

## How Did the Kayak Park Come to Be?

Kayak enthusiasts in Summit County presented the idea of a whitewater park to the Breckenridge Open Space Commission one year ago. After evaluating each different reach of the river, the boaters and the Town settled on the possible location of the park near the Recreation Center. The kayakers and the Colorado Whitewater Association demonstrated the need for such a facility and the ability of the activity to be compatible with fishing and other uses.



Kayaker enjoying spring runoff

The boating facility represents a way to enjoy the restored river beyond just watching it from the banks.

A hydrologic consultant, experienced in the design of whitewater parks, was retained by the Town to design the course and oversee the construction. Phase 1 of the Kayak Park has just been completed. The dedication of Phase 1 will take place on May 21, 2001. Phase 2 will

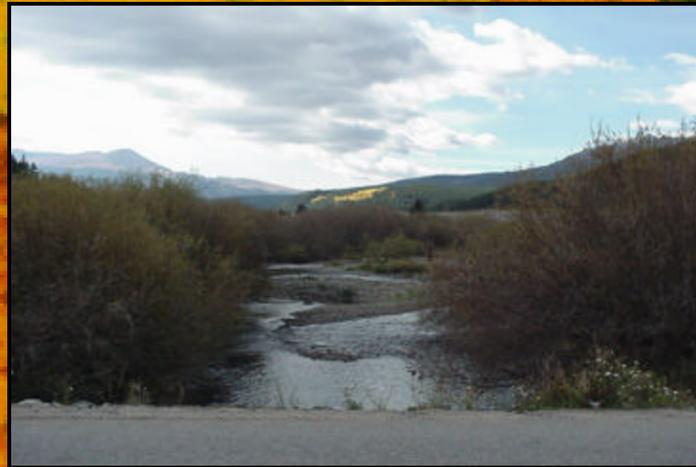


Kayak Park under construction, April 2001

## What Are Future Plans for the Blue River?

Through the cooperative efforts of the Northwest Colorado Council of Governments, Summit County, and the Town of Breckenridge, work is underway to extend the reclamation of the Blue River north toward the confluence with the Swan River. That confluence represents the downstream limit of dredge mining disturbance of the river.

From County Road 3, the downstream limit of the original Reclamation Project, these three entities have embarked on a comprehensive effort along with private property owners. Key pieces of river property are now in public ownership. A master plan was recently completed for the reach from County Road 3 to the confluence with the Swan River. When design and construction funding have been obtained, work will begin on the reclamation of this reach.



McCain property, showing impacts of dredge mining. This reach of the river, just downstream of the original Reclamation Project, is to be reclaimed in the future..

## Acknowledgements

Eric Guth - Town of Breckenridge Engineer

Ginny Griffin - Town of Breckenridge Engineering Secretary

Joe Busto - CWCB Flood Protection Section

Brian Hyde - CWCB Flood Protection Section

"The CWCB salutes everybody who helped reclaim the Blue River" — Brian Hyde, CWCB Flood Protection Section

May 2001 CWCB Meeting

## Blue River Reclamation Field Trip

Town of Breckenridge & Colorado Water Conservation Board

May 21, 2001

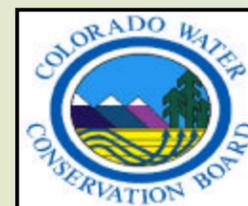


Creating a functioning river valley after 50 years of dredge mining

Harold Miskel, Chairman CWCB

Sam Mamula, Mayor of Breckenridge

Rod Kuharich, Director CWCB



## How Did the Blue River Turn Into the "Rockpiles"?



The Blue River Reclamation Project, north of downtown Breckenridge, started in 1985. The "rockpiles" were the result of 50 years of dredge mining in and along the Blue River.

From 1898 to 1942 five miles of the Blue River near the mining camp of Breckenridge were mined extensively by dredge boats. In removing gold from the gravel and cobble deposits, miners made little effort, if any, to reclaim the disturbed areas of the valley. Fine material and topsoil were either washed downstream or buried under the exposed spoil piles. Because the dredge spoils were so porous and coarse, the Blue River exhibited surface flow only during the high runoff period. Vegetation was sparse, because of the poor soil

## Why Did the Town of Breckenridge Reclaim the Blue River?



Channel improvements and wetland creation for one mile, served as mitigation for wetland impacts of the Town's golf course construction.

In the 1980's, the Town of Breckenridge undertook the construction of a municipal golf course. The golf course is located near the Swan River, a major tributary to the Blue River. The golf course construction disturbed 30 acres of wetlands. As mitigation, the Town decided to restore one mile of the Blue River north of downtown Breckenridge. In addition to the primary purpose of replacing disturbed wetlands with newly created wetlands, the project also sought to increase the period of time when the river would have surface flow, to create fisheries habitat, and to enhance the existing bicycle path parallel to the river's course. The design and construction of the Reclamation Project was funded by the Town of

## How Was the Reclamation Project Designed and Implemented?

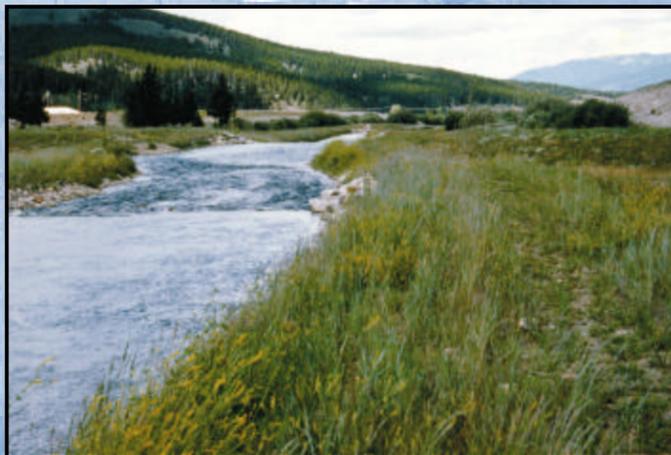


The Blue River before Reclamation Project

Removal of dredge materials in the new channel and adjacent overbank areas was a central feature of the design.

Through extensive interactions between the design engineer and the revegetation specialist for the project, wetlands were incorporated wherever possible. Some locations within the project were unsuitable for wetland creation because they were intended primarily for flow conveyance or because they were too far above seasonal water levels. Creating a functioning subalpine riverine wetland system was a significant challenge to the design team.

In 1985 construction of the project began. First dredge spoils were removed to allow the approximate shaping of a river channel. Next 21 drop structures were constructed to stabilize the new river channel. Overbank areas adjacent to the



The Blue River after Reclamation Project

The design process began with the gathering of baseline hydrologic and vegetative information. Groundwater observation wells, channel flow measurements, sediment transport data collection, topographic surveys, and interviews with local residents provided information on stream behavior. A "growth medium survey" was conducted to determine minimum requirements for plant establishment and survival.

Once the baseline data had been gathered and analyzed, the design began. Because the land available was relatively narrow, the stream could not meander as much as might have been desired. Drop structures and limited bank protection easements were incorporated to minimize channel erosion. Groundwater levels determined the elevation of overbank areas for wetlands growth. A 25-year channel (750 cfs) was designed. Channel stabilization measures were designed for floods on the order of 50-year to 100-year frequencies.

## How Is the Riverwalk Project Related to the Reclamation Project?

The 50 years of dredge boat mining had left unsightly spoil piles of gravel and cobbles in downtown Breckenridge. The disturbed river bottom was so porous, that all flow seeped below the river bed, except during the spring runoff.

The Town was so pleased with the results of the Reclamation Project farther downstream and with the reaction of the community's residents and visitors to that project, that it chose to reclaim the river in the heart of downtown.

The



The Blue River before the Riverwalk Project began in 1993. This is now the location of the music tent.



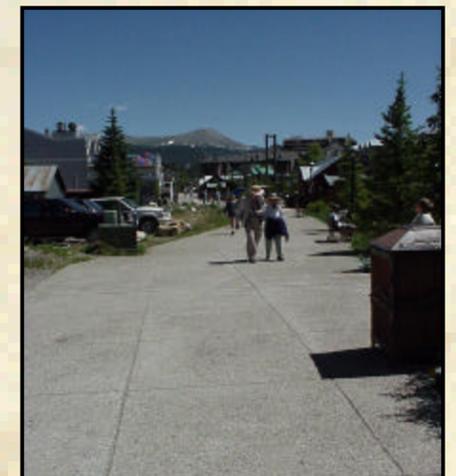
One symphony conductor performing in this tent complained that the river was "too noisy". In the past you could not even hear the subterranean river.

and visual enhancement. The music tent, immediately adjacent to the river, is a major attraction within the project area.

The restored river duplicated nature with a 20-foot elevation drop, fast-flowing riffles, still pools for fish, small islands, boulders, gravel bars and river bank willows. The Town created a beautiful park and events center with a mountain river as its centerpiece.

Riverwalk Project was envisioned as a continuation of the Reclamation Project.

In 1993, approximately three years after the completion of the Reclamation Project, work began on the Riverwalk Project. Initially, consideration was given to a "natural" approach, as had been used farther downstream. Ultimately the approach for the Riverwalk was much more urban, with more pedestrian features including bridges, non-native decorative landscaping, and substantial use of large boulders for erosion protection



From Ski Hill Road, the Riverwalk takes pedestrians south. The project will extend through the Village complex in the near future