A Dam Runs Through It: Balancing Science and Stakeholder Needs for the South Fork Republican River Stream Management Plan and Restoration Feasibility Assessment

AJ Keith[1]*, Bruce Orr[2], Johannes Beeby[3], and Patrick Hendrix[4]

[1] Stillwater Sciences, Boulder, Colorado; aj@stillwatersci.com
[2] Stillwater Sciences, Berkeley, California; bruce@stillwatersci.com
[3] Stillwater Sciences, Boulder, Colorado; jbeeby@stillwatersci.com
[4] Stillwater Sciences, Portland, Oregon; phendrix@stillwatersci.com

Since the draining of Bonny Reservoir in 2011, residents and stakeholders along eastern Colorado's South Fork Republican River have faced increasing challenges related to downstream water delivery, local economic vitality, and beneficial uses in the river-riparian corridor. Working with a diverse stakeholder coalition and technical partners, Stillwater Sciences is using a science-driven ecohydrological approach to complete a Stream Management Plan and Restoration Feasibility Assessment for the South Fork Republican River from Flagler to the Kansas state line. The project evaluates potential river and riparian restoration options that will balance the ecological benefits of habitat restoration with other priorities including recreational uses, invasive plant species management, and interstate water compact compliance requirements. Challenges for management and restoration include recent baseflow reductions, high rates of sediment input and aggradation, and the presence of fish and wildlife species of conservation concern. Solutions must work within the constraints imposed by Bonny Dam, which remains in place and continues to interrupt sediment transport, hydrological processes, and aquatic habitat connectivity in the project's focal reach. Our ecohydrological approach provides a restoration and management framework compatible with the river's unique sediment, hydrological, and vegetation dynamics while maximizing ecological and socioeconomic benefits.