

THE TWO RIVERS OF LEWIS & CLARK

The Lewis & Clark Legacy

Few rivers were as dynamic as the Missouri and the Columbia when Lewis and Clark and their Corps of Discovery made their journey from St. Louis, through the Northern Plains, across the Rocky Mountains, and into the Pacific Northwest 200 years ago. These were the two most important rivers in their journey. They began their expedition at the confluence of the Missouri River and Mississippi at St. Louis and reached their final goal at the mouth of the Columbia River in the Pacific Ocean. The Missouri and Columbia Rivers are rich in wildlife habitat, scenery, and history.

When Lewis and Clark first tasted the water of the Columbia River region near Lemhi Pass, along the border of Idaho and

Montana, they realized that the famed Northwest Passage did not exist, but their journey over the rugged Bitterroot mountains of Idaho and Montana and down the Snake and Columbia Rivers to the Pacific Ocean strengthened the claims the United States had to the Columbia River. Today, government actions have so drastically changed



these rivers that they would barely be recognizable to Lewis and Clark if they were to make a visit.

When the Corps of Discovery came up the Missouri River and continued to the Columbia River, they encountered their first grizzly bear, the "prairie wolf" and the "barking squirrel" prairie dogs, and numerous plants and animals previously unknown to Western science.

They also found agrarian civilizations of native people thriving along the untamed Rivers. Their journals are complete with descriptions of both abandoned and occupied villages, as well as sacred sites, observed by the explorers. Today those villages and historic sites provide a tangible link to our colorful past and still evoke a sense of being connected to people and cultures that have gone before us.

Special Species

For tens of thousands of years, salmon and steelhead have been the cornerstone of the Northwest's natural world. In fact, the Columbia River system once was home to the largest salmon runs known to humankind. In 1805, an estimated fifteen million salmon and steelhead swam up the Columbia River system with about four million of those big fish destined for the Snake River and its tributaries. Currently, only about two million fish return annually to

the region. 80% of these fish come from hatcheries where they were raised and released from concrete ponds. Wild salmon and steelhead that are naturally born in the gravels of their home rivers are in steep decline.

The Missouri River and its tributaries once teemed with fish and other wildlife. Changes in the Missouri River's flow have caused a significant loss of habitat for the reproduction of fish,

including the endangered pallid sturgeon. Lacking traditional river conditions, the pallid sturgeon and many other native species are in a rapid decline. The loss of sandbars and other nesting areas has also caused a dangerous threat to crucial habitat for the piping plover and other bird species.

Failed Recovery Efforts Lead to Problems for Wild Salmon



Photo Courtesy Ken Denis

Wild salmon and steelhead are critical species for the biologically rich natural world of the Northwest. These big fish provide food for eagles, ospreys, bears, and numerous other species. Salmon returning to spawn and die in coastal and inland rivers and streams provide a necessary source of nutrients to the river system. The rotting carcasses of these fish and the waste from the animals that eat salmon have fertilized the land and forests for thousands of years.

Historically, the Snake River system produced about 50% of all Columbia Basin spring and summer chinook salmon and summer steelhead. Today, because of the many dams that block areas that were once available to the salmon, the Snake supports about 70% of the salmon and steelhead habitat potential in the Columbia Basin. The main culprits in the huge decline and in some cases the extinction of wild salmon and steelhead are the dams found throughout the basin. With over two hundred major dams, the Columbia is the most heavily dammed river in the U.S. In order to survive, salmon and steelhead swim both downstream as young fish and then again upstream as adults while passing each time through as many as eight or more major dams. About 10-15% of young salmon are killed at each dam as they make their journey to the ocean. Furthermore, it is also esti-

ated that 5-10% of adult fish are killed at each dam as they make their way upstream to spawn in rivers. In the past, river flows would enable young salmon, often tail first, to make their journey to the ocean in a matter of weeks. Now that journey can take as long as several months because of the slack water reservoirs located upstream of the dams.

In September 1805, when Lewis and Clark came out of the Bitterroot Mountains nearly dead from starvation it was the Nez Perce Indian Nation that saved them by feeding the expedition salmon. It is ironic at best that the very fish that saved the expedition from failure and starvation are now in the struggle for their very own survival. In October 1805, Clark while on the Snake River wrote, "Came to and encamped at 2 Indian Lodges at a great place of fishing...we Passed today nine rapids all of them great fishing places..." Sadly, this is no longer the case. Over the last 15 years only a few dozen sockeye salmon have returned to central Idaho. Since 2001, both the returns of wild Snake River spring chinook salmon and of fall chinook salmon have again plummeted by more than 50%. Federal fish agencies estimate that in order for Snake River spring chinook to recover wild returns must total 42,000 fish for eight consecutive years, but in 2004 the return was less than half of

that recovery goal. For Snake River steelhead wild returns must total 54,000 fish for eight consecutive years, yet populations have never reached that mark in any one year. And for fall chinook the return number is 2,500 for eight years, but the wild returns have reached that recovery target only three times in the last decade and never for more than two consecutive years. Instead of funding real recovery efforts, federal agencies have chosen to invest in ineffective measures such as trapping and hauling young salmon from behind the four Lower Snake River dams and hauling them downriver by highway where they're again shot out of the truck in a pipe into the Columbia River estuary. Millions of dollars are spent on "fish slide" devices which have not yet been scientifically proven to substantially aid young fish in their downstream migration to the ocean. Consequently, certain runs of Snake River salmon, like the spring chinook, are predicted to become extinct by 2020.

"Came to and encamped at 2 Indian Lodges at a great place of fishing...we Passed today nine rapids all of them great fishing places..."
— Clark, 1805

The Benefit of Removing the Four Lower Snake River Dams

The real benefits of the four Lower Snake dams are not as significant as some claim. These dams were not engineered or constructed in a manner that prevents flooding. Only 13 farms and about 35,000 acres utilize the water from the Lower Snake River. The vast majority of farmland in southeastern WA is dry crop farming, like wheat, which does not require irrigation. The dams provide about 1% of the power to regional utilities and about 4% of the entire region's power. Replacement sources are ready, especially wind power projects which are coming online quickly and new projects are being proposed at an increasing rate across the region. In 2002, the conservative Rand Corporation found that removing the four dams would have a positive impact on the Northwest's economy and in the same year the Tellus Institute said this energy could

be easily replaced.

While billions of our dollars continue to be spent on ineffective fish-saving schemes, salmon declines have cost the Northwest thousands of fishing jobs and billions of dollars in fishing related revenues. Ninety million dollars in economic activity can be attributed to a 2001 limited salmon fishing season in Idaho alone. In addition to the fishing related revenue, dam removal would create 20,000 short term jobs and over 1,000 long term jobs would shift into up-river areas and into nearby ports.

The expense of removing these dams fits well within the budgets of the BPA/Bonneville Power Administration and the current "recovery" plans are far more costly. The current budget for implementing the salmon recovery plan is about \$500 million annually and

this figure does not include maintenance and operation of the dams or other taxpayer subsidies.

The federal agencies responsible for salmon recovery and decision makers from all levels of government have failed to demonstrate the necessary leadership to bring the big fish back to the Northwest in harvestable numbers. Partisan politics and misinformation further complicate the issue. The only way to recover salmon to a sustainable level is by removing the four Lower Snake River dams. We can have healthy rivers, runs of wild salmon, and healthy rural economies with adequate modes of transportation for our goods.



What you can do...

Here are two tasks that you can please complete in order to help restore wild salmon to the Columbia River Basin:

1. In the Northwest, ask your governors to demonstrate some much needed leadership for the big fish by calling for the appropriate economic and scientific studies to be completed that will help determine exactly what should be included in a scientifically credible salmon recovery plan. You can also ask them to support the removal of these four obsolete dams.
2. Join the Sierra Club during the Lewis and Clark Bicentennial and volunteer to help us protect new Wilderness Areas on public lands and National Forests along the Lewis and Clark Trail. Currently, there is not one permanently protected Lewis and Clark Wilderness Area in Idaho, Oregon, or Washington. The federal agencies have said that they will protect salmon habitat along important salmon rivers and streams, but that's not what we are finding out on the ground along the Lewis and Clark Trail. Visit www.sierraclub.org/lewisandclark/ for more information.

River Management Forever Changes the Missouri River

In October of 1943, the Pick-Sloan project was developed which included building six large mainstem dams and channelizing the Missouri River below Sioux City Iowa for the barge industry. About two thirds of the Missouri River has been channelized or submerged beneath reservoirs. The six mainstem reservoirs on the Missouri River store up to 73.4 million acre feet of water.

Erosion and Sedimentation

The shipping channel has been created by rip rapping, which is the process of dumping rock or concrete along the riverbank in order to reduce erosion. This may be the most significant threat to the health of the Missouri River. Rip rap chokes the life out of the river and constricts the natural processes that maintain and rejuvenate a healthy river ecosystem. The river is locked into a single path, cut off from side channels and wetlands that provide spawning areas for the reproduction of fish, including the endangered pallid sturgeon. The cumulative environmental impact of riprapping in a piecemeal manner is similar to the impact of creating an entire shipping channel. This process is detrimental to the health of the river because it cuts off side channels and increases the velocity of the river which in turn scours the river bottom denying the river a chance to form

sandbars and side channels which are vital for nesting habitat for birds and for creating slow moving warm waters for fish to spawn.

Since the Garrison dam was constructed, erosion along the Garrison Reach has

increased because the sediment load has been deposited in the headwaters of Lake Sakakawea. This is also the case for the five additional mainstem dams. Water that is released from the dam is clear, cold and sediment hungry. River levels do not fluctuate as much as they did during pre-dam times so river banks are exposed to more steady flows throughout the year. High flows are rare reducing erosion in the spring and early summer.

The Lack of a Natural Spring Rise

The Missouri River no longer behaves like a natural river, although it can be quite unpredictable at times. The river has been radically altered to provide a steady flow of water to support an almost non-existent barge industry. Before the six major dams were constructed, there was a springtime rise as well as an early summer rise. The river would rise in March or April when the

snow melted in the prairie and would rise again in June when the snow melted in the Rocky



Photo by Andrew Winterer

Mountains in Montana. Native species depend on these yearly cycles to survive.

Today, the Missouri River has an almost unnoticeable spring rise and remains at an almost constant flow rate throughout the summer and fall. It does however have a winter rise which is completely unnatural. For the most part, the flow of Missouri River is currently being managed for barge interests below Sioux City Iowa. The river banks of the downstream reach of the Missouri River, south of Sioux City, Iowa have been entirely stabilized with rock and concrete with absolutely no consideration for aesthetic qualities, or the needs of fish and wildlife. The decisions that we make now will affect the way we perceive the Missouri, the Columbia and other rivers in the future.

"To preserve what is left of the Missouri River is to preserve what is most important in our lives."

- Calvin Grinnell
Three Affiliated Tribes

Returning Natural Flows to the Missouri

The value of the Missouri River can not be truly appreciated when it is managed to push freight, rather than for the habitat and recreational opportunities that make the river a national treasure. According to the USACOE, allowing more natural flows in the spring and summer will not affect flood control and would actually increase hydro power.

The 2000 Final Biological Opinion of the U.S. Fish and Wildlife Service has been amended so that the USACOE is not in violation of the Endangered Species Act of 1973. Amending a scientific report to relieve the USACOE of its responsibility will not change the original findings that were based on solid science. The 2000 version of the Final Biological Opinion should be reinstated. The USACOE is considering building emergent sandbar habitat rather than changing flow which would naturally create and maintain sandbar habitat without the use of dredging equipment and herbicides to clear

existing sandbars of vegetation.

It may be difficult to completely restore the dynamics of the free-flowing, pre-dam Missouri River, but it is possible to mimic natural flows by timing dam releases to accommodate the seasons. A spring rise and lower summer flow would help to ensure the survival of the endangered interior least tern, the threatened piping plover and the endangered pallid sturgeon. It will also benefit fishing and other recreational opportunities in upstream states. The economic benefits of recreation exceed that of the barge industry by at least a factor of 10 and it is growing fast. The recreation industry in upstream states generates nearly 90 million dollars a year while the downstream barge industry only generates about 6.9 million dollars per year. Furthermore, it costs the USACOE about 7.1 million dollars to maintain the shipping channels. The expense of managing the Missouri River mainly for this relatively small in-

dustry and the environmental cost that we must all pay are very high.

The quality of life for those living in the Missouri River basin will be diminished if the longest river in the United States is not restored and preserved for future generations. The river experienced dramatic changes in the past, so now the river seems static in comparison. Sediments are not allowed to flow since they have become trapped behind dams and the river banks have been armored with rock in many areas which has halted the rejuvenation process that is required to in order to maintain the rivers health. In the last 50 years we have halted the evolving characteristics of a river that has been changing for thousands of years. These changes have created the beautiful, wooded river valleys that we enjoy today. This may come to an end at some point.



Missouri National Recreational River

What *you* can do...

There are two things that you can do to help restore a more natural flow to the Missouri River:

1. Contact the USACOE and ask them to restore more natural flows to the Missouri River by managing the river using the recommendations of the US Fish and Wildlife Service 2000 Final Biological Opinion. This means, in part, planning for a spring rise every three years and lower summer, fall and winter flows.
2. Support the acquisition of land and easements along the river from willing sellers. Conservation easements and public acquisition of land along the river will protect view sheds and wildlife habitat. This would be money spent with the future in mind.

Conclusion

The rivers of Lewis and Clark may never be completely restored. However, it is possible to preserve segments of these rivers that are still in a relatively pristine state, while restoring the segments of the river that have been severely altered. There is no better way to commemorate the Lewis and Clark Bicentennial, than to restore these two great rivers. By allowing them to flow more naturally as they did during the expedition of the Corps of Discovery 200 years ago, we're preserving our unique American natural heritage, the fisheries and wildlife that depend on their waters for survival, and perhaps most importantly, we'd be helping to honor the treaties our nation has made with tribal nations who are responsible for the success of the expedition. It isn't too late to get involved and help protect these amazing national treasures — the two rivers of Lewis and Clark.



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