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SHASTA RIVER DAM REMOVAL BENEFITS ALL

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December weather in the Shasta Valley of Siskiyou County California can vary greatly. One day might bring azure blue skies, t-shirt temperatures, and clear views of snow clad Mt. Shasta, a short 25 miles to the south – the kind of day California is famous for. The next, however, could resemble what most think of when they think of winter: steel gray skies, snow flurries, and an unrelenting wind that keeps you from lingering. This afternoon, as Amy Hansen of the Shasta Valley Resource Conservation District (RCD) and I head east from Yreka, it is raining steadily and a cold gray mist hangs over everything.



Removal of the Araujo Dam (Oct 2007)



The Araujo Dam on the Shasta River.

As we drive down the final grade on route 3 and the valley opens up before us, I am glad that I tucked my rubber boots in the back of the rig.

We are on our way to visit the site of the Araujo Dam, one of a handful of small “flashboard” diversion dams installed every summer on the Shasta River. In October of 2007 the dam was replaced with as a boulder weir/pumping system, which serves as a way to remove water from the river while maintaining fish passage and improving water quality. The project is part of an ongoing effort by the Shasta Valley RCD to work with landowners and government agencies to help improve overall water quality while ensuring ranchers stay in business. It is a



Shasta River watershed a sub-watershed to the Klamath River Basin.

project that represents a “win-win” situation for the ranching community, the government agencies, and the health of the river itself.

The RCD is addressing river health by beginning to replace the small “flashboard” irrigation dams traditionally used to divert water to adjacent pastures with fish friendly water pump systems. With these new systems in place, river flow will be restored and so will salmon populations - *at least that is the hope*. As of the spring of 2008, the first dam to be replaced, the Araujo Dam, is now in operation. Although it has required a change in irrigation methods, the ranchers involved in this project still have access to their adjudicated water right and the river now flows freely. It is a project that represents a “win-win” situation for the ranching community, government agencies, and salmon.

for the whitewater rafter, scenic waterfalls to gawk at, or county parks that allow access to picnic tables and barbeque pits. That, and the fact that this river does not follow any roads closely, puts it out of the minds of most - most, *but not all*. For the ranchers and other residents of the valley who live near the river, it is the irrigation lifeline that allows them to maintain their livelihood.

However, the Shasta River is also a lifeline for Coho and Chinook salmon, and numbers have been in a steady decline for decades. It is a critically important spawning stream for both of these species, and as recently as 1964, it supported a spawning escapement of 30,700 Chinook. Sadly enough, those numbers have eroded over the years, and in 2006 only 789 adults were counted. While there is no long-term data for Shasta River Coho, the 2007/2008 run showed a decline of roughly 33% compared to the same cohort in 2004/2005. The decline is due, in part, to river conditions that have been degraded by the ongoing use of flashboard dams. With dams blocking the upriver migration of spawning adults and the seaward passage of juveniles, coupled with increased mortality rates due to eroding habitat, the populations have

The Shasta River is a humble tributary to the Klamath and lacks many of the features that might capture the public’s attention. There are no rapids



Salmon in the Shasta River.



Motor drive fish screen designed to protect fish from irrigation pumps.

begun to dwindle dramatically. Besides serving as impediments, the dams also slow the speed of the river flow, which increases river temperatures and decreases dissolved oxygen levels, creating potentially life-threatening conditions for the fish. Considering this, it is a wonder that any salmon remain at all. The Shasta River, however, has been endowed with numerous cold-water springs, which, despite all of the forces working against the salmon, have helped keep river temperatures low enough to sustain a small returning population. That, and the fact that the flashboards are removed when not in use, has allowed small populations to survive, but because of the catastrophically low returns, the Southern Oregon and Northern California Coastal (SONCC) Coho salmon is currently listed as “threatened” under the California and Federal Endangered Species Act, and state and federal biologists are keeping a close eye on the dwindling Chinook populations. With the “listing” comes a host of regulations that require something be done to protect the fish, and while Shasta Valley ranchers are not the sole cause of the declining runs, the fact remains that this drama is playing out in their backyards. According to 5th generation rancher Bruce Fiock, whose ancestors were some of the first to run cows in the valley, “We feel

like we have a bull’s eye on our backs,” referring to the increased regulation that he has seen in the last twenty years, as well as his location specifically, for his property sits on the lowest and hottest sections of the river. This spot is just down river from the Araujo Dam site and, through this project, Bruce and his brother (and business partner) Boyd are taking another big step for their family ranch.

The willingness to make changes does not always come easily, especially considering traditional flashboard dam irrigation has been in place for over 150 years. Understandably, there are some who are skeptical. Fiock made it clear that the attitude held by Valley ranchers runs the full spectrum. “Some people say ‘go away, leave me alone,’ but Boyd and I will try to work with the agencies. We know we can’t fight ‘em. A lot of these guys that fight are not depending on the ranch for their livelihood.” For many, ranching has become a part time endeavor or “hobby,” but the Fiock brothers ranch full time. This puts additional pressure on them to be sure that they are doing everything they can to comply with the increased regulations, as a fine could put them out of business. So, in an ongoing effort to maintain their family business, they have had to become actively involved in the problems that have descended upon them. Over the years, the brothers (as well as their father, Everett, who is now deceased) have collaborated with the RCD on many projects in an ongoing effort to help improve the health of the river and ensure that their ranch is in compliance with an increasing number of regulations. Their intentions are rooted in both staying within the bounds of the law as well as



In 1997 Bruce, Boyd and father Everett worked with the Shasta Valley CRMP to remove the Fiock Dam-embarking on the first of many dam removals to come.

being the best stewards they can be to the land first settled by their ancestors. While Fiock acknowledges that ranching practices have affected the river health, he is hopeful that by addressing the problem now, he and his brother will be able to keep continuing ranching.

At the Araujo site, murky brown water lumbers past us at an unimpressive clip. All around is evidence of extensive earthwork and construction. As Hansen and I continue our tour of the facilities, a large backhoe and bulldozer rest quietly today, but all along both sides of the river is evidence of major reconstructive earthwork. Placed in the bed of the slowly meandering river are a series of boulders that channel water into an area from which it will be pumped. On the bank itself, the infrastructure itself is limited to a series of electrical panels and pipe manifolds. However, closer inspection reveals a twelve-foot wide concrete well inserted into the ground with a metal grate over the top, which serves as the pumping location for the water diverted from the river. A self-cleaning fish screen guards the water intake; it is manufactured to meet strict California Department of Fish and Game requirements for Coho and Chinook salmon and will prevent fish from being sucked into the pumps. If all goes as planned, five area ranches will continue to receive the water they need to maintain their operations and allow migrating salmon, both juveniles and adults, to travel through unharmed. No longer a factor is the “pond,” which pooled behind the dam, heating the river and lowering the amount of dissolved oxygen detrimental to both fish and river health.

The Araujo project is the latest effort of the Shasta Valley RCD to work with local ranchers to help improve river health and fish passage. The efforts first began back in the early 1990s when the Shasta Valley RCD formed the CRMP (Coordinated Resource Management Planning Council) sub-committee to begin looking at some of the troublesome issues that they saw developing in the Shasta

The RCD upholds the value of community with pride and understands that communication, collaboration, sharing, participation and involvement are essential to accomplishing the goals set forth by the community.

RCD Strategic Plan



Dave Webb and Shasta Valley RCD staff touring the construction site with Siskiyou County Supervisor Jim Cook.

River watershed. The development of the newly formed committee was aided further by area resident Dave Webb, whose long-standing affiliation with the Shasta River began back in the 1980s. In 1991, he purchased some land on what he saw as “...a glorious little desert stream, a really special place.” However, it was evident to him that some work needed to be done along the river to help clean it up. With his interest aroused, Webb connected with a group of ranchers who were working with the Natural Resources Conservation Service (NRCS) on river restoration issues. That group was the Shasta Valley RCD and, as it

happens, they had just formed the CRMP sub-committee to look at issues concerning river health and how to address them.

Webb saw great potential in the RCD and decided to get involved. Having just completed a stint as volunteer chairman for the Siskiyou County Solid Waste Advisory Committee, he saw how even the best intentioned plans can go nowhere if there is not someone paid to actually carry them out. His thought was to try to help by finding funds to hire an outreach person who could help manage the new program. It was an excellent opportunity for him to pursue his ambition to do service to the river that

“I really value the sense of community you get with people who are truly tied with the land.” Dave Webb,
RCD CRMP Coordinator

he had come to love, and, as it turned out, Webb’s timing was excellent. In 1988, the federal government had formed the Klamath Basin Fisheries Task Force to work on salmon restoration in the Klamath Basin and had recently completed a master plan, which included empowering local watershed groups. Webb saw his opportunity unfold and submitted a funding proposal that would allow the newly formed CRMP to hire someone who could help manage and sustain their projects. Being a relative newcomer (and non-rancher), he had to spend time developing the trust of the RCD board.

Speaking of his early efforts to win the board’s favor, Webb noted, “Everybody tends to be a little bit suspicious of a new face and hot new ideas that may not be workable, so I am sure that everybody was a little bit nervous.” However, he soon began to develop a rapport with area landowners and, in the end, partnerships were formed. It is this effort to build bridges and work towards solutions that characterizes the spirit of the Shasta Valley RCD. In hearing Webb speak, it is clear that he has utmost respect for the ranching community. As he put it, “I really value the sense of community you get with people who are truly tied with the land. You get a certain strength there that you will never find in a place like the Bay Area where people are just zooming around in cars all the time and don’t even know what dirt looks like.” This dedication to the Shasta River and the people who live and work on it continues to this day, although he is recently retired from his position as CRMP coordinator.

In their early restoration efforts, the CRMP sub-committee joined forces with the Great Northern Cooperation, who had received a Fish and Game grant to build fences that would keep cattle off of riverbanks. While technically not a CRMP project, the effort was in line with the newly formed committee’s mission and was an excellent opportunity to dovetail efforts with an organization that had similar goals. It was through this alliance, as well as funding from the Klamath Basin Fisheries Task Force, that the CRMP was able to get up and running. Other projects since 1992 have included re-vegetating damaged and eroding riverbanks, conducting groundwater studies, pulsing river flows to help encourage young salmon to swim downstream, developing education programs, and implementing tailwater minimization projects.

All of the early work done by the RCD has provided the organization with both the experience and knowledge to tackle the more involved task of replacing irrigation dams and restoring river flow. In comparison to their previous projects, this is the largest, and the price tag reflects that fact. With long hours spent at their computers, the RCD applied for grant funding made available for restoration projects and, all told, they were able to secure the \$2,790,000 necessary to complete all phases of construction. All of the agencies involved have a vested interest in seeing improved river health and, in some cases, are in regulatory positions as well.

For Matt St. John of the North Coast Regional Water Quality Control Board (NCRWQCB), the main concern is the overall quality of the river water itself. As part of the NCRWQCB, his job is to help ensure that the river meets the standards established by California's Porter-Cologne Act and the Federal Clean Water Act of 1972. More specifically, on January 26, 2007, the US Environmental Protection Agency and the state of California formally adopted the Shasta River TMDL (Total Maximum Daily Load), a plan that sets forth mandatory mechanisms to limit the amounts of heat and nutrients entering the river. One of the main recommendations of the TMDL Implementation Plan is to remove, re-engineer, and limit minor impoundments – like that which formed at the Araujo Dam. So, by contributing support to this effort, the agency is able to work toward its goal. However, it was the RCD that brought them into the fold of this particular project through their diligent grant writing and research efforts. According to St. John, “This project does indeed represent a successful implementation of a project that will improve water quality and fish habitat and shows cooperation between individual landowners, local government, and state government.” And it is one way for his agency to come bearing a solution instead of just a warning that if things don't change, landowners will be fined. In this way, the RCD has bridged the needs of landowners with the needs of regulatory agencies.



Ponded water upstream of the dam creates poor water quality in the river.

It is hard to imagine that parts of this original dam had been in place since the first non-natives settled in this valley. It is also hard to believe that the basic technique used to irrigate the land has, for the most part, remained unchanged. The system is simple. With the boards in place, the dam diverts the river water into an accompanying ditch, where, with careful grading and the help of gravity, it is delivered to adjacent fields. Upon reaching its intended destination, the water is allowed to run over and “flood” the fields. While the method serves its purpose, it does have its drawbacks (outside of the health of the fish and river). For one, water seeps into the ground and is lost. The overall amount of water lost to this saturation, when one considers the hundreds of miles of ditching in the valley, is substantial. The



Installation of pipeline to replace earthen ditches.

ditches also require maintenance, as they suffer from erosion and are prone to becoming clogged by aquatic plant life, which is managed by the use of herbicides. This has its costs, as well.

Having to make changes to how they run their operations is never easy, but as rancher Bruce Flock puts it, “Right now the agencies are willing to help, and it’s going to meet their standards.” It is a posture of willing compliance but buried deep in it is shrug that seems to say “What else can we do?” The bottom line for ranchers like Bruce and Boyd

“... we rely on the land for our living. We know you have to give back to it if you want to keep it going,” Bruce Flock- Project rancher.

Flock is that if they want to stay in business, they need to be open to change even though change can be difficult. Flock’s words carry extra weight when one considers that his

family has been involved in previous RCD projects, one of which had more than its share of setbacks. The Flock Dam project, like Araujo, was a diversion dam that was replaced by a pump system (although not a boulder weir). Unfortunately, the pumps were prone to clogging due to river silt and had to be relocated and constantly readjusted. In the end, there was a loss in hay production for several years. It was unfortunate, and other ranchers certainly took note. Now they are watching the Araujo project.

The next dam slated for replacement is the Shasta River Water Association Dam. It is located just upriver from the Araujo site, and it supplies 160 small ranches with irrigation. Among the ranchers keeping a close eye on the Araujo project is Rick Lemos, who is part of the Shasta River Water Association and who is hopeful that their new system will meet their needs and not cost them any more than they are already paying for ditch maintenance. However, he notes, “I’m always skeptical until I see it with my own eyes.” Despite the previous setbacks, most are willing to try new things, in part, because they have no other choice, but underlying the fear of regulation is an understanding that a healthy river is important. Flock made this clear. “Look, we rely on the land for our living. We know you have to give back to it if you want to keep going,” he noted with emphasis, implying with his tone that this is an often-overlooked fact.

Funding acquired for this project came from State, Federal and Non-profit organizations and totaled over \$2,790,000.

Funding was provided by:



Also overlooked is the idea that ranchers, by maintaining the land as open space, could be the best bet for the health of the land and the river. Lemos was quick to point out that not only do ranches help maintain a pastoral “viewshed” (a shrinking commodity in an increasingly developed world), they also provide the open habitat necessary for wildlife. However, as land values increase, the temptation for ranchers to sell out increases, and the Shasta Valley has certainly seen an influx of development although not to the extent seen in other areas. With a burgeoning crop of five, ten, and twenty acre “ranchettes” dotting the valley landscape, one has to consider their combined effect. Like the working ranch, “hobby” farms require ample irrigation and provide their own set of environmental stressors. Viewed from that perspective, the rancher who maintains open spaces may be the best thing for the land.

Over the course of the last century, the number of small family farms and ranches has rapidly dwindled. Once the mainstay of rural America, they are currently a vanishing breed. Now, with agri-business conglomerates dominating most markets, rising land values, and increased regulation, it is a challenge for the small operation to stay in business. Among other things, the Fiock brothers and Lemos both noted how much time they spend in meetings and working with agencies and the RCD. “We’re just trying to stay afloat,” lamented Fiock. When further pressed as to what motivates them to keep at it, he refers proudly to his family lineage and his family’s ranching history. He said, “The ranch has been in our family a long time, and its gratifying being your own boss.” However, when I asked the Fiock brothers if they ever thought of getting out of the business, they both laughed. “Oh sure, we think about it every day.”



Mount Shasta- located at the headwaters of the Shasta River. Photo courtesy of Chuck Nelson.

If all goes well for the Fiock brothers, their water will be delivered without setbacks. While the Fiocks acknowledge that the switchover will require some adjustments in how they work their land, they keep their fingers crossed and hope for the best. Of course, a hefty electric bill to keep the pumps running is also something they will have to get used to, but hopefully that will be offset by the decreased ditch maintenance costs and, in the end, be a landmark step for both river and rancher.

The outcome of Araujo and the projects to follow will, hopefully, be favorable to both the landowner and the river. *That is the hope.* But there is another level of significance that lies embedded in this project, which, upon further reflection, is equally important. The simple fact ranchers, agencies, and other interested parties are able to sit at the same table and work together is, in itself, heartening. In an era of heightened partisanship and “us” verses “them” mentalities, the notion of compromise and working together, like the salmon itself, is practically endangered. By bringing everyone to that “table,” the RCD has begun to break down those barriers which keep positive change from occurring. When I asked Dave Webb about what his thoughts were on the future of the Shasta River, he was cautiously optimistic. “The river is on an improving trend” he stated emphatically, “I just wish there were more fish.” Hopefully, Webb will get his wish. But, regardless, the RCD and all those involved have done something equally important through their efforts. “What we are doing here,” Webb reminded me, “Is giving other people heart.”