Ripples in the Grande Ronde

Spring 2007

RIVERS UNITING NEIGHBORS · QUARTERLY NEWS FROM THE GRANDE RONDE MODEL WATERSHED

A new beginning for End Creek

by Lyle Kuchenbecker, GRMW

Settlement of the Grande Ronde Valley began over 150 years ago. A big part of this involved ditching and stream channelization to convert poorly drained lands into tillable ground to raise crops. As time went on, more effort was put into draining the more marginal lands to increase cropland acreage.

Wetland conversion, although positive from a crop production standpoint, did have a downside for wetland-dependent wildlife species and fish. Land conversion practices have altered the hydrologic cycle, including the storage, movement, and character of water resources throughout the valley. Changes in the hydrologic cycle are demonstrated by excessive runoff, altered peak flow regimes, lack of groundwater recharge, reduced soil moisture, reduced storage capacity, and low late-season streamflow. Land use, in combination with hydrologic changes, has resulted in stream channel instability, downcut channels, vertical streambanks, sedimentation, and loss of wetland vegetation.

In an effort to enhance drainage for agricultural production, End Creek, South Fork Willow Creek, McDonald Creek and several spring-fed tributaries were channelized in the early 1900s, resulting in a series of linear ditches lacking instream habitat complexity; riparian and wetland vegetation; and extensive vertical, eroding streambanks. The ditching was successful in draining wetlands and lowering local water tables, which allowed farming on much of the project area.

The summer of 2006 culminated in the successful implementation of habitat restoration work in the End Creek Project area, located west of Imbler. The Willow Creek watershed (including End, South Fork Willow, and McDonald creeks) is known to provide habitat for Snake River summer steelhead, a species listed as "threatened" under the federal Endangered Species Act. The lower reaches of Willow Creek may currently provide rearing habitat for spring chinook salmon and may have historically provided chinook spawning habitat. The Willow Creek watershed is a low-elevation, spring-fed system with a potential to provide high-quality steelhead, chinook and resident rainbow habitat. End Creek was identified in the Willow Creek Coordinated Resource Management Plan and in the Union County Soil and Water Conservation District's water-quality monitoring program as a "high contributor" of sediment to Willow Creek due to aggressive headcuts and streambank erosion.

Lack of cold-water refuge and diverse instream habitat currently limits productivity and summer distribution of steelhead and resident rainbow trout in the Willow Creek watershed. The goal of the End Creek Project is to restore the natural character and function of this portion of the watershed. The project will restore instream, riparian, and wetland habitat by creating longer, more diverse, meandering stream channels; establishing riparian and wetland vegetation; and protecting these improvements through perpetual and term conservation easements.

.....Continued on Page 2, ***END CREEK***

The End Creek ditched channel was replaced with this longer, sinuous channel that will provide better fish habitat and will be much less susceptible to the erosive forces of fast-moving water in a straight channel. Photo by Allen Childs, CTUIR.

***END CREEK**, continued from front cover.....*

The End Creek Project was developed and implemented by the landowners, the Oregon Department of Fish and Wildlife, the Confederated Tribes of the Umatilla Indian Reservation, the Natural Resource Conservation Service, and several cooperating/funding agencies including the Grande Ronde Model Watershed, the Bonneville Power Administration, and the Oregon Watershed Enhancement Board. The project is part of a regionwide effort to protect and restore anadromous fish habitat in the Grande Ronde Basin.

The End Creek Project complex encompasses 776 acres within three contiguous private land parcels. Landowners are Joel and Susan Rice, Dan and Tracy Davidson, and Ron and Nancy Dake. Restoration activities were completed on the Rice and Davidson properties in 2006. Work will be completed on the Dake property in 2007. End Creek, South Fork of Willow Creek, McDonald Creek and several spring-fed tributaries all drain into the Willow Creek system, which enters the Grande Ronde River about two miles north of Imbler.

Project planning and design was accomplished over a two-year period and involved interagency and landowner meetings, coordination with adjacent private landowners, and development of funding proposals. ODFW staff provided a leading role in predesign surveys and development of project designs. Project planning was driven by landowner objectives, limiting factors, project goals, and biological objectives. Products of the planning effort and project design process were developed through an extensive watershed analysis conducted during 2003-2004. The analysis was undertaken to evaluate past land-use history and present conditions, to identify habitat limiting factors, and to develop a suite of actions to address the limiting factors.

Project activities included construction of new channels, construction and contouring of floodplain ponds, instream placement of rock grade-control structures, installation of rootwad revetments, placement of large woody debris, ditch reclamation, fish salvage, terrace construction, and revegetation with native species.

Construction activities were initiated in late June 2006. Excavation of the End Creek channel on the Rice property began in early July, beginning at the lowermost project reach and proceeding upstream to the Davidson property. Following completion of the new End Creek channel, the rock cross vanes and rootwads were installed, fish salvaged from the ditch, and channel diversion completed. In late August, construction began on the South Fork Willow channel, concurrent with channel/ditch reclamation and pond construction.

The Rice portion of the project was largely completed by mid-October 2006 at which time construction began on the upper End Creek reach on the Davidson property. Construction of the upper End Creek restoration channel was completed by late November. A total of 3.5 miles of new End Creek and South Fork Willow Creek channel, and 5.5 miles of spring-fed smaller channels were constructed.

A critical component of project implementation was the relocation of fish from the ditches, which were to be filled in, to the stream channel. Fish trap-and-haul operations were completed by ODFW and the Umatilla Tribe prior to diversion of End Creek into the restoration channel. The upper and lower reaches of the stream were block-netted to prevent movement of fish into

Top: Shown here is a channelized reach of End Creek on the Rice property before construction. Extensive ditching throughout the project area created unstable stream channels, excessive erosion, elevated water temperatures, loss of riparian and wetland vegetation, and poor fish habitat. Center: Rootwads were transported to the site and embedded into outside meander bends to provide streambank stability and fish habitat. Right: Six floodplain ponds were constructed to provide wetland habitat diversity. Ponds average 1.5 feet deep with maximum depths of 6-7 feet. Far right: Members of the Confederated Tribes of the Umatilla Indian Reservation planted 12,650 sedge plugs on the streambanks in the fall of 2006 as part of the revegetation work. Photos by Lyle Kuchenbecker.

the restoration reach. Seine nets and electroshockers were used to capture fish. All fish, amphibians and reptiles were transported in aerated coolers by ATV to upstream locations. A total of 344 rainbow/steelhead and 1,339 non-game species (sculpin, dace, shiner) were trapped and hauled from the End Creek channel prior to diversion.

Vegetation is the key to long-term riparian and wetland health, and a stable stream system. Rootwad revetments and rock grade-control structures were installed in the new channels to provide stability until vegetation completely re-colonizes the site. Rootwads were installed on outside meanders to reduce erosion and provide structural habitat diversity. Revetments consist of a tree bole excavated perpendicular into the streambank with the attached rootwad protruding partially into the stream channel. Thirty-nine rock vanes were installed just slightly above the streambed elevation for vertical channel grade control.

Reclamation of the ditches was initiated after water diversion into the new channels and fish relocation. Excavated soil and gravels from the new channels and ponds were used to fill abandoned channels. Approximately three miles of ditches were reclaimed.

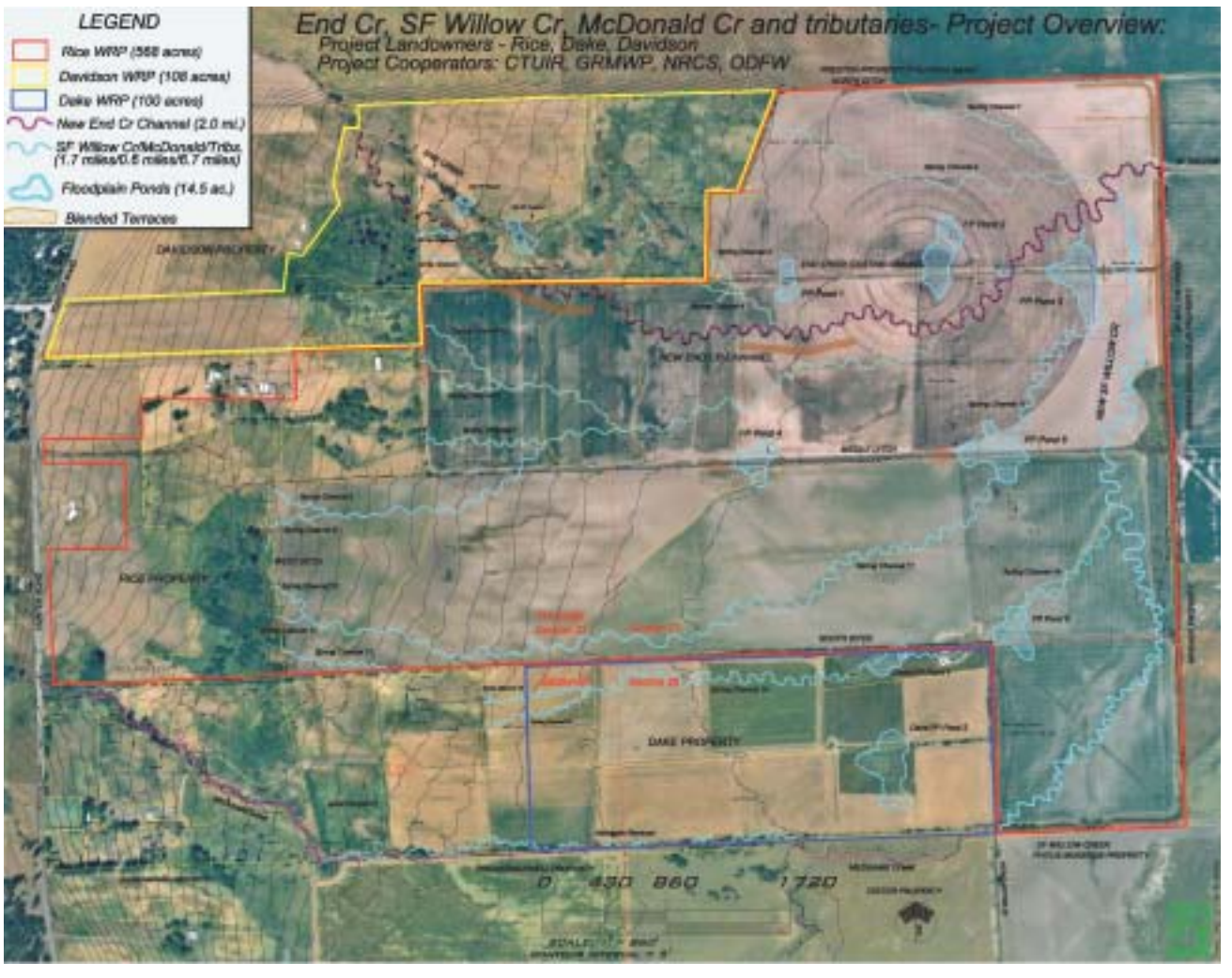
Earthen terraces were constructed to minimize adverse effects from flooding on adjacent private lands and to direct overland flow within the project area. Material excess from the ditch reclamation activity was used to construct the terraces. Terrace construction involved hauling excavated material, and spreading and compacting the material at the terrace locations. Roughly 3,600 feet of terrace, about 1 foot high and blended into the existing ground topography, were constructed along the lower property boundaries.

Eight floodplain ponds have been constructed and two more will be built, totaling about 15 acres. Floodplain ponds are incorporated into the project to provide habitat diversity for wildlife and floodplain water storage. Ponds will vary in size from about .5 to 2.5 acres. Average depths will range from 1 to 1.5 feet deep, with maximum depths of 6 feet.

The project complex is currently in a transition from cropland to more natural wetland vegetation and habitats. Complete transformation will require several years. Vegetative conversion on the Rice and Dake properties will be most challenging because the lands have been cultivated and cropped. Vegetative conversion on the Davidson parcel is much simpler due to the fact that the parcel has not been cultivated and remains in relatively good condition in terms of plant-community composition.

Extensive seeding and planting using a variety of mechanical and manual techniques has been completed to accelerate vegetation establishment. The long-term vision for the project area is to create diverse native plant communities that contribute to the natural function, resiliency, and stability of a self-sustaining environment. In effect, project landowners and sponsors are trying to recreate, to the extent feasible, an environment similar to that which existed prior to European settlement. Beaver colonization, as suitable habitat develops, may even eventually contribute to the maintenance of quality riparian and wetland habitats, as it once did.

Site preparation and seeding has been completed on 430 acres by drilling and aerial application of 7,800 pounds of native seed. Umatilla Tribe crews installed 12,650 sedge rush plugs along streambanks. Heavy equipment was used to mechanically install about 15,000 square feet of sedge/rush mats. Additional planting and weed control is planned in 2007, 2008 and in future years as needed to fully establish native vegetation.



Long-term protection of the new stream channels, riparian vegetation and seeded ground will be necessary to complete the restoration process. About 776 acres have been enrolled into the Federal Wetland Reserve Program through the NRCS. About 676 acres are in permanent conservation easements and 100 acres in a 30-year easement. As the project

.....Continued on Page 8, ***END CREEK***

Top: About 7,800 pounds of native seed were applied by helicopter in the fall of 2006 to reestablish native wetland vegetation. Left: Aerial view of the project area. Three landowners were involved, totaling 776 acres. All lands are enrolled in the Wetland Reserve Program, which provides long-term protection for the stream channels and wetland habitats. Photos by Allen Childs, CTUIR.

The circle of life

The status and life histories of salmonids in the Grande Ronde Basin

by Rich Carmichael, ODFW
Fish Research Program Director

Grande Ronde salmon and steelhead begin and end their lives in the streams of eastern Oregon. As small smolts, they ride the spring flows to the Pacific Ocean. As adults, they run the gamut back up the Columbia and Snake rivers to return to their natal streams to spawn, some having traveled 700 miles from the mouth of the Columbia and over eight mainstem dams. Their round-trip journey is treacherous indeed, but not impossible. Here is a look at the private lives of the Grande Ronde Basin's chinook salmon and steelhead trout.

Spring Chinook Salmon

Spring chinook salmon destined for the Grande Ronde Basin enter the Columbia River from March through May after spending between one and three years in the ocean. They arrive at their tributary spawning streams in the Grande Ronde Basin from mid-May through the end of June. They hold in pools in those streams until mid-August and begin their spawning, which is completed by late September. Eggs remain in the gravel through the winter and fry emerge in spring. Juveniles rear slightly over one year in fresh water and then begin their smolt migration to the ocean in the springtime.

In the upper Grande Ronde Basin there are two populations that have quite different juvenile life history strategies. Ninety percent or more of upper Grande Ronde River juveniles remain in the area of summer rearing, which is also the place they were spawned, for their entire freshwater life cycle and then begin their ocean migration in the spring. In contrast, in Catherine Creek over half of the juveniles migrate into the Grande Ronde Valley in the fall

Alevin, ODFW photo

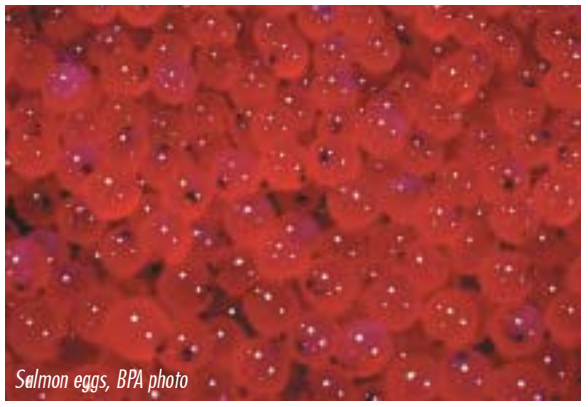
to spend the winter and spring, prior to beginning smolt migration to the ocean.

Historically, spring chinook salmon were widely distributed throughout the Grande Ronde Basin. Distribution has been reduced so that significant production now exists only in the South Fork and mainstem Wenaha River, Minam River, Lostine River, Wallowa River, upper Grande Ronde River, and Catherine Creek. Spawning and rearing is absent in many of the tributaries, such as Meadow Creek and Indian Creek, and lower reaches of the mainstem rivers, which once supported significant production of spring chinook salmon. There has been a significant reduction in spawning distribution relative to the historic range.

The Snake River spring and summer chinook salmon numbers are estimated annually at Bonneville Dam. As recently as 1972, 130,000 spring and summer chinook salmon were destined for the Snake River Basin in contrast with recent years, such as 1992 when approximately 10,000 returned. Furthermore, the composition of spring chinook salmon in the Snake River Basin has shifted from wild to primarily hatchery-origin fish.

As recently as 1957, the Oregon Department of Fish and Wildlife estimated that more than 7,000 spring chinook spawned in the Grande Ronde Basin. In 1995, ODFW estimated only 200 fish spawned naturally in the basin. As a result of this severe decline, spring chinook in the Grande Ronde River as well as other Snake River spring and summer chinook populations were listed as "endangered" under the Endangered Species Act. Fisheries managers has observed a slight increase in spawner escapement in recent years.

Wild spring chinook salmon once contributed substantially to commercial fisheries in the Columbia River. In 1938 over 3.5 million pounds of fish were



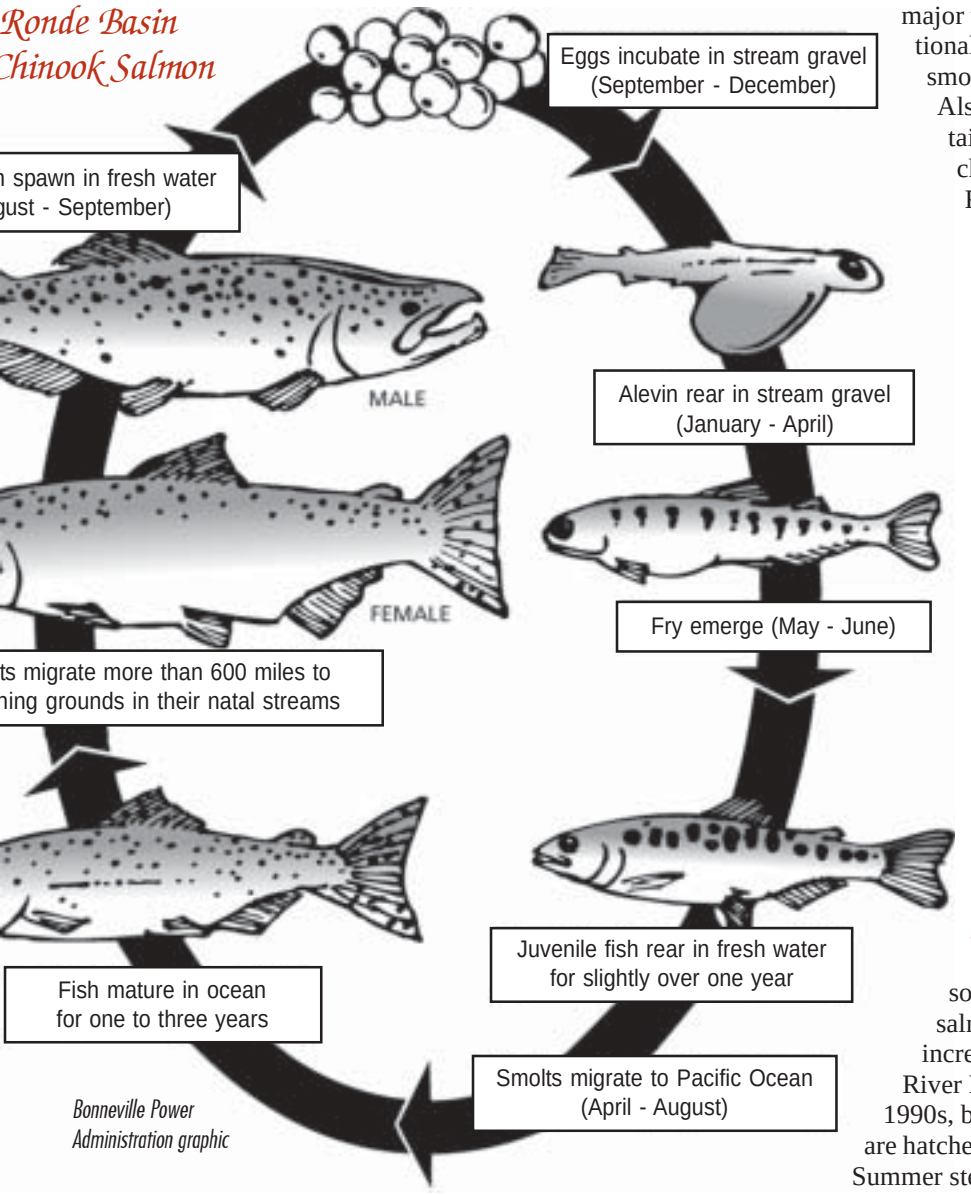
Salmon eggs, BPA photo

Juveniles, Army Corps of Engineers photo

harvested in the Columbia Basin. Beginning about 1965 that dwindled to a very small number of fish. Now they are only harvested incidentally in other mainstem target commercial fisheries. Spring chinook were a primary food source for a number of Native American tribes. In recent years, the only spring chinook fisheries were on hatchery fish. In the Grande Ronde Basin, the very popular recreation fishery was closed in 1974 and has only been reopened a few years since.

Extensive commercial fishing in the Columbia River, mainstem hydropower development, hatchery operations, past forest and agricultural practices resulting in flow-pattern alterations and temperature changes, and a dramatic reduction in pools have all contributed to declining numbers of spring chinook salmon. Summer temperatures are very extreme in the Grande Ronde Basin, as high as 70 degrees or more from late August through early September. For chinook, prolonged exposure to temperatures up around 75 is lethal.

Male chinook salmon
Windsor Nature Discovery



The most recent declines in spring chinook numbers are primarily attributed to the four lower Snake River dams (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite dams), which turned the free-flowing Snake into a series of reservoirs and hydroelectric facilities. Many people believe that dams are by far the single most important factor in the decline of spring chinook salmon.

There are a great number of management actions being implemented in the Grande Ronde Basin in attempts to improve spring chinook salmon production. Many involve private landowners as well as public land management agencies. Some habitat in the Grande Ronde Basin has shown significant improvement. Over the last 20 years, most all of the major water diversions have had fully functional screens installed, so very few, if any, smolts are entering the diversion ditches. Also, strict harvest regulations are maintained. At this time, Snake River spring chinook are targeted in few Columbia River fisheries and are harvested very little in the ocean.

Major changes have been implemented to improve the hatchery program. A new artificial propagation program for conservation of chinook salmon in the Grande Ronde Basin, called the Captive Broodstock Program, began in 1995. It involves collecting juvenile spring chinook salmon from Catherine Creek, the upper Grande Ronde, and the Lostine River, and rearing them for their entire life cycle in captivity. The mature adults are spawned and then the smolts are returned to the parents' stream. It is experimental in nature and was started primarily for conserving natural populations in the basin. The conventional hatchery program has changed to be consistent with recovery using only local broodstock sources.

Summer Steelhead

Trends in summer steelhead are somewhat different from chinook salmon. Data actually show a substantial increase in steelhead coming to the Snake River Basin from the mid-1970s to the early 1990s, but the majority of fish in recent years are hatchery-origin fish.

Summer steelhead enter the Columbia River in July and August and arrive in the Grande Ronde between September and December, although some steelhead stay in the mainstem of the Snake River below the confluence of the Grande Ronde River and the Snake River. They overwinter in the lower Grande Ronde or Snake River, and then in February begin their spawning migration to tributary streams. Summer steelhead spawn in April and May throughout the Grande Ronde Basin and use many tributary streams, unlike spring chinook, which spawn primarily in the mainstems. The eggs remain in the gravel for only a short period and emerge in June or July. Juveniles rear for approximately two years and then head to the sea. They spend one or two years in the ocean before returning to spawn.

Many of the same causes of decline mentioned for spring chinook are also applicable to summer steelhead. In response to construction of the four lower Snake River dams, Congress authorized the Lower Snake River Compensation Plan to compensate for the annual loss of adults from construction of the dams, estimated at 42 percent. ODFW developed an array of management objectives with the primary objective to reestablish sport and tribal fisheries in the mainstem Snake River and its tributaries.

The means chosen to accomplish this objective was development of a hatchery program in the Grande Ronde Basin. Three hatcheries were constructed from the mid-1980s to 1990: Wallowa Hatchery in Enterprise; the Big Canyon Creek facility in Deer Creek, a tributary to the Wallowa River; and Irrigon Hatchery on the Columbia River. Wallowa Hatchery serves as the adult broodstock collection facility. Adults are spawned at Wallowa Hatchery and the eggs are incubated for a short time prior to being transferred to the Irrigon Hatchery. Irrigon Hatchery is a well-water facility with a fairly warm constant temperature that allows production of a smolt-size fish with only one year of rearing. The eggs are incubated at Irrigon in large incubation trays and hatched there. Fry are ponded in large outside raceways where they are reared for approximately eight months to a size of about 8 inches. Then they are transported back either to Wallowa Hatchery or to the Big Canyon facility.

Fish in the two Big Canyon juvenile acclimation ponds are held for about 30 days so they will imprint to the water in Deer Creek. This provides attraction for the adults back to the facility when they return to spawn. Big Canyon also has an adult collection facility and serves as a backup to the Wallowa Hatchery.

ODFW has been conducting surveys over the last 20 years to evaluate the effectiveness of this program in restoring the recreational fishery in the Grande Ronde Basin, as well as to assess how well these fish contribute to fisheries throughout the Columbia Basin. The catch-and-return distribution illustrates that these fish contribute substantially to the fisheries throughout the Columbia Basin. In recent years the catch rate (hours of fishing per catch) is better than it was historically, particularly in the Wallowa River. That fishery had been closed from 1974 to 1986.

In most years the harvest also is greater in the Grande Ronde Basin than it was historically, so efforts have been very successful in restoring harvest. The Wallowa River fishery is even more dramatic, where there is a substantially better total harvest now than in historic days. The number of people actually fishing is much greater now.

The history of salmon in the Grande Ronde Basin is somewhat of a sad story. Sockeye and coho are extinct. Chinook in many of the tributaries are extinct, and spring chinook and steelhead are now listed as "threatened" under the ESA. Despite the depressing legacy of salmon in the Grande Ronde Basin, there is good reason for optimism. Given the emphasis that has been placed on improving mainstem migration and survival to and from the ocean, a redirected hatchery program, recognition of the habitat problems, and all the cooperation that is coming together to improve the freshwater environment in the Grande Ronde Basin, the outlook is brighter now than a few short decades ago.

The Grande Ronde Model Watershed

Bridging the gap between public resources and private landowners

by Beth Stewart, Editor

In the last issue of "Ripples," we explored the role of the Grande Ronde Model Watershed and how it came about. This time we delve into the model watershed's mission, goals, and progress to date.

Positioned in the far northeast corner of Oregon, the Grande Ronde watershed once teemed with salmon and steelhead. Its approximately 5,265 square miles encompass the Grande Ronde River and Imnaha River subbasins. The watershed is laced with 280 rivers and streams containing more than 2,600 miles of fisheries. Land ownership in the basin is roughly 65 percent public and 35 percent private. And there lies the challenge.

While maps and county courthouses differentiate between public and private landholdings, streams, willows and migrating fish do not. What starts upstream, such as excessive sedimentation, often ends up downstream, regardless of who owns the banks on either side. Likewise, a manmade structure near the mouth of a creek may very well block salmon or steelhead access to miles of healthy habitat upstream, independent of whose name is listed on the deed.

Where the Grande Ronde Model Watershed has been so valuable is in bringing together public resources and willing private landowners to accomplish things that neither could do on their own. It's a synergy of monumental proportions, and proof that such working relations are both possible and productive.

Why Bother?

The Grande Ronde Basin once supported healthy populations of chinook salmon and steelhead trout, both revered by sports fishermen and Native Americans alike. In 1957, the basin was home to an estimated 12,200 spring chinook spawners. Between 1995 and 1999, that number amounted to only 700 natural spawners per year. Why the decline? There is no single reason, but experts point to a combination of things – impacts from operations of the hydroelectric system, commercial harvest, road construction, logging practices, grazing operations, irrigation diversions, and mining, to name a few. In recent years, many of these industries have made great strides in improving practices to reduce impacts to streams, riparian areas and fisheries. Damage from years ago, however, still lingers.

Major portions of the anadromous fish habitat in the basin are considered to be in a degraded state. The Oregon Department of Environmental Quality lists the Grande Ronde Basin as water quality "limited" because water quality in many streams is impaired by sedimentation, elevated temperatures, and excessive nutrients. Resource managers estimate that large-pool habitat in the Grande Ronde River and Catherine Creek has declined by more than 70 percent since the 1940s.

Partnerships between resource managers and private landowners in the Grande Ronde Model Watershed aim to reverse this damage. The entire effort is predicated on the belief that it is in the best interests of the people to preserve and protect the fisheries and the multiple natural resources of the Grande Ronde Basin for the general welfare of the local communities, Native Americans, the people of Oregon, and the citizens of the United States.

"It's important to realize that this land and these waters mean a variety of different things to lots of different people, and only by achieving and maintaining a balance between things natural and man made can we have any hope of accommodating the desires of all these people," says Jeff Oveson, executive director for the Grande Ronde Model Watershed.

"Some want just to be able to go out and view wildlife in its natural habitat; some want to be able to derive economic benefit from industries such as ranching, farming and logging; and some want to be able to show their grandkids how to fish or hunt. My mother, born and raised on the land, thinks that being able to gather pollen and seeds from wild peonies is reason enough to keep rangelands healthy," adds Oveson.

"Each spring when I hear the song of a meadowlark for the first time, I'm reminded of what a special place we live in. There are very few people who knowingly and willfully degrade the natural habitats that are so important to this region, but there are still myriad opportunities to show people how to improve, protect and preserve those habitats."

.....Continued on Page 8, ***WATERSHED***

Grande Ronde Model Watershed Accomplishments to Date

Since 1994, the Grande Ronde Model Watershed and its various partners have worked together to make a difference in the watershed. Here are some highlights of those cooperative efforts.

- **235 miles of stream channel and streambank treated**, including placement of large woody debris, boulders, log and rock structures, and restoration of historic stream channels.
- **332 miles of fencing**, including exclosures and cross-fencing.
- **427 livestock water developments for off-stream watering**, including spring, pond and well developments.
- **286 miles of road closures or obliteration**, including closing access to roads or decommissioning roads by recontouring and restoring natural slopes.
- **179 miles of road improvements or relocation**, including drainage improvements to reduce sediment and relocating draw-bottom roads away from streams.
- **61 fish passage improvement sites**, including improvements to or removal of irrigation diversion structures, instream structures, and stream-crossing structures such as bridges and culverts.
- **22 irrigation diversion improvements**, including complete reconstruction of diversion structures or improvements to conserve water (such as installing head gates), and installation of fish ladders or weirs to improve fish passage.
- **3,236 acres of riparian habitat treated**, including protection with exclosure fencing, vegetation plantings, seeding, noxious week control, floodplain/wetland/meadow restoration, and CREP.
- **22,960 acres of upland habitat treated**, including modification of agriculture practices (such as conversion to no-till farming), noxious weed control, seeding, and tree thinning.
- **15,659 acres of "mixed" habitat** (both riparian and upland) treated, including exclosure fencing, vegetation plantings, seeding, thinning, and noxious weed control.

Meet the Board

GRANDE RONDE MODEL WATERSHED

Larry Christman

Larry Christman is no stranger to public service. He has spent 16 years in city government, 12 of those as mayor of Enterprise. Although supposedly retired, he's back on the Enterprise City Council, this time filling a vacancy. "I just can't say 'no'," laughs Larry.

Larry says he enjoys his role in city government as well as his position on the Grande Ronde Model Watershed Board of Directors. They keep him informed and current on the issues. "Wherever I can help ..." says Larry, in the spirit of a true public servant.

Larry is one of only a couple members of the Grande Ronde Model Watershed's board who have served since the model watershed was established in 1992. He serves as the "public interest" representative on the board. After 15 years of service, is he ready to retire? Absolutely not. "I'll stay on as long as I can be a contributing member," says Larry.

Larry is encouraged by the efforts of the Grande Ronde Model Watershed. "I am impressed with the amount of money we've received from BPA and other sources to put back into the community to help improve fish habitat," says Larry. "It's an astronomical amount. The projects have been many and varied for the watershed – from hilltop to hilltop, as they say." Larry says he doesn't always agree with everything that goes on in the watershed, but there's no question in his mind that the efforts have benefited the basin.

Larry is a fan of clean air, clean water, no weeds, and all uses of public lands and waterways. He's also an avid fisherman. What does he fish for? "Just about anything that'll bite a hook," he says.

The Oregon native is a veteran of the public school system. Today, you'll find him making sausage, pepperoni and jerky for the grocery store in Joseph. But that's a fairly recent occupation by comparison. Larry has spent 37 years in education, beginning in 1962 with a position for the Pine Eagle School District in Oxbow, deep in Hell's Canyon. "That's when we had 150 kids in four elementary grades. Today there may be 10 kids in grades 1-4 in the canyon."

Larry spent a few years in the Weston/ Athena area, and one long year in Wasco, in Sherman County. "There were no pine trees in sight, and my little boys were walking sideways in the wind and starting to lean," shares Larry. So when he got the chance to relocate to Enterprise, he jumped at it. Larry spent the next 26 years with the Enterprise School District, six years as the elementary school principal and 20 years as district superintendent. Larry retired in 1995, but has since served as interim superintendent for the Pilot Rock and Elgin school districts.

Larry, 70, lives in Enterprise with his wife, Anne, of 46 years. The couple has three adult sons, two of which live close by in Enterprise. Their third son lives in Redmond, Ore. Larry and Anne are proud grandparents of 12 grandchildren.

Fish Online!

www.grmw.org.

- Adult salmon counts at the dams
- Snake River Basin streamflows
- Snow and precipitation reports
- Habitat enhancement projects
- Meetings, activities and events
- Past issues of "Ripples" and more!

Grande Ronde Model Watershed

Upcoming Board Meetings

The public is welcome to attend

- Tuesday, April 24, 6:30 p.m.
  Wallowa Community Center, 2nd St, Wallowa
- Tuesday, May 22, 6:30 p.m.
  Elgin Community Center, 10th St, Elgin
- Tuesday, June 26, 6:30 p.m.
  Wallowa Community Center, 2nd St, Wallowa
- Tuesday, July 24, 6:30 p.m.
  St. Mary's Catholic Church, 12th St, Elgin
- Tuesday, August 28, 6:30 p.m.
  Wallowa Community Center, 2nd St, Wallowa

Meeting dates are subject to change. Please call 541-663-0570 to confirm. Thank you!

***END CREEK**, continued from Page 3.....*

progresses, the NRCS will develop detailed management plans for each of the three parcels to ensure that resource objectives continue to be achieved. The Umatilla Tribe and ODFW will assist in the planning and development of the agreements and management plans.

Project monitoring consists of pre- and post-project water quality, channel stability, ground water, fish use, and vegetation monitoring. Two temperature monitoring sites that record hourly water temperatures have been collecting data in End Creek since 2003. Fifteen shallow ground-water monitoring wells were installed prior to channel reconstruction and will record ground-water levels year-round. ODFW and the Umatilla Tribe will monitor steelhead spawning activity and juvenile fish populations. Stream channel dimensions and locations, as constructed, will be closely monitored to detect future changes.

In addition, Eastern Oregon University, through an agreement with the GRMW, initiated an annual water chemistry monitoring program along End Creek in 2004 to evaluate chemical properties, including temperature, dissolved oxygen, phosphorous, nitrates and alkalinity.

Project funding was provided by the Bonneville Power Administration, the Oregon Watershed Enhancement Board, and the Wetland Reserve Program through the Natural Resource Conservation Service. In-kind services for project design, permitting, project layout, contracting, and construction inspection were provided by the Confederated Tribes of the Umatilla Indian Reservation, ODFW, and the Natural Resource Conservation Service.

Stream re-channelization and wetland creation projects such as End Creek are an effort to holistically improve fish and riparian habitats. In medical terms, this type of restoration activity treats the entire body, not just the symptoms. Projects like this require the right combination of a productive site with restoration potential, and dedicated professionals working with enthusiastic, committed and forward-looking landowners, all of which came together on End Creek. ■

***WATERSHED**, continued from Page 6.....*

Oveson gives credit where credit is due. “I believe the diversity of the people and groups who have served on the Board of Directors of the Grande Ronde Model Watershed over the years speaks a lot to the importance of valuing everyone’s opinions, appreciating their perspectives and desires, and seeking consensus on decisions that affect us all. This program simply could not exist without those dynamic people being willing to work so diligently in the search for common ground.”

The Mission

The mission of the Board of Directors of the Grande Ronde Model Watershed is “to develop and oversee the implementation, maintenance, and monitoring of coordinated resource management that will enhance the natural resources of the Grande Ronde River Basin.” When translated into layman’s terms, the mission is to identify opportunities with landowners and other stakeholders, get the job done on the ground, and then protect everyone’s investment.

To be specific, the Grande Ronde Model Watershed Board has outlined eight program goals:

1. Provide habitat for restoration and enhancement of anadromous salmonids (salmon and steelhead) in the Grande Ronde Basin.
2. Develop recommendations for management and use of water by agriculture and other industries that require water for their economic viability.
3. Conduct a public involvement program to address the concerns of landowners, land managers, and resource users in the Grande Ronde Basin.
4. Provide recommendations for the management of the basin resources that will enhance the quality and quantity of river flow.
5. Recommend coordinated resource management and research that meet the mission statement of the Board of Directors.
6. Promote the mission, goals and objectives of the Grande Ronde Model Watershed to regional, state, and national entities.
7. Assure that watershed management activities implemented in the Grande Ronde Basin are adequately monitored and evaluated.
8. Protect the customs, culture, and economic stability of the citizens of the basin, the Nez Perce and Umatilla tribes, and the citizens of the United States of America.

Accomplishments

The Grande Ronde Model Watershed began coordinating restoration projects in 1994. Through 2006, the model watershed, in concert with its partners, has implemented roughly 335 projects, investing more than $25 million into the Grande Ronde Basin (*see box, Page 6*). Projects have addressed nearly every component of watershed health, including water quality, water quantity, instream habitat complexity, riparian condition, streambank stability, and fish passage. While many of the benefits are instant, others accrue over time. Projects addressing fish passage problems, sediment input, and flow deficiencies have produced immediate benefits. Other projects, such as those addressing improvements in riparian vegetation, bank stability, and stream temperature, will become more apparent in years to come.

The model watershed and its partners continue to change the face of natural resource management in the Grande Ronde Basin. The countless hours of planning, securing funding, implementing measures, and monitoring projects are paying off. Whether it’s moving dirt, planting willows, or placing rocks and culverts, the efforts of many are making a difference – one stream reach at a time. ■

Beth Stewart, Editor
bstewart@eoni.com