West Colorado Watershed Management Unit Water Quality Assessment

In July of 1997, the Division of Water Quality (DWQ) began an intensive water quality monitoring project to assess the quality of waters in the lower portion of Green River drainage (Figure 4). This area was designated as the West Colorado Watershed Management Unit and the general area includes all streams south of the confluence of the Price River with the Green River that flow into the Green River. It also includes some streams that flow into Colorado River in the lower portion. Some of the major streams are the Price River, Huntington Creek, Cottonwood Creek, Ferron Creek, San Rafael River, Escalante River, Muddy Creek, Dirty Devil River, the Fremont River, and portions of the Green and Colorado Rivers.

Samples collected from 48 sampling sites were used to assess the water quality of streams in the management unit. Forty-one sites were monitored by the Utah Division of Water Quality (DWQ) on an intensive basis from July 1997 through June 1998. Samples were collected once a month except during spring runoff in 1998. Samples were collected twice a month during this time. No samples were collected in December. In addition, data collected at 5 streams sites during lake assessment monitoring were used to assess streams. The U.S. Bureau of Land Management collected samples at 2 stream sites independent from the intensive survey. They also collected additional data at two sites on the Escalante River. Canyonlands National Park personnel collected the samples at the Green River confluence with the Colorado River.

Streams were assessed against State water quality standards and pollution indicators to determine if their designated beneficial uses were being met. The streams in the West Colorado Watershed Management Unit are classified as one of the following or a combination of the following beneficial use classifications: protected for contact recreation (2B), cold water game fish (3A), warm water game fish (3B), warm water non-game fish (3C), and waterfowl (3D), and agricultural use including irrigation and stock watering (4). The quality of water was assessed as "fully supporting" (good to excellent water quality), "partially supporting" (meets the standards most of the time), and "not supporting" (frequently the water quality standards are not met).

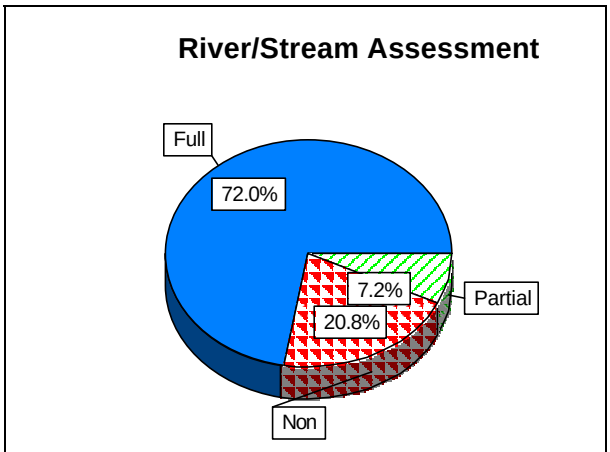


Figure 1. Overall beneficial use support.

There are an estimated 2,551 perennial stream miles within the West Colorado Watershed Management Unit. An assessment of support of all beneficial uses except Class 2B (contact recreation) was made for 1,986 miles (77.9%). Of those assessed, 1,430 miles (72.0%) were assessed as fully supporting all their beneficial uses, 143 miles (7.2%) were assessed as partially supporting, 413 miles (20.8%) were assessed as not supporting at least one designated beneficial use.

The relative impact of various causes and sources of pollution for the 556 stream miles that were assessed as either partially or not supporting their at least one beneficial use are shown in Figures 2 and 3.

The major cause of water quality impairment was total dissolved solids (salts). The other causes were nutrients (total phosphorus), dissolved oxygen, pH and metals (iron). The major sources of pollution were natural sources and agricultural activities. The reason for pH violations is not known, and aquaculture activities are a source of total phosphorus.

Price River–Several segments of the Price River from its confluence to the Carbon Canal Diversion were assessed as partial supporting or non supporting their agricultural beneficial use designation. Gordon Creek, a tributary to the Price River was also found to contain high levels of total dissolved solids. The probable sources of the total dissolved solids were natural and agricultural activities such as irrigation return flows. The lower portion of the Price River from its confluence with the Green River to Woodside was assessed as not supporting its Class 3C designation because of low dissolved oxygen and dissolved iron.

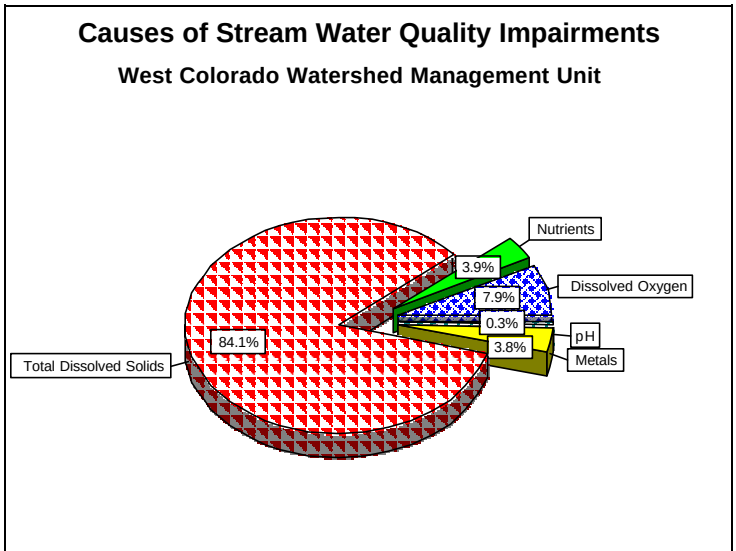


Figure 2. Relative percent impact by causes on water quality.

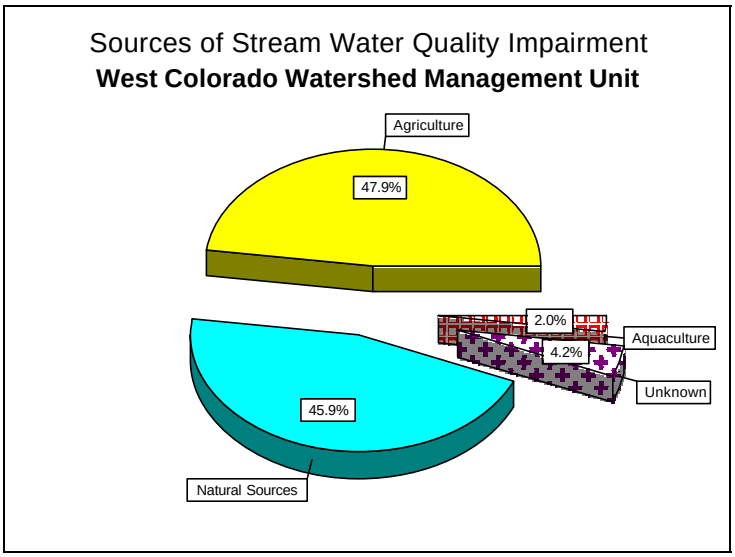
San Rafael River–The San Rafael River from the Green River to its confluence with Huntington and Cottonwood Creeks was assessed as not supporting its Class 4 (agriculture) designation because of the high levels of total dissolved solids.

Muddy Creek–Two segments of the Muddy Creek were assessed as non supporting agricultural usage because of high total dissolved solids. These two segments include the river from its confluence with the Dirty Devil River to the U-10 highway crossing. Like other streams in the West Colorado Unit, the probable sources were agricultural practices and natural.

Fremont River–The Fremont River from Bicknell to the U.S. Forest Service boundary was assessed as partially supporting its Class 3A (cold water game fish) beneficial use because of low dissolved oxygen and total phosphorus.

Other streams which had segments that exceeded the total dissolved solids criteria and were assessed as either partially or non supporting of their agricultural beneficial use were the lower portions of Huntington Creek, Cottonwood Creek, Quitchipah Creek and Ivie Creek.

If you have questions about the report or wish to obtain a copy, it can be found at the Division of Water Quality's home page or by requesting a copy from Tom Toole, (801) 538-6859 or e-mail ttoole@deq.state.us.ut.



INTERNET SITE:
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West Colorado Management Unit
Stream Beneficial Use Support

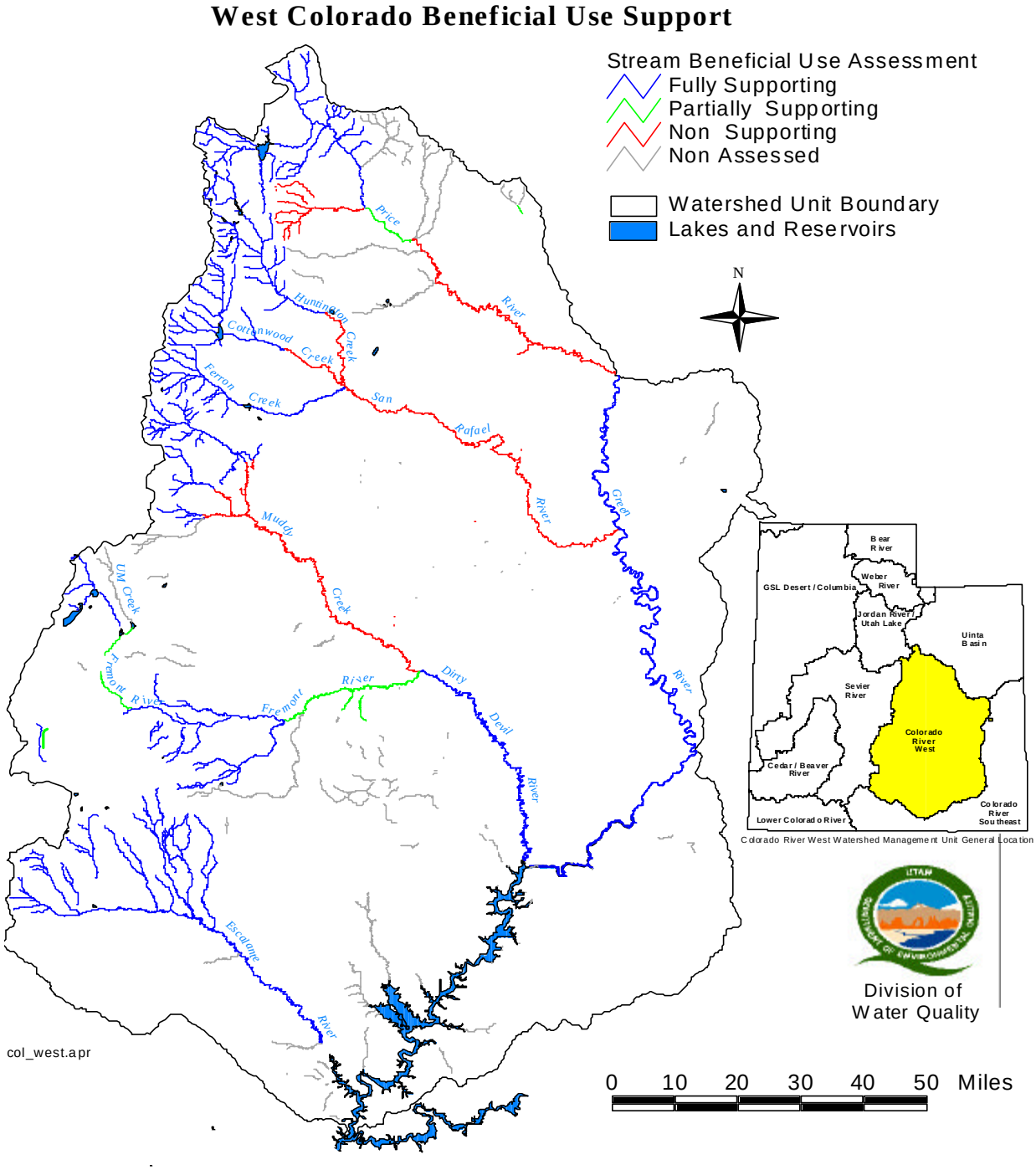

Figure 4. Stream beneficial use support and sampling sites.