

What Are We Trying to Protect?: Beneficial Use Changes in Agricultural Watersheds

By

William Kreutzberger and Thomas Dupuis*

The Lower Boise River watershed is a complex network of natural drainages and man-made storage facilities and irrigation canals/drains. As part of the Total Maximum Daily Load (TMDL) process in this watershed, a beneficial use evaluation was conducted on three tributaries to the river that function to convey irrigation water. Between the mid 1800s and early 1900s, an estimated 465 miles of man-made canals, ditches, and laterals were constructed to convey irrigation water throughout the river valley. Presently, these tributaries are essentially ditches operated by irrigation districts that carry water primarily throughout the irrigation season, which is generally defined as early-April to mid-October. These drainages were either designated or presumed to support cold water biota, salmonid spawning, and primary contact recreation.

To determine existing and attainable beneficial uses, physical, chemical, and biological data were evaluated. In this case, habitat conditions (i.e., physical characteristics) for all of the tributaries dominate the determination of attainable beneficial uses because the waterbodies are not typical “creeks” as would be expected in a natural riverine system. The creeks are characterized by poor sinuosity and poor canopy cover, and the substrate is comprised primarily of silts and sands. In addition, maintenance dredging activities dramatically alter the substrate and the adjacent riparian areas where the dredged materials are placed. Thus, habitat conditions in these tributaries do not support viable coldwater aquatic life communities.

These systems are more appropriately characterized as modified systems for which less stringent site-specific criteria should be developed. These criteria were developed to protect the aquatic community that does exist in these systems during the irrigation season. This adapted community is best described as a transient population of non-game fish and stocked rainbow trout that have been diverted from the lower Boise River. Water quality criteria (for temperature, dissolved oxygen, and pH) were recommended that provide protection for such a limited community before it is fished out over a few-month period during the irrigation season. Thus, changes in beneficial uses and associated site-specific criteria were instrumental in establishing TMDL targets that were more appropriate to these systems. Based on the revised beneficial uses, it was concluded that the modified aquatic life uses were not impaired and TMDLs were not needed to protect or restore those uses in the tributaries. The revised beneficial uses and site-specific criteria were approved by the Idaho Department of Environmental Quality in 2001; these changes are expected to be adopted by the Idaho State legislature in 2002.

* Authors are employed by CH2M HILL in Charlotte, North Carolina and Boise, Idaho