Progress on Automating Riverside Canal to Improve Water Quality in the Boise and Snake Rivers

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This presentation updates the progress on a cooperative program to improve water quality in the lower Boise and Snake Rivers. The primary objective is the "reuse" of drainage water (high in phosphorus) that discharges into the Riverside Canal from upstream point and nonpoint sources rather than "spilling" the low-quality drainage waters to the Boise and Snake Rivers. Cooperators include Riverside Irrigation District (RID), Idaho Power Company and the US Bureau of Reclamation. The Riverside Canal, located at the lower end of the Boise River watershed and operated by RID, diverts water from the Boise River near Caldwell and provides irrigation water to over 12,500 acres of crop land. RID has initiated this water quality management improvement program that includes automation of diversion and spill gates to allow more efficient control and selective management of source waters used for irrigation. Results from a 2012 canal water quality study conducted by HyQual and SPF Water Engineering will demonstrate how the low-quality drains, which carry sizeable loads of nutrient and sediment from upstream creeks and drains, can be managed to improve water quality in the Boise and Snake Rivers. Preliminary recommendations for the future canal water management include minimizing diversion of Boise River water (e.g., average phosphorus 0.19 mg/L), while maximizing diversion (and subsequent agricultural reuse) of Indian Creek (e.g., average phosphorus 0.68 mg/L), West End Drain (average phosphorus 0.35 mg/L) and other tributary drains located along the upper and mid reaches of the canal. These water quality analyses will show the benefits of using the automated canal control systems to convey more of tributary and drain water to agricultural lands for reuse instead of discharging the water to major rivers.