Improving Stream Flows In The Upper Big Hole Using Candidate Conservation Agreement

Michael J. Roberts, Montana Department of Natural Resources and Conservation, Water Resources Division, 1424 9th Ave., Helena, MT 59620, miroberts@mt.gov

Stream flow improvement is a key conservation guideline outlined in the Candidate Conservation Agreement with Assurances (CCAA) presently being mplemented for fluvial Arctic grayling (*Thymallus arcticus)* in the Big Hole River drainage. Eight years of drought conditions, over-appropriation of water rights, and dependence on the beneficial use of its water for irriga-tion, presents a water management challenge for agencies and CCAA enrollees 111 the upper Big Hole basin. The Montana Department of Natural Resources and Conservation (DNRC) provides technical support to meet this challenge through quantification and assessment of basin hydrology, water use, and water management practices. Data have been collected from an established flow monitoring network, tributary and mainstem synoptic stream flow measurement runs, and water rights compliance checks. These data helped establish flow conditions prior to the implementation of the CCAA and provide the basis for understanding the timing and magnitude of water use and its influence on stream flows. Water savings to be converted to stream flow are anticipated through CCAA-associated activities with landowners such as supplemental flow agreements, infrastructure improvements, irrigation management planning, and waler rights compliance. While it will take years to fully implement all facets of the CCAA water manage-ment goals, improvements to river flows have already been realized. Between 2003 and 2006, increases in river flows relative to water availability were documented. These increases can be attributed to voluntary flow reductions by irrigators. lrrigator cooperation such as tl11s will need to continue to ensure the success of stream flow improvement using the CCAA.