



2010 ARKANSAS RIVER AND FOUR MILE CREEK WATER QUALITY REPORT

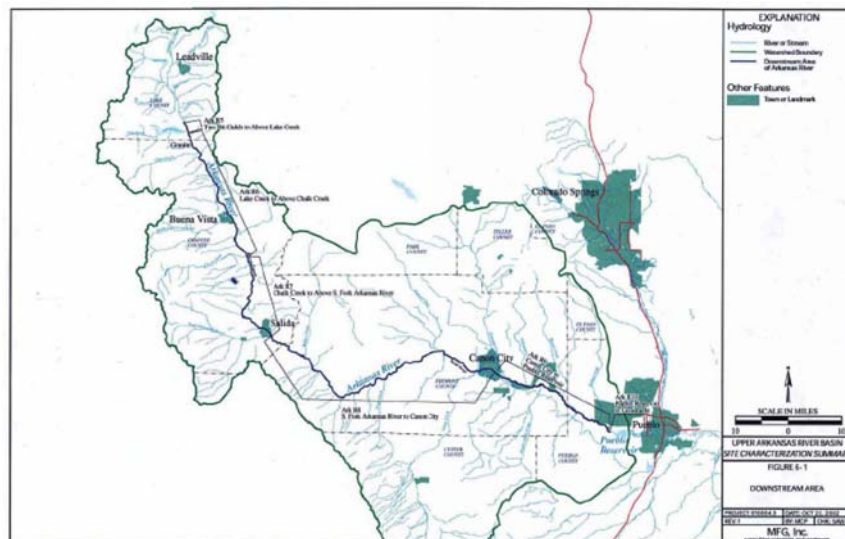
(For those sections passing through the City of Cañon City)



BACKGROUND

The Colorado Department of Public Health and Environment (CDPHE) is required to assess the quality of waters within the State and to submit a report to the U.S. Environmental Protection Agency (EPA). This assessment is performed by the Water Quality Control Division (WQCD) of the CDPHE. The report, or an update to the report, is submitted every two years and includes a list of impaired State waters and those that are designated for monitoring and evaluation (CDPHE Reg. #93). State reports are used by the EPA, Congress and the public to evaluate if waters of the U.S. are meeting water quality standards, the progress being made in maintaining and restoring water quality, and the extent of remaining problems. The latest CDPHE report, covering 2008 and 2009, was submitted to the EPA in 2010 and contained the State's water quality assessments that had been conducted during the previous five years.

The State of Colorado contains over 105,344 miles of rivers and streams and more the 249,787 lake acres. There are seven major river basins found in the state: the Arkansas River Basin, the Rio Grande River Basin, the San Juan River Basin, the Colorado River Basin, the Green River Basin, the Platte River Basin and the Republican River Basin. The Arkansas River Basin is the largest, covering 24,904 square miles (based on the drainage area). Headwaters of the Arkansas River begin near Leadville. The river runs southeast, exiting the State near Holly. The basin is divided into five sub-basins: Upper Arkansas, Middle Arkansas, Fountain Creek, Lower Arkansas and the Cimarron River. Each sub-basin is then further divided into segments, which can contain creeks, gulches and tributary rivers. Cañon City lies within Section 3 of the Upper Arkansas sub-basin. Section 3 is a 150 mile stretch of the river starting immediately above the point where Lake Creek joins the Arkansas River (just southeast of Leadville) to the inlet of Pueblo Reservoir. Four Mile Creek is designated as Section 20 of the Upper Arkansas Basin. Section 20 includes the main part of Four Mile Creek along with all of its tributaries, wetlands, lakes and reservoirs (with the exception of Wilson Creek) from just above where it meets with Cripple Creek to where it joins the Arkansas River. (See Figure 1.)



Source: SCR 2002.

Figure 1. Map of the Upper Arkansas River Basin.

Each segment of surface water within the State is assigned a classification based upon the current use or intended future use of the water in that segment. Water quality standards have been determined for each classification. The classifications are: Aquatic Life, Water Supply, Recreation, Wetlands and Agriculture. The Aquatic Life classification is divided into four sub-classifications: Aquatic Life Cold 1, Aquatic Life Cold 2, Aquatic Life Warm 1 and Aquatic Life Warm 2. Recreation is also broken into two sub-classifications: Recreation Primary Contact (Recreation Class E and P) and Recreation Secondary Contact (Recreation Class U and N). Segments of surface water often are assigned more than one classification. Section 3 of the Upper Arkansas River Basin (in which Cañon City lies) has been classified as Aquatic Life Cold 1, Recreation E, Water Supply and Agriculture. Four Mile Creek (Section 20) has been assigned the same classifications.

The Integrated Water Quality Monitoring and Assessment Report (305(b) Report) submitted to the EPA by the CDPHE's Water Quality Control Division summarizes the water quality conditions of the State's waters. Each section of surface water in each basin is placed in a category as determined by the EPA. Table 1 lists the EPA categories along with their description and the State's corresponding description.

EPA Category	EPA Description	State Description
1	All classified uses are supported, no use is threatened.	Fully Supported for all uses. All uses have been assessed and all uses are fully supported.
2	Available data and/or information indicated that some, but not all of the classified uses are supported.	Some uses have been assessed and all uses that have been assessed are fully supported. Not all uses have been assessed.
3	There is insufficient data and/or information available to determine if the classified uses are supported.	Not Assessed for any uses. Placed on Colorado's Monitoring and Evaluation List (M&E) because impairment is suspected. Segments where no water quality data has been collected and assessed are also placed in this category.
4a	A Total Maximum Daily Load* (TMDL) to address a specific segment/pollutant combination has been approved or established by the EPA.	TMDL completed. May be supporting the classified use or may be not assessed and waiting for future monitoring to determine use support.
4b	A use impairment caused by a pollutant is being addressed by the State through other pollution control requirements.	Water is impaired but a TMDL is not needed because other mechanisms are expected to result in the attainment of established water quality standards within a reasonable period of time.
4c	A use is impaired, but the impairment is not caused by a pollutant.	A use is impaired, but the impairment is not caused by a pollutant.
5	Available data and/or information indicate that at least one classified use is not being supported or is threatened. A TMDL is needed.	Placed on Colorado's 303(d) List. No TMDL has been completed.

Table 1. EPA Integrated Report Categories and descriptions and State descriptions.

* A Total Maximum Daily Load (TMDL) is a calculation of the maximum amount of a pollutant that can be received by a body of water and still meet water quality standards. It is calculated by adding together the

amount of a pollutant being discharged from point sources (such as industries) and the amount occurring naturally plus a margin of safety. TMDLs are established when a waterbody is impaired by specific pollutants which the State and EPA have decided need more stringent controls to reduce the amount and bring the waterbody up to established water quality standards.

ARKANSAS RIVER WATER QUALITY STATUS

Table 2 shows the status of water quality for each classified use of Section 3 of the Upper Arkansas Basin.

Use Classification	Fully Supported	Not Supported	Not Assessed	Insufficient Information
Agriculture	X			
Aquatic Life Cold 1		X		
Water Supply	X			
Primary Contact Recreation	X			

Table 2. Upper Arkansas Basin Section 3 water quality status.

The use classification of Aquatic Life Cold 1 is the only use for which water quality standards are not being currently met. The pollutants of concern have been identified as cadmium and zinc. Although the sources are listed as unknown, a Site Characterization Report for the Upper Arkansas River Basin, done in 2002, surmises that the source is the Leadville Mining District. Section 3 has been assigned to the EPA category 4a since a TMDL for cadmium and zinc was completed and approved in 2009. As a result, Section 3 of the Upper Arkansas Basin is not on the State’s list of impaired waters or waters which require monitoring and evaluation.

FOUR MILE CREEK WATER QUALITY STATUS

Table 3 shows the status of water quality for each classified use of Section 20 of the Upper Arkansas Basin.

Use Classification	Fully Supported	Not Supported	Not Assessed	Insufficient Information
Agriculture	X			
Aquatic Life Cold 1				X
Water Supply	X			
Primary Contact Recreation	X			

Table 3. Four Mile Creek Section 20 water quality status.

All uses except Aquatic Life Cold 1 are meeting water quality standards. There is insufficient information as to whether the Aquatic Life Cold 1 use is meeting established standards. Arsenic and copper have been identified as pollutants of concern, but their sources have not been determined. Section 20 has been assigned to EPA category 2: Some, but not all, uses are being supported. As a result Section 20, specifically the North Fork of Wilson Creek below Independence Mine, has been placed on the State’s list of impaired waters and waters which require monitoring and evaluation.

CONCLUSION

In spite of the high concentrations of cadmium and zinc found in Section 3 of the Upper Arkansas River Basin, aquatic life studies conducted by the Colorado Division of Wildlife from 1999 to 2001 found brook trout, brown trout, cutthroat trout, rainbow trout, longnose suckers and white suckers present. The fish population was dominated by brown trout. The Total Maximum Daily Limits (TMDLs) established in 2009 are designed to improve water quality to better support aquatic life. The TMDLs were established only for those sources above Badger Creek (just southeast of Salida) and do not apply to Cañon City. Between the TMDLs and the

Superfund clean-up of California Gulch (near Leadville) it is expected that the levels of cadmium and zinc will be reduced to the point that the Aquatic Life Cold 1 use classification will become fully supported.

There is insufficient information to determine if Four Mile Creek is supporting its Aquatic Life Cold 1 use classification. The main area of concern is the North Fork of Wilson Creek below Independence Mine which will be monitored until there is enough information to make a determination. The part of Four Mile Creek which flows through Cañon City is supporting its other use classifications of Water Supply, Agriculture and Primary Contact Recreation.

REFERENCES

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