canal systems. LSRARD's small assessment base, primarily the Hagerman Valley, limited its effectiveness; but the acquired water right permits for recharge go back to a 1980 priority date and as a result, the Shoshone recharge site was constructed. LSRARD continues to be valuable partner.
- In 1981 the IWRB recognized potential conflicts with hydropower water rights and worked on the IWRB Upper Snake Recharge Report. The Estimated costs for developing Egin Lakes site into a large-scale recharge project were \$579,000 (1980 dollars) for a 400 cfs project or \$12 .1 million (1980 dollars) for a 2,000 cfs project. The Study did not look at Blackfoot-Idaho Falls area due to the short return time of water to the Snake River nor did it look at the Thousand Springs area due efforts to create recharge district for that area.
- 1995 – 2000 timeframe included the IWRB & WD01 Program. The 1995 Legislature appropriated \$945,000 to the IWRB for recharge. IWRB delegated the program to Water District 01. Funds were used to pay delivery costs for running recharge water through canals and to lease storage water from a rental pool.

In addition, natural flow diversions for recharge were made under the irrigation water rights of the participating canals. During the 1995-2000 WD01/IWRB recharge effort it became clear that water rights for recharge needed to be clarified. In 1998 the IWRB applied for 20 water rights for recharge from the Snake River, but applications were put on hold due to protests from environmental groups, Fish & Game, Bureau of Reclamation, Idaho Power, and others. Due to the inability to make full beneficial use of its water right permits for recharge, LSRARD conveyed water rights 01-7054 (1,200 cfs) and 37-7842 (800 cfs) to IWRB in 1999. The IWRB issued an ESPA Managed Recharge Feasibility Report in 1999. The report evaluated the feasibility of implementing managed recharge. Various scenarios were evaluated for different parts of the ESPA in regard to water level and spring discharge responses. Ultimately, the report over-estimated infiltration rates and under-estimated construction costs.

- In 2001, Legislature appropriated \$60,000 to IWRB for Sugarloaf Recharge Site. The site was located on North Side Canal system. Appropriation was for diversion works to the basin. Based on anecdotal evidence, the 1999 Recharge Feasibility Report estimated the basin at Sugarloaf would take 400 cfs. IWRB contracted with North Side Canal Company to construct the diversion works, however, the basin only took a few cfs. This project changed the way of thinking on how the infiltration capacity at other proposed sites is evaluated.
- 2005 held more Legislative Actions, HCR 28, HB 373, and HB 392 was passed; among other actions, these pieces of legislation directed the Idaho Water Resource Board to sponsor and fund managed recharge programs.
- 2006 started the IWRB Recharge Effort. In the spring of 2006, the IWRB recharge rights from the Snake River and Wood Rivers came into priority, due to conflicting conditions on the Snake River recharge water right permit and the Milner Dam hydropower water right permit, the recharge water right was administered as if it was junior to Milner Dam hydropower. The IWRB asked a number of canals to divert this water into their canals for seepage into the aquifer. Approximately 38,000 AF of recharge from the Snake River and 22,500 AF of recharge from the Wood Rivers was accomplished (60,500 AF total). Due to concerns by the canals about costs incurred for running the IWRB's recharge water, the IWRB committed \$150,000 to pay delivery fees in 2007, but the recharge water rights did not come into priority again until 2009.
- 2007 began the IGWA Mitigation. IGWA and others acquired 29,500 AF of storage water through the rental pool to provide part of their required mitigation in the Thousand Springs area; they ran it through the North Side canal system during fall of 2007 for seepage to the aquifer.
- In 2008-2009 came the W-Canal Managed Recharge Pilot Project by IWRB. This was a pilot project to test various ways to get recharge water into the aquifer which was done in response to disappointing infiltration rates at the Sugarloaf Site. This project was located off the North Side Canal near Wendell. Some of the findings included: the best-case infiltration for soil-covered site is ½ foot/day and that injection wells can be made to work at almost any site but permitting and monitoring costs increase exponentially with increasing population in area, rivaling the cost of new reservoir storage.
- 2008 the Milner Hydropower License was issued. Water right license issued for Milner Dam Hydropower Project by Director Tuthill. Decision clarified that hydropower generation at Milner Dam was subordinate to managed recharge diversions at or above Milner Dam, due to conflicting conditions on the Snake River recharge water right permit and the Milner Dam hydropower water right permit, recharge was administered as if it was junior to Milner Dam hydropower until this licensing decision. Various legal actions continued until 2010, but Director's decision was upheld.
- 2009 -ESPA Comprehensive Aquifer Management Plan. CAMP adopted by the Idaho Water Resource Board, approved by Legislature, and signed into law by Governor as part of State Water Plan. Includes average annual targets for managed recharge of 100,000 acre-feet/year for years 1-10, and 250,000 acre-feet/year after year 10 and also includes other aquifer management strategies: GW-SW conversion projects, Demand reduction, and Cloud seeding. Although proposed CAMP funding system was not put into place, much progress has been made with the assistance of federal government, local water users, and Idaho Power on a project-by-project basis.

- 2009 - Swan Falls Re-Affirmation Agreement. Agreement between State of Idaho and Idaho Power Company that confirmed the ESPA managed recharge is allowed under the original Swan Falls Agreement. The agreement placed limits on amount of recharge based on ESPA CAMP: Average annual of 175,000 AF through 2018 and Average annual of 250,000 AF beginning in 2019. Requires Water Board to approve recharge projects proposed by others, requires state to assist Idaho Power in rate proceedings before PUC if recharge diversions lead to reduced hydropower generation and higher energy rates. If Water Board proposes to increase recharge beyond these limits legislative approval must be obtained – public policy decision regarding diversions from river vs. maintaining river flows for hydropower generation. Signed by Water Board, Governor, and approved by Legislature in 2009.

The next speaker was **Brian Olmstead who is the Manager of the Twin Falls Canal Company**. Brian talked about recharge efforts of the Lower Valley Irrigation Entities. Under Title 42 – Irrigation and Drainage – Water Rights and Reclamation, Chapter 42 – Ground Water Recharge (a.k.a. GW Recharge Statute); the legislature approved the Lower Snake River Aquifer Recharge District (LSARD) as a pilot effort to bring about maximum realization of our water resource potential. In particular, the hope was that this project would serve the interests of the public and advance the multiple use water policy of this state by accomplishing the following: sustaining and increasing the flow of springs in the general vicinity of the Hagerman Valley; increasing the water available for withdrawal from ground water basins located in Jerome, Gooding and Lincoln counties; supplementing the supply of water available for irrigation downstream from the Hagerman Valley; providing additional aquatic habitats for migratory fowl and wildlife; and increase/sustain the flow of the Snake River during the summer months and in times of drought when additional flow is needed for the generation of hydroelectric power and the maintenance of water recreation facilities. The history of the LSARD contains many milestones regarding statutes being set, recharge rights being filed, and LSARD being formed; all aspects of that are important to recharge efforts.

Greg Hirai, Chairman, Lower Snake Aquifer Recharge District in Wendell was unable to attend the symposium. In Greg's place; Linda Lemmon from the LSARD spoke on the recharge efforts of the Lower Valley Spring Users. The LSARD is a group of individuals who petitioned for both ground and spring water rights under the 1978 GW Recharge Statute. Recharge efforts include monitoring the water constantly to insure uniform water standards.

The final speaker on the History of Recharge was **Mike Rasmussen, President, Egin Bench Canals, Inc.** from Rexburg. Mike discussed recharge efforts of the Egin Bench Canals which includes 30,000 acres of ground irrigated northwest of St. Anthony to the Menan Butte. This canal system has been in place since 1885 and is the majority shareholder in the North Fork Reservoir Company which owns Henry's Lake. Within the course of the past 3 years, they have worked closely with the Bureau of Land Management (BLM) to lease more land for recharge efforts. A major goal of this organization is to support recharge and replenish the aquifers.

Water Administration and Fish and Wildlife Concerns; moderated by Brandon Hoffner, Executive Director, Henry's Fork Foundation.

The first speaker was **Tom Bassista, Environmental Staff Biologist, Idaho Department of Fish and Game located in Idaho Falls**. Tom talked about some of the ecological impacts potentially associated with aquifer recharge and about the myriad of benefits of aquifer recharge. He also expressed a desire to keep all involved parties, somewhat grounded, and make sure they are aware of the environmental consequences of actions - as we all work to enhance our water resources and natural environments. Tom quoted Theodore Roosevelt, "Fish and wildlife are property of all citizens; we must preserve, protect, perpetuate, and manage all fish and wildlife in America." This quote is the basis for Idaho Code 36-103 (a). He went on to say that we all share a common bond to see wildlife and our natural ecosystems protected and sustained as much as possible. On a regular basis our ecosystems are challenged from all sorts of human developments; granted, most of which, are absolutely

necessary for our society to survive and thrive. Fortunately, those before us had the foresight to write laws in the name of the natural environment which is the Idaho Department of Fish and Game's most critical mission. The Recharge Symposium's main goal is for all involved to learn and explore the concept and practice of aquifer recharge. Tom's recommendation for those who are moving forward with recharge projects is that all be aware and sensitive to the ecological costs associated with diverting additional water out of our river systems. Concerns for fisheries, wildlife and their habitats originate when we start to examine the ecological consequences of aquifer recharge. We all need to be on the same page, water for recharge efforts must be diverted (via a legal water right) from one of our river systems and recharge should occur at a developed point of diversion identified in a water right. Also noteworthy, is the fact that all recharge water right applications have sought year-round use, though it is unlikely that recharge would occur year round, the applications have not been specific in when water will be diverted. The challenge, as a Fish and Game agency, as a water quality agency, as a water resource agency, or as a non-profit conservation organization is to best explain what the ecological effects may be while still developing a plan to replenish the aquifer and sustain our water resources and natural environments. Tom went on to explain the fundamental ecological issue with aquifer recharge: lower river flows than what is naturally or already occurring. And with that fundamental issue we can formulate basic questions, such as: What are the impacts of lower river flows to fish, wildlife and habitats? How does less water in a river system affect society that is dependent on that river system? Fortunately, Mother Nature has provided some insight into these questions when we look at natural low flow periods or drought conditions. Unnatural low flow conditions typically do not fare well for nature or society. Tom discussed three significant water seasons and their effects of the environmental conditions of a local river system. The first season is the late fall, winter and early spring season. Based on available information this is also some of the most vulnerable time for fish and wildlife, especially in the dead of winter. This is our non-irrigation season, with some reservoir storage occurring in certain years. Our river systems are at low or base flows, so from a river habitat perspective there is already a lot less water available for fish and waterfowl. There is generally a decrease in side channel and backwater habitat, which are both very important to young fish and waterfowl, and as the winter drags on and the colder it gets we start to observe icing, which takes away more available space for fish and especially waterfowl. There is recharge demand during this time frame and it is recommend we coordinate recharge efforts closely and try to avoid during our peak winter months. Any additional water diverted during this time of already low flows is inherently risky. For fish there will most likely be added stress and mortality on our small, young of year fish. For example, in the Box Canyon on the Henrys Fork, we statistically see an increase in abundance of Age-2 rainbow trout in winters when we have higher flow. Though not all river systems and fish populations are created equally, this is certainly noteworthy. Another point is the question of entrainment. Entrainment is essentially the loss of fish into a canal. If recharge were to occur in the winter there would likely be some element of entrainment. Since most canals currently do not divert during the winter we really don't have a good sense of what kind of entrainment losses we could see. Additionally, we would also expect impacts to waterfowl. Eastern Idaho winters tens of thousands of ducks, geese and of course the magnificent trumpeter swan. Lowering already lower flows would contribute to the loss of open water habitat. This of course would be exacerbated by the severity of the winter. During the winter of 1988/1989 there was a significant looming threat to trumpeter swans in the Henrys Fork. Luckily it was avoided by everybody collaborating and finding a way to release stored water from Island Park reservoir. Given the risk of diverting water during our winter time periods, it is recommend that we try to avoid it. The next season to discuss is the spring. April through June brings the start of irrigation season along with the onset and peak of spring run-off. From a river function standpoint, these high flows are your channel forming flows, moving gravel bars, eroding banks, moving and redistributing sediment and woody debris. This is the time for the river to reconnect with its floodplain, adjacent wetlands and backwater sloughs. High flows are essential in maintaining cottonwood forests and sorting spawning gravels for the trout. This of course is also the time frame where there is an interest in aquifer recharge. If we were to see more and more canals open their head gates there is likely some unknown additive fish loss to entrainment. From a wildlife perspective there is very little, if any impacts from recharging during high flows. But the bigger impact is the potential to remove or temper the peak flows from the hydrograph. And by consistently removing the peak flows from the hydrograph you lose all the benefits, mentioned previously, from high water events, mainly floodplain connectivity, rejuvenation of cottonwood forests and redistribution of spawning gravels. In some cases, like in healthy Yellowstone cutthroat

trout populations you could see shifts of native fisheries to non-native fisheries. Simply because those non-native fish, like rainbow trout, perform much better in a river system without peak flood events. The final season to look at is the July through October time frame which is the peak irrigation demand. During this season, flows in certain systems are generally higher, than what would be found naturally, air temperatures are very warm and it is probably safe to say that every diversion is running at capacity. From an ecology standpoint, as with our crops, riparian vegetation and aquatic plants are growing. There is a lot of insect activity and fish are aggressively feeding and growing. Given the demand for irrigation water and water right laws, there is very little interest for recharge during this time frame, and incidentally with all the water running through canals, there is already recharge occurring. If recharge were to occur during this time period, there is a likelihood of increased fish entrainment; there is also the risk of diverting too much water and running into water quality issues, like increases in water temperatures and decreases in dissolved oxygen levels, which could lead to fish kills. Generally, we assume a low risk to waterfowl and other wildlife. Basically, any additional water diverted during this time frame could have marginal to severe implications, depending on the river system. In summary, given our excellent fish and wildlife resources there are obviously better locations than others to do recharge. As you identify recharge locations you must consider what natural resources are there. Fish and Game and partners are here to help with that. Given a quick look into the biological conditions for each season it should be obvious that timing of recharge can have significant ecological consequences on fish, wildlife and habitat. And finally the quantity of water that is being sought from our rivers can have grave consequences on our natural resources. The last two points Tom made were: 1) Knowing that location, timing and quantity along with the biological knowledge of a given river reach has the potential to impact natural resources; perhaps having a recharge program with numerous points of diversions and flexibility for year round diversion is the best case scenario, and 2) By having flexibility to move and diversify water diversion based on the current water, climatic and fish and wildlife conditions I propose that in order to really make this work, while being sensitive to wildlife of course, we need collaboration of knowledgeable people bartering when, where and how much on a regular basis.

The next speaker was **Tony Olenichak, Program Manager, Water District 1 from Idaho Falls**. Tony talked about the effects of recharge on water right allocations. Tony started out by emphasizing the importance of recharge. Ground water rights have allocations and these rights are regulated according to priorities. Rights are filled for senior water rights allocations before recharge efforts. Models are important to predict the amount of water that will return and can help to possibly reserve some water for junior users. Tony also talked about reservoir refill, summer recharge that occurs naturally and how beneficial conservation is for fish and wildlife. We need to have a 10-year plan that will maximize the water shed capabilities, increase water available and incorporate storage programs to help in drought years. Now is the time to look at how we are going to handle continuing increases in water use and how we can still continue to replenish our aquifers.

After the morning break, sponsored by Fremont-Madison Irrigation District, the next session began.

Impacts of Recharge, Local and ESPA-Wide. Roger Warner, Vice-President, Rocky Mountain Environmental in Idaho Falls was the moderator.

The first speaker was **Mike McVay, Technical Hydro Geologist, Idaho Department of Water Resources in Boise**. Mike discussed Allocation of Managed Recharge Impacts – ESPAM2.1 and the prioritization of Aquifer Recharge Sites Based on Hydrologic Benefits. The long-term objective of the [ESPA Comprehensive Aquifer Management] Plan is to incrementally achieve a net ESPA water budget change of 600 thousand acre-feet annually.” Dr. Gary Johnson was asked to evaluate recharge sites in an effort to prioritize IWRB managed recharge. The “Johnson Recharge Site Evaluation Model” was set to recharge each site at 100,000 AF/year; the model was run in Superposition Mode and represented recharge as direct injection into a regional aquifer. The exaggerated rate allows illustration of aquifer behavior that is independent of diversion capacity and does not include transmission losses to discrete sites. The value of Modeling Continuous 100,000 AF/year recharge at individual sites for ranking managed recharge sites is that it is a good way to *illustrate* the effects of managed recharge. The large, constant stress allows us to visualize how the aquifer responds to recharge; regardless of

diversion capacity which may be misleading as to the ability of a site to *accept* recharge. The Model can predict favorable aquifer storage benefits at sites that do not have the physical capacity to place large amounts of recharge into aquifer storage. Additionally, the model has not been given any information about land surface; we must remember we are the brain, the model is the tool. In the areas where the model predicts water-level changes that are at or above land surface, it is important to remember the model is not wrong – it is telling us the recharge capacity. Mike concluded with the following points: where to recharge depends on goals of recharge; continuous 100,000 AF/year analysis is a good first step it allows us to visualize aquifer behavior, we need to think about what the model is telling us; and additional analyses are necessary in regards to recharge capacity, local conditions and realistic scenarios (recharge duration and rate).

The second speaker was **Bryce Contor, Senior Hydrologist, Rocky Mountain Environmental in Idaho Falls**. Bryce talked about the cumulative effects of recharge using Egin and Mile Post 31 recharge sites. These two recharge sites were modeled with the ESPAM 2.0 transient superposition. The three key points in talking about the effects of recharge was staying power, where is very important and how fast can recharge occur.

Next, **Gary Johnson, Assistant Director, Idaho Water Resources Research Institute, Idaho Falls** talked about out of basin impacts related to ESPA recharge. Gary explained that aquifer recharge is a chain reaction, meaning that the aquifer is not the final resting place of recharge water. The ultimate fate of recharge water is that it is temporarily stored in aquifers and reservoirs; ultimately some recharge from Upper Basin Sites gets re-diverted and re-recharged. Benefits of the Chain Reaction includes: increased aquifer water levels distributed throughout the aquifer and over longer periods of time (reduced pumping cost); supplemental discharge for springs and river gains distributed over a larger extent and over longer periods of time; and same water may benefit multiple non-consumptive uses. Chain reaction significance depends on water use and water supply conditions. There was a question on whether the model indicated how much recharge is needed to meet goals? Gary responded in saying that they have not run that specific scenario, but they do know, with the models that have been run, that the aquifer benefits significantly in early stages and in drought years, water can be stored closer to the river as in non-drought years, the water can be stored further away from the river. Since the 1950's, aquifer storage levels have been continually depleted and studies have shown that 1.8 million acre ft. is going past Milner; this depletion is caused largely by the increased water usage and not enough recharge efforts.

The final speaker before lunch was **Edward Hagan, Ground Water Program Manager, Idaho Department of Environmental Quality in Boise**. Edward talked about managed recharge plans and policies that are designed to protect ground water quality. The policy of the state of Idaho is that any program designed specifically for the artificial recharge of ground water, existing or proposed, be consistent with the policies and management objectives for water quality and quantity.” Since artificial recharge has the potential to significantly impact the quality of ground water, DEQ has been directed to work cooperatively with other state agencies, to develop guidelines, management practices and rules to insure that artificial ground water recharge projects comply with the Ground Water Quality Plan. DEQ's role is to approve the ground water quality monitoring plan for land application or recharge water and ensure that the monitoring plan must be adequate to identify if the recharge activity is degrading ground water quality and adversely affecting a beneficial use, such as a drinking water wells and potentially threatening human health.

After the lunch break, we heard from **Jerry Rigby, Attorney, Rigby, Andrus & Rigby, Chtd., in Rexburg**. Jerry discussed some of the history behind legal framework and constraints of recharge. Recharge has been declared by Legislature to be very beneficial. Incidental rights have been granted and some water rights have been diverted. Senior users still have priority. The boards' position is that Idaho is way behind with managed recharge. Recharge policies focus on careful planning and prudent management of Idaho's water. The purpose of these policies is to encourage water conservation practices and manage the use of water resources for the benefit of all Idaho citizens consistent with the prior appropriation doctrine, as established by law. Conservation should be implemented through voluntary, market based programs, when economically feasible. Conservation practices should be given priority consideration for increasing water supplies.

Current Efforts moderated by Randy Johnson, Project Manager, Forsgren Associates in Rexburg.

The first speaker was **Dale Swensen, Executive Director, Fremont-Madison Irrigation District (FMID), St. Anthony.** Dale discussed the FMID recharge water right application that has been submitted. The objective for filing this application was go on their own, which gives the opportunity to provide mitigation; this mitigation will be funded with private dollars with no additional tax dollar support. By obtaining their own water rights; it is expected to some give leverage for keeping water within their own water district. There are 40 canals in the district with 10 or 12 participants in this program. The basis of application has been filed and protested by numerous organizations. They are awaiting the final outcome of final processes.

Steve Howser, Manager, Aberdeen-Springfield Canal Company from Aberdeen was the next to speak on the 2011 Hilton Recharge. Steve described the Hilton recharge effort as 97 acres, 10 feet deep and 200 cfs. There is still much work to be done including some bank work required around the old dikes. Slides showed GIS modeling on contoured maps. The water table reaches minimum around April first, right before the water is released into the canals. Steve left us with a few thoughts, growth controls everything, water runs downhill, and one man's waste is another man's right.

The next speaker was **Roger Warner, Vice-President, Rocky Mountain Environmental in Idaho Falls.** Roger talked about the Recharge Alliance Incorporation (RAI). The Corporation exists under and by virtue of the laws of the State of Idaho as a nonprofit corporation for the purpose of appropriating, acquiring and holding water rights for the diversion of the public waters of the State of Idaho, utilizing natural flow or storage water held or diverted by others, the storage of any and all of such water for recharge of the Eastern Snake Plain Aquifer to provide a source of water for mitigation as may be required by the Idaho Department of Water Resources of any individual, entity, or organization, and the construction, owning and operating of such diversion and recharge facilities, canals, pipelines, and other conveyance structures and measuring devices as may be deemed proper to carry out the purposes of the Corporation. Water supplies are not always sufficient, so junior ground water rights are in danger of being curtailed and new rights must be mitigated. The purpose of the RAI is to develop, implement and maintain privately funded and managed programs and projects, in partnership with public entities, to deliver recharge water to the Eastern Snake Plain Aquifer from the Snake River to enhance aquifer levels and discharge to the Snake River at strategic locations and to develop a market for the resulting credits. In the future, in order to enhance existing projects and develop new ones, we will need to develop Public and Private Partnerships; with each bringing their own expertise, knowledge, etc.

Next, **Dean Stevenson, Board Member, Idaho Ground Water Appropriators from Paul** talked about the Minidoka Recharge Project. This project consists of 40 acres of State land within 4 feet of on the level to the reservoir and at least 1 mile from any wells. Injection wells should work since the distance from the reservoir is 2700 feet. The objective is not to affect ground storage but to pick-up water that would normally go past Milner; the key is to figure out the timeframe when the water is available. It is not anticipated to impact storage in the fall or interfere with winter water rights. The thought is to possibility divert 125 to 150 days per year. This project will give the opportunity to take advantage of wet years by storing additional water; this is water that will not flow back into the reservoir. Some additional problems for this project could be laying 800 feet of pipeline that would require access to be built across a Fish & Wildlife Refuge, and also a pump shed will need to be built.

The final speaker for Impacts of Recharge was **Brian Patton, Chief, Water Planning Bureau, Idaho Department of Water Resources out of Boise.** Brian spoke about the Water Resource Board's goal is to stabilize aquifer levels that have lost 12 million acre feet since the 1950's. Some aquifers have the capability to retain water for a longer time than others do...it makes sense to put water where it will be preserved for a longer period of time. We must figure out ways to capture surplus water, but we must also realize that the ability to utilize all the water has limits. We do not want to impact reservoir storage. Some things to consider are water right priorities, and location matters in the practical effect for recharge. A question was posed, "How does Water Board accomplish recharge?" Brian responded that we have contracts with canal owners – there are a

total of 11 different canal systems. Current managed recharge program activities include: preparing for 2013 operations, building the Mile Post 31 recharge site on the Milner-Gooding Canal in order to increase recharge capacity in the Minidoka-Milner reach, using ground water modeling (ESPAM2.1) and aquifer monitoring, together with surface water availability, to prioritize recharge locations to meet state's goals, moving forward with pending water right applications to allow ability to meet post-2019 goal of 250,000 acre-feet/year average, and continuing long-term work on developing reliable funding source.

After the afternoon break, sponsored by Rocky Mountain Environmental, the final session began.

Perspectives on the Future, moderated by Dave Tuthill, Founder, Idaho Water Engineering, LLC, from Boise. Dave facilitated discussions on project that will improve the capability of managed recharge to resolve water management issues on the ESPA.

Hal Anderson, Managing Partner, Idaho Water Engineering, from Boise was unable to attend the symposium. In Hal's place; Roger Warner from Rocky Mountain Environmental, spoke on privately managed recharge projects. The main goal is to mitigate negative effects down to zero. Store water around Rexburg for Rexburg City's use – this storage has effects outside the city – mitigate effects for Idaho Falls – in mitigation plan. Sugar City affected by spillover of population in Rexburg. Water quality issues a concern – Industry & Economy dependent upon conservation.

Roger Chase, Vice-chairman, Idaho Water Resource Board from Pocatello spoke on the State of Idaho perspective on publically managed recharge. Roger outlined the legal framework for managed aquifer recharge, including goals for annual average recharge that have been incorporated into Idaho law. He talked about some of the challenges and considerations of conducting large scale recharge, explained a few of the not insignificant realities of recharge, and tried to bring into perspective the scale of water that will be required if we are serious about achieving the managed aquifer recharge goals as currently identified by our State Water Plan. Roger emphasized that Managed Aquifer Recharge on the Eastern Snake Plain is a Policy of the State of Idaho. He discussed the importance of showing the framework and underpinning of support for the policy by implementing, managing and conducting organized managed aquifer recharge. The significant decrease in aquifer storage has contributed to much of the water use conflicts in the ESPA. It has also contributed to the development of the ESPA CAMP and provided the impetus of its primary objective which is a net annual increase of aquifer storage of 600,000 acre-feet. We need to be in a position to recharge substantial volumes of water when surplus flows are available. If we are serious about meeting the goals established by our State Water Plan we need to be thinking about recharging very large volumes when the water is available to make up for years when it is not, diversion rates on the order of 12-19K cfs, and recharge locations throughout the ESPA to give us the flexibility and capacity we are going to need are necessary

Brian Olmstead, Manager, Twin Falls Canal Company/Dean Stevenson spoke on perspective of other lower valley interests. He expressed that we need to maximize storage capability and that flood control releases comes out of storage for canals. In order to stabilize the aquifer; a source of funding must be created, possibly offer economic incentives. Natural flow rights are used by canals. We all need to adapt to changes.

Gary Lemmon, Director, Lower Snake Aquifer Recharge District from Hagerman spoke on other lower valley interests. One of the key aspects of recharge and stabilizing the aquifer is State and Federal funding programs. Canal owners have worked to keep the water flowing and continue to foster good relationships with all water entities. Site selection continues to be important; LSRD is a key aspect in searching for new storage sites. From a spring user perspective, he has witnessed water declines from the 1950's; there has been a great decline in the water volume and in some cases; some springs have dried up completely. The ground water rights system is broken; we have to be very cautious about new rights, difficult to administer in years of drought, and conflicts with senior users rights. As water users, sometimes we hold onto only our views, we need to learn to compromise. We all have a big task ahead to stabilize recharge.

Peter Anderson, Staff Counsel, Idaho Water Project, Trout Unlimited from Boise spoke on fish and wildlife perspective. The future of recharge means that we have to adapt. In the past few years we have transitioned into a more of a desert type environment; we continue to compete for the water that is available. The ESPA CAMP was a big program, but it fell apart due to lack of funding. We need to optimize environmental results by working side by side on issues; such as keeping fish out of the canals. Non-profit, environment groups are able to obtain funding to accomplish many important projects, such as: screening, fish ladders, the Hazleton Butte conversion, etc. Climate variability continues to make the largest impact, our largest storage is the winter snowpack; if the water is released slowly, then it can be better utilized; otherwise if it warms up too quickly in the spring much of the water is lost because there is not large enough storage to capture the runoff.

Mr. Steve Bair, Legislator District 31, Idaho State Senate, Vice Chairman Resources and Environmental Committee from Blackfoot, gave a legislative perspective on managed recharge. Recharge is the tool to stabilize the aquifers. Funding is an issue due to priorities set forth on balancing the State budget, but it is also recognized that water users need funding; an estimated \$1.5 million for recharge efforts. The good news is that smaller projects are happening because of trust in one another – we have learned that sometimes we have to put our own issues aside and work together to accomplish common goals.

Below are the results of a discussion/brainstorming session that was held at the end of the Symposium:

1. Materials will be available on line by January. We will try to get PowerPoint's on HFWC website, send any additional thoughts to julie@henrysfork.org.
2. Thanks to HFWC.
3. In Ashton we have #1 Seed Production area and #1 Trout Fishery. By working together we can maintain both.
4. Collaboration and consensus building is important. We can't re-formalize CAMP but can we convene some kind of process to come to consensus about what should be in the recharge legislation.
5. The biggest thing is that we can't weaken. We can't let someone else take care of it. We just have to keep at it. It has to start here, from us.
6. If Idaho is going to have economic growth there has to be water available for economic growth and industry.
7. People come from all over to this area to visit and experience all we have to offer; they spend money and return home. We have to fight to preserve this.
8. While we need to not weaken, it is important to put to rest some issues.
9. Relaxed transfer policies could mitigate need for "new" water.
10. With the aquifer model we now have the accounting mechanism to assign costs to beneficiaries and bridge the gap that was identified in the 1960s. Use today's model now; adopt the new one when it is issued.
11. As a community and state we have new uses that we need today, and we need to move forward. We can't put a stick in the sand and say we can't move forward.
12. It is not a pipe dream in our sister states; it is now a mechanism of administration. We don't have a closed basin like they do but we have an aquifer model that can be used with debits and credits to administer.
13. HFF is fully on board with the goal of collaboration. If we look at modeling and legislation, it is possible that something like the HF drought planning process can meet needs for recharge. Look at short term needs and long term projections.
14. An email sent in by Marie Callaway Kellner, Water Associate. In making these comments, I represent the Idaho Conservation League and its 20,000 supporters across the state. ICL welcomes the opportunity to be part of the process which will craft Idaho's recharge policy. A big thank you to the Henrys Fork Watershed

Council for hosting this conference and for opening up a state wide dialogue. To reiterate a point made by Mr. Olmstead, when pursuing recharge we must maximize *sustainability*, not maximize development. Sustainable water management includes instream water for fish/aquatic habitat, water quality, recreation and aesthetics as well as out-of-stream diversionary uses for agriculture, irrigation, industry, municipalities and domestic purposes. Recharge policy and practices should encompass protection for *all these* water uses. To achieve this protection, maybe recharge water rights should be accompanied by instream flow rights? This would require alterations to how we currently issue instream water rights. Additionally, ensuring water quality should be an utmost priority in conducting recharge. We learned that DEQ monitors recharge; however, do DEQ's rules and regulations need to be revisited in light of the scale of recharge that is anticipated? Should recharge continue to be considered wastewater? Does it need a set of rules/regulations all its own? How should we divide the cost burden for monitoring? I don't have answers to these questions yet, but wanted to throw them out as part of the dialogue. Finally, to echo the sentiments of so many at the conference, the Idaho Conservation League hopes that developing recharge policy for the state will be a collaborative process and we'd like to be a part of that discussion. Thanks again for all the work that went into organizing and hosting the conference! It was a great day and provided a positive environment to discuss an important topic.