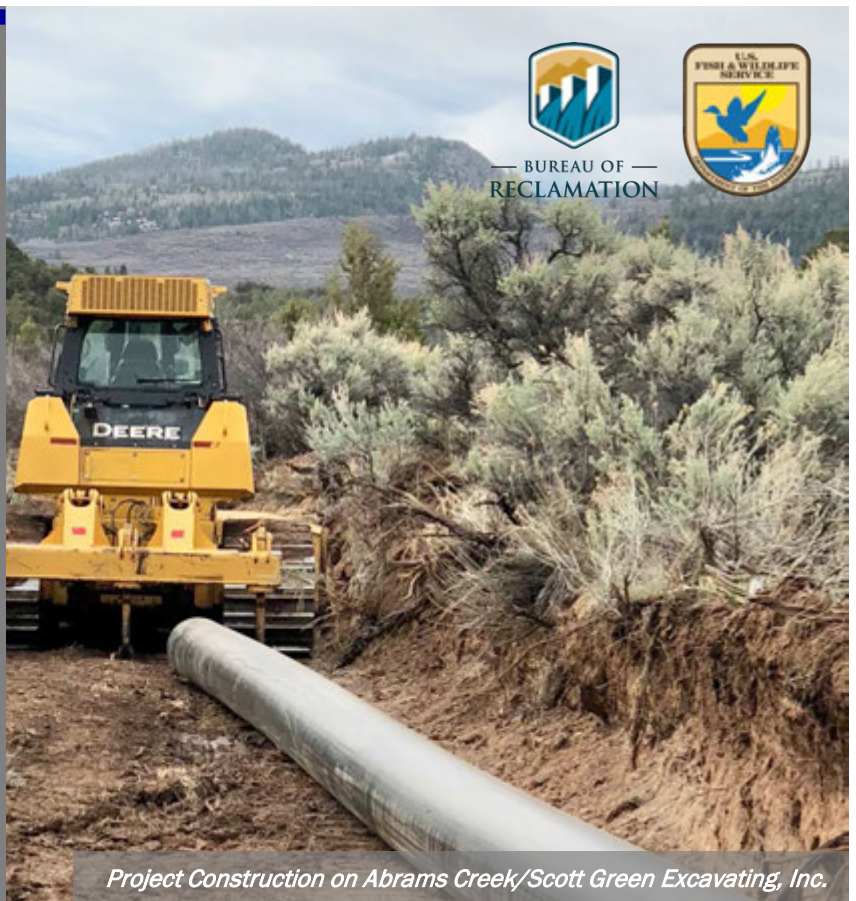


WATER CONSERVATION AND RE-USE

Increasing Flow in Abrams Creek: Protecting a Genetically Unique Population of Colorado River Cutthroat Trout



Abrams Creek, located seven miles southwest of Eagle, Colorado, is home to the Abrams Creek green lineage of the Colorado River Cutthroat Trout (*Oncorhynchus clarkii pleuriticus*), the only native trout population in the Eagle River Watershed. In 1906, a local rancher constructed a ditch from Abrams Creek to divert water for irrigation. The ditch, which is still in use today, reduced flows in the Creek to levels that threatened the trout population. Over 100 years later, partners collaborated to improve creek flows by reducing the amount of water inadvertently lost through seepage from existing diversion infrastructure.



KEY ISSUES ADDRESSED

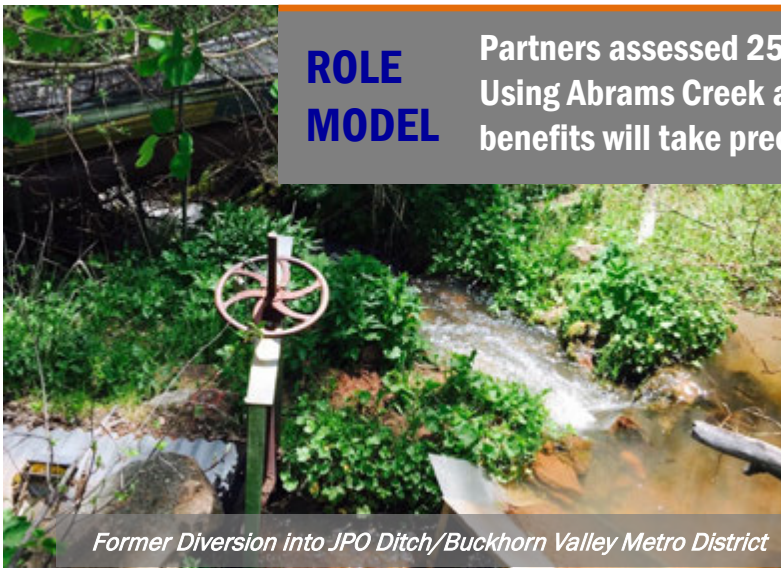
The Colorado River Cutthroat Trout was once distributed throughout the Colorado River Basin, but water diversion, habitat fragmentation, resource development, and non-native aquatic species have contributed to its decline. Abrams Creek water was diverted for irrigation which drastically reduced flows, sometimes completely drying up the stream. In spring, these diversions reduced flows necessary to flush sediment, scour pools, and maintain the riparian corridor, and without renewal, sedimentation can plug interstitial spaces where macroinvertebrates breed, and cover trout eggs in gravel nests. In summer, low flows reduced wetted habitat and connectivity, and increased stream temperatures.

PROJECT GOALS

- Preserve and increase the Cutthroat Trout population while improving the overall ecological resilience of Abrams Creek
- Increase flows by 40 percent and ensure minimum flows during dry years
- Install a permanent fish screen to prevent Abrams Creek Cutthroat Trout from entering the water intake to the ditch

ROLE MODEL

Partners assessed 25 additional ditches for potential improvements. Using Abrams Creek as a model, collaborative initiatives with multi-use benefits will take precedent in prioritization of ditch improvements.



Former Diversion into JPO Ditch/Buckhorn Valley Metro District

PROJECT HIGHLIGHTS

Increased Irrigation Efficiency: Buckhorn Valley Metro District estimated that 40 percent of diversions did not reach the irrigated lands due to seepage and evaporation. Portions of the ditch were piped so that the water lost due to inefficiency would instead remain in Abrams Creek.

Diverse Support: Irrigators, conservation interests, regulatory agencies, local entities, and nonprofit organizations worked together to find collaborative solutions to benefit all parties while also protecting property rights. Members of the community provided donations to help reach funding goals.

Water Commitments: In an agreement between Trout Unlimited and the Buckhorn Valley Metro District, Trout Unlimited raised \$1.2 million to complete the project in exchange for Buckhorn to “forever give up” 40 percent of available ditch flows and agree to not divert water when flows are at or below 1.25 cubic feet per second.

Collaborators

- Eagle River Watershed Council
- Trout Unlimited
- Colorado Parks and Wildlife
- Buckhorn Valley Metro District
- Bureau of Land Management

Funding Partners

- See online for a complete list of funding partners

Lead Author: Deana Morrell, US Bureau of Reclamation, April 2020.
Case Study support by US Fish and Wildlife Service and US Bureau of Reclamation



LESSONS LEARNED

Having a reliable, local contractor was a key to success. The local contractor knew the land and was able to create a realistic plan. He was expeditious, reliable, and cost-effective which was integral to successfully implementing and completing the goals of the project.

Committed partners talked through problems and together found solutions that kept the project moving forward. The collaboration among conservation interests, government agencies, and the irrigators/water rights holder was a win-win. The project reduced water seepage, improved water quality, and reduced the need for costly maintenance to the pipeline, all while protecting a rare fish lineage. This project took about 10 years to finish. It was important to be realistic with timing and to remain optimistic that the project would be completed.

NEXT STEPS

- Monitor project site for five years after project completion and observe stream temperatures above and below the JPO Ditch
- Survey for Abrams Creek Cutthroat Trout population numbers and seasonal presence and distribution throughout the creek
- Evaluate the effects of improvements to the flow regime by surveying for detectable changes in the macroinvertebrate community

PROJECT RESOURCES

For more information on this project, contact Kate Isaacson: isaacson@erwc.org

For additional project resources and case studies, scan the QR code below or visit the CCAST website:

WWW.DESERTLCC.ORG/RESOURCE/CCAST



Abrams Creek Green Lineage of Cutthroat Trout/Kendall Bakich