



# THE OREGON PLAN NEWS

*Restoring an Oregon legacy through cooperative efforts*

Volume 1, Issue 1

September/October 1998

## Welcome to The Oregon Plan News!

The Oregon Plan News has been started to highlight and share the many contributions that thousands of Oregonians are making to restore salmon populations and improve water quality in rivers and streams throughout our state.

We know that local, volunteer efforts are the key to achieving the goals of the Oregon Plan for Salmon and Watersheds. Now it's time for us to do a better job of sharing what we learn with our neighbors across the state.

We need to hear from you to make The Oregon Plan News a success. What's happening in the John Day? And the South Coast? How about in the Willamette Valley? In future editions, The Oregon Plan News will also feature articles from state and federal agencies. We want all of the Oregon Plan partners involved in The Oregon Plan News.

Send your stories to the Governor's Natural Resource Office, Attention: The Oregon Plan News, Room 160 State Capitol, Salem, 97310. If you have pictures to accompany your story, we'll make sure you get them back. Also, if you have ideas for improving The Oregon Plan News, or stories that we should be highlighting, let us know. Write to us at the address above or e-mail your messages to [beth.patino@state.or.us](mailto:beth.patino@state.or.us).

It's going to take all of us, working together, to restore an Oregon legacy.

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*Landowners have replaced push up dams with pumps to deliver irrigation water, benefit the fishery, and conserve water. (Photo by Bob Brown/Division of State Lands)*

## Illinois Valley Residents Replace Push-Up Dams with Pumps to Improve Fish Passage and Irrigation

In the mid-1800s, landowners in need of irrigation water learned to push gravel in a stream into a heap to divert water onto their land. The heap, or "gravel push-up dam," needed tending to keep the water flowing where it was wanted and to patch leaks in the barrier. Building and maintaining these mini-dams became part of everyday life for irrigators.

State government recognized gravel push-up dams as a reasonable means of diverting irrigation water in the early 1900s. To make sure water kept flowing and everybody got their fair share, the state told irrigators they had to get permits to use the dams.

Eventually, so many people wanted permits that getting one often took up to two years.

Now, some irrigators in the Illinois Valley are cooperating to make push-up dams a thing of the past.

"To benefit the fishery and to find opportunities to conserve water, we are working to replace as many gravel push-up dams in the Illinois basin as we can," said Corky Lockard, coordinator for the Illinois Valley Watershed Council and project manager for the Illinois Valley Soil and Water Conservation District.

The dams, it turns out, are affecting natural stream conditions.

*Illinois Valley -- continued on page 2*

They change the stream channel and the speed at which they flow, sometimes causing erosion downstream. The dams can entirely block salmon from making their way upstream to spawn. When dams are breached at the end of the irrigation season, they can destroy salmon spawning beds (see "Why Salmon Need Gravel"), and as they break apart dams can bury nests filled with fish eggs.

"We've had real good participation from landowners," Lockard said of the effort to replace push-up dams in the Illinois Valley. "In some of the projects, we've had over 50 percent cost-share from the landowner. In those cases, we just give them the pipe, and they put it in."

The Illinois Valley project is targeting 21 push-up dams the watershed community found in an inventory taken several years back. To date, with funding from a wide range of state and federal sources, the partners have replaced five dams with alternate diversion systems (see "Push Up Dam Replacements: An Example, page 3). The projects have cost between \$5,000 for the smallest to a project now under consideration that has a price tag of \$320,000 and would irrigate a 250-acre property.

Lockard believes the alternate systems are serving landowners well. "Landowners don't have to fight a leaky gravel dam all the time, and they don't have folks looking over their shoulder all the time," Lockard said. "They just flip a switch and have water available right when they want it."

Early on in the project, the partners found that replacing a push-up dam often means changing the point of diversion, which means getting a water right transfer from the state Water

Resources Department.

"When we went to do this project, we ran up against a two-year turnaround to get a permit. We could not work under those constraints. We had to educate the state as well as irrigators to get this project underway," said Lockard. The Illinois Valley Soil and Water Conservation District and Watershed Council negotiated with the Water Resources Department, which, with limited staff and budget, had limited flexibility in its permitting system. With the advent of the Oregon Plan for Salmon and Watersheds, the Water Resources Department had another reason to focus on improving the lives of salmon.

"Because of the Oregon Plan, Water Resources gives priority to habitat enhancement projects. We have a long waiting list for water rights transfers, but we expedite processing of habitat projects because often there is a limited working window to help the fish," said Kelly Starnes, water rights inspector for the Water Resources Department.

The Division of State Lands also gives preference to projects that improve "essential salmon habitat." Landowners can move up to 50 cubic yards of gravel in many streams in Oregon without a removal-fill permit, except in state scenic waterways. Since January 1996, however, State Lands has required a permit for removal of any amount of gravel in designated salmon habitat areas. These areas include much of the Illinois River and its tributaries upstream of Cave Junction.

The system is still not perfect and the Illinois Valley SWCD and Watershed Council expect to continue chasing down improvements in the world of gravel and irrigation. The partners continue to tackle the task of finding alternatives for diverting water, and educating landowners on the importance of not disturbing instream gravel. Later this year, a gravel push-up dam replacement project will debut in the Rogue basin, with the Illinois experience serving as a prototype.

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## *Why Salmon Need Gravel*

When it comes time to start a family, salmon need gravel as much as people need a home.

Mother Salmon starts the spawning ritual by slapping her tail back and forth on a streambed, digging a hole in the gravel. She puts her eggs in this hole -- which can be as deep as 18 inches -- and Father Salmon passes over the hole to release a reproductive secretion called "milt." Mom then goes back to tail wagging just upstream, loosening gravel bits that the current carries down to cover the eggs. The nests are known as "redds."

The salmon embryos develop in their eggs for anywhere from several weeks to a few months, depending on the temperature of the water. They get oxygen from the water that flows through their gravel nest, and the same water removes their waste. Even after they hatch, the baby salmon ("alevins") stay awhile in the nest, until they're strong enough to wiggle through the gravel ceiling and swim free.

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*Push up dams have been used to divert water from Oregon streams since the 1800s. (Photo by Bob Brown/ Division of State Lands)*

## **Push-Up Dam Replacements: An Example**

About a mile up from where Sucker Creek meets the east fork of the Illinois River, Doug James annually drove a caterpillar into the stream and built a push-up dam out of streambed gravel. At the place on the creek where he had a permit to remove water, his “point of diversion,” James found the water flowed too fast. As a result, for the last ten years he had piggybacked on the next point of diversion upstream, diverting water with a push-up dam, down an old ditch, into a pond, and then pumping from the pond to irrigate his 42 acres.

In 1997, the Illinois Valley Watershed Council and partner organizations helped James replace the gravel push-up dam with an efficient system for delivering and applying irrigation water. The project not only improved James’ control over his use of water and reduced the labor and maintenance needed for the dam, it also eliminated the need to work instream and improved fish passage.

Project partners redesigned the irrigation system by moving James’ 20 horsepower pump from beside the pond, where James had pumped water onto his fields, to the place on the stream where James has the right to divert water. They then installed 840 linear feet of 8-inch PVC pipe from the new pump site to the old pump site.

Between the pump and the stream, the partners installed a 40-foot-long pipe leading to a 4x9 foot concrete vault that reaches just above the streambed and sits 1 ½ feet down in the streambank. Three steel storm-drain grates keep debris and gravel out of the vault from the top. On the front of the vault in the water are two self-cleaning fish screens. These state-of-the-art screens control how quickly water flows into the delivery system to prevent juvenile fish from colliding with them. The screens also have a hydraulically driven spray bar that cleans them from below.

Replacing James’ push-up dam with this new irrigation delivery system cost about \$32,500, which the Governor’s Watershed Enhancement Board, James, the Bureau of Reclamation and the Illinois Valley Soil and Water Conservation District jointly funded. β

## **Moore Mill and Competitors Join Up to Improve Watershed**

In a world of low wages and international trade, Oregon businesses are finding that cooperation can help them compete. For some, sharing research, marketing, or training can cut expenses and increase returns. For those that manage natural resources, like Moore Mill in Bandon, cooperation can keep a supply of raw material available long into the future.

“Making the watersheds healthy is the bottom line,” said Moore Mill Company Assistant to the President Dave Miller, Jr. “To be able to harvest timber, we have to keep the fish in healthy condition and not harm other species. We think that this is part of the responsibility of owning land, and we don’t want to be passive bystanders.”

Moore Mill, a 200-employee company that owns 45,000 acres in Coos, Curry and Douglas counties, has joined neighboring landowners to put those words to work. Through a salmon enhancement project organized by the Oregon Wildlife Heritage Foundation and the Oregon Department of Fish & Wildlife, Moore Mill, Westbrook Land and Timber, South Coast Lumber, Hancock Timber Resources Group and small woodlot owners on the south coast have come together to identify, prioritize and implement restoration projects on their land.

For every \$2 the companies contribute to the effort, the Oregon Wildlife Heritage Foundation contributes another \$1. The money pays for project implementation, and it covers employment of a fisheries biologist by the Oregon Department of Fish & Wildlife. The biologist leads

*Moore Mill -- continued on page 4*

and staffs the effort, helping the companies cooperate to get the most environmental impact for the dollars spent.

“The Oregon Wildlife Heritage Foundation seems to be getting a real good response from all the timber companies. They’re all participating, mostly because the foundation provided the organization and direction to get things done. We couldn’t have done this alone,” said Dave Miller, Jr.

What Moore Mill has done is substantial. In 1997, the first year of the local salmon enhancement project, Moore spent more than \$24,000 on three projects for improvements on company land in southwestern Coos and northern Curry counties.

The Crystal Creek project Moore Mill undertook last year was particularly significant, according to South Coast District Fish Habitat Biologist Howard Crombie (see “Moore Mill Tackles Tough Conditions to Improve Crystal Creek”).

Moore Mill is working on other restoration activities through local watershed councils. Paul Hammerberg, one of several company staff who regularly participate in council meetings, has overseen the donation of between 4,000 and 12,000 trees annually for planting projects. Moore Mill has also donated the use of contractors and equipment to support restoration activities throughout the watersheds in which it operates.

“Our involvement in restoration has cost us,” says Dave Miller, Jr., “But in my mind it’s money well spent. It will cost us less now in a preventive sort of way than it would in a penal sort of way down the road.”

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**Dave Miller, Jr.**  
Assistant to the President  
Moore Mill Company

## Moore Mill Tackles Tough Conditions to Improve Crystal Creek

Moore Mill Company did more than just a restoration project when they placed wood in Crystal Creek. The company took whole trees – not just logs – to make spots for spawning and rearing in a stream that many would have shied from.

The Oregon Department of Fish and Wildlife restoration guide for southwestern Coos and Curry counties identified Crystal Creek on the Sixes River as a place fish would find particularly good for spawning and rearing. Like much of Curry County, this stretch of stream is steeper, faster and wider than the stream reaches where landowners typically place large wood. Given the conditions, logs placed in Crystal Creek would most likely wash away.

“The hand of cards we’ve been dealt in terms of the geology in Curry County is different from the rest of the coast,” said Howard Crombie, fish habitat biologist with the Oregon Department of Fish & Wildlife. “We have to adjust our strategy to the unique situation here.”

Adjusting the strategy in the case of Crystal Creek meant finding whole trees to place in the stream; large trees with branches and root wads intact that would anchor the structures.

Moore Mill located a stand of huge, older trees on an abandoned ranch the mill owned above Crystal Creek. The stand provided excellent habitat for wildlife, but Crombie determined that a number of trees could be removed without harming the stand as a whole. Moore Mill put two D-8 caterpillars to work for a full day, digging out 16 whole trees. The company spent another three days yarding the trees from the ridgetop to the stream and placing them according to Crombie’s instructions.

“It’s one of the best uses of large wood I’ve seen,” said Crombie, noting that most instream placements use much smaller logs than these.

Dave Miller, Jr., of Moore Mill Company is pleased with the Crystal Creek and other projects the company undertook in 1997. “We will begin to see results from these projects in a couple of years, and the results will last for 50 to 100 years or more,” he said.

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## Ten Ways Forest Landowners Can Help Restore Clean Water and Salmon

Working together, Oregonians have the opportunity to restore clean water and wild salmon. A new guide has been developed with suggestions for practical changes we can consider making in our daily land management, work and lives to support this statewide effort. The list below addresses forest landowners; other lists are also available. Please note that these suggestions are not state rules or legal requirements, and they do not substitute for any local, state or federal legal regulations.

1. Grow and retain large conifers along streams. Streamside trees provide habitat, shade the waterway, stabilize streambanks, and provide a source of future large wood in the stream channel. Naturally fallen large wood can create the complex instream habitat essential for many fish and other aquatic organisms.
2. Plant native plants on cutbanks, ditches and exposed soils. Vegetation can help stabilize banks and reduce the amount of sediment that erodes into streams. Excess sediment runoff into streams can carry pollutants, cover gravel spawning and rearing beds needed by salmon, and reduce the amount of oxygen available to fish and other aquatic life.
3. Install cross-drain relief culverts and water bars on roads and skidroads. These help to reduce waters flowing directly down roads, which can cause erosion and carry sediments to streams. By diverting water from road surfaces and drainage ditches onto the forest floor, sediment can be filtered out of the water before it enters streams.
4. Pull debris and road-side material away from steep forest slopes. Material left on slopes can send mass slides into the stream, blocking fish passage and increasing sediment loads.
5. Block dirt roads during wet weather. Preventing use during periods of high rain or snowmelt protects roads from degradation and reduces erosion.
6. Haul logs only on rockered roads in wet weather. It is best to limit harvest activity during extremely wet periods. However, hauling on roads surfaced with high-quality, clean rock can significantly reduce the amount of sediment that reaches streams.
7. Replace culverts that block fish passage.\* Poor design and sizing, improper installation, or lack of maintenance can cause culverts to block juvenile and adult fish from successfully reaching critical upstream or downstream habitat.
8. Place large wood and rocks in scoured or previously disturbed streams.\* Artificial placement of rocks and logs can help recreate complex instream the structure needed to trap gravel and create pools; essential elements for salmon spawning and rearing habitat.
9. Restore or create off-channel fish habitat (side channels).\* Off-channel habitat is important to salmon, steelhead, and trout for feeding, resting and avoiding predators.
10. Become an active member of your local watershed council. Watershed councils give the many landowners in a basin a place to share ideas and plans.

\*Before beginning any type of instream or streamside restoration projects, consult the Oregon Aquatic Habitat Restoration and Enhancement Guide-1998, or your local Oregon Department of Fish and Wildlife fisheries biologist. For more information on these and other ways we can modify our activities to help restore clean water and salmon, please contact the Oregon Department of Forestry at (503) 945-7200

## OREGON PLAN CALENDAR OF EVENTS

### JOINT LEGISLATIVE COMMITTEE ON SALMON AND STREAM ENHANCEMENT

HEARING ROOM A STATE CAPITOL  
9:00 AM – 4:00 PM

September 10, 1998

### INDEPENDENT MULTIDISCIPLINARY SCIENCE TEAM (IMST)

AGRICULTURAL PRODUCTION ROOM,  
LASELLS STEWART CENTER, OSU,  
CORVALLIS, OREGON

8:30 AM – 5:00 PM EACH DAY

September 9, 10, 11, 1998

### WILLAMETTE CONFLUENCE WATERSHED FAIR

WILLAMETTE UNIVERSITY CAMPUS  
CONTACT: DENNIS WISE (503) 986-0080

September 13, 14 and 15, 1998

### IMPLEMENTATION TEAM (IT)

MILL CREEK ROOM, DSL, 775 SUMMER  
STREET, SALEM

9:00 AM – 1:00 PM

September 17, 1998

### HEALTHY STREAMS PARTNERSHIP

HEARING ROOM C, STATE CAPITOL  
9:00 AM – 4:00 PM

September 29, 1998

### 5<sup>TH</sup> BIENNIAL GWEB CONFERENCE

#### *WHO WILL CATCH THE RAIN?*

FOUR RIVERS CULTURAL CENTER, ONTARIO  
OCTOBER 14 THROUGH 16, 1998

For registration materials, contact the  
Governor's Watershed Enhancement  
Board (503) 378-3589, ext. 825

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*Please mail this information to Teresa Trump, GNRO, Room 160 State Capitol, Salem, OR 97302.*

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